PAGE'S CHART
OF
PHYSICAL SIGNS.

A CHART

OF

PHYSICAL SIGNS

OF

DISEASES OF THE HEART

AND

RESPIRATORY ORGANS.

COMPILED FROM THE WORKS OF VARIOUS AUTHORS, WITH ORIGINAL IDEAS AND OBSERVATIONS.

BY

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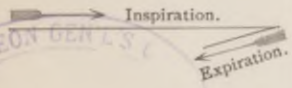
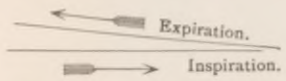
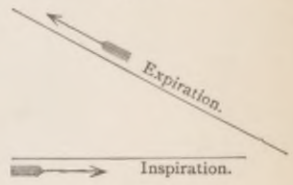
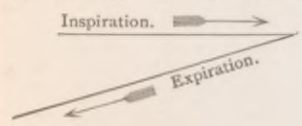
	I. The Lungs in Health. Left Apex Standard.	II. Abnormal Distention of Pulmonary Vesicles. Emphysema.	III. Incomplete Consolidation. Incipient Phthisis.	IV. Complete Consolidation. Pneumonia, 2d Stage.	V. Cavities. Phthisis 3d Stage.	VI. Pleurisy with or without Effusion.
Auscultation.	NORMAL RESPIRATION. (*a*) *Inspiration.* Duration, varies in different healthy persons. Intensity, ditto, increasing to the end. Pitch, normal (somewhat low). Quality, *vesicular.* (*b*) *Expiration.* Duration, much shorter. Intensity, less. Pitch, lower. Quality, blowing. *Continuous* with inspiration when present, but often absent. VARIETIES. May be exaggerated (puerile, supplementary, hyper-vesicular). Usually obscured by *râles* in Bronchitis and Asthma. May be *interrupted.* 	RESPIRATION IN EMPHYSEMA. (*a*) *Inspiration.* Duration, usually much shorter than normal. Intensity, feeble or suppressed. Pitch, varies, usually higher than normal (Loomis says *lower*). Quality, less vesicular. (*b*) *Expiration.* Duration, much *longer.* Intensity, varies, generally greater. Pitch, lower. Quality, blowing, often hissing. *Continuous* with inspiration which is *deferred.* Termed by Guttman *indeterminate* and is often accompanied by râles. 	BRONCHO-VESICULAR RESPIRATION. (FLINT). (*a*) *Inspiration.* Duration varies in different cases, but a little shortened. Intensity, slightly increased. Pitch, *slightly raised.* Quality, less vesicular. (*b*) *Expiration.* Duration, *as long or longer.* Intensity, increased. Pitch, *slightly higher.* Quality, more tubular. *Not quite* continuous with inspiration which is *barely finished.* Often *interrupted* (jerking, wavy cog-wheeled), and accompanied by subcrepitant râles. 	BRONCHIAL RESPIRATION. (*a*) *Inspiration.* Duration, shorter than normal. Intensity, increased. Pitch, *raised.* Quality, *tubular.* (*b*) *Expiration.* Duration, *as long, or longer.* Intensity, greater. Pitch, *higher.* Quality, tubular. *Not* continuous with inspiration, which is *unfinished.* 	CAVERNOUS RESPIRATION. (*a*) *Inspiration.* Duration, varies in different cases. Intensity, ditto. Pitch, *low.* Quality, *blowing.* (*b*) *Expiration.* Duration, *as long or longer.* Intensity, less. Pitch, *lower.* Quality, blowing. *Usually* continuous with inspiration, which is slightly deferred. Usually accompanied by *râles*, often *gurgles*, and sometimes *metallic tinkle.* VARIETIES: (1) *Amphoric;* (2) *Broncho-cavernous.* In the latter, the pitch of inspiration may be higher and more tubular than expiration, or *vice versa.* 	RESPIRATION IN PLEURISY. The respiratory sounds vary, and are diminished or entirely absent, according to amount of effusion or pleuritic thickening. May simulate bronchial, due to plastic adhesions, or cavernous, or both if also dilated bronchi. (Leaming.) Often in circumscribed (dry) pleurisy, and in the first and declining stages of acute pleurisy, *friction sounds.* In pleurisy with effusion, the respiratory sounds are *suppressed* below the fluid level, *exaggerated* above it. If effusion be great, there is *absence* of respiratory sounds over the whole of affected side, except at the apex, where there may be *bronchial breathing* due to compressed lung. Exaggerated respiratory murmer over healthy lung. (In Hydrothorax there is fluid in both pleural cavities which is simply a transudation, associated with general dropsy.)
Percussion.	NORMAL VOCAL RESONANCE. Distant, diffused, and indistinct, varies in different healthy persons. Usually more intense at right apex than left. NORL. PERCUSSN. RESONANCCE. Duration, varies in different cases. Intensity, ditto. Pitch, normal (somewhat low), a little higher at right apex than left. Quality, *vesicular* (pulmonary).	VOCAL RESONANCE. Varies, usually *diminished*, sometimes absent, at other times *increased.* Heart sounds *feeble.* PERCUSSION RESONANCE. Increased. Duration, longer than normal. Intensity, greater. Pitch, *lower.* (Gutt. says *higher.*) Quality, *vesiculo-tympanitic.* (Also called Bandbox.)	VOCAL RESONANCE. Varies, but is usually *exaggerated* (slightly increased). Bronchial whisper is exaggerated. PERCUSSION RESONANCE. Somewhat *diminished* Duration, shorter than normal. Intensity, diminished. Pitch, slightly *raised.* Quality, somewhat *dull.*	VOCAL RESONANCE. Markedly *increased.* Voice sounds are near, concentrated and distinct, giving *Bronchophony*, and whispering *Bronchophony.* PERCUSSION RESONANCE. Markedly *diminished.* Duration, short. Intensity, much diminished. Pitch, *raised.* Quality, *markedly dull.* Exag. resonance over unaffected lobe of same side.	VOCAL RESONANCE. Varies. Usually, there are *pectoriloquy, whispering ditto, cavernous whisper, amphoric voice* and *whisper.* Bronchophony may be also weak or absent. PERCUSSION RESONANCE. Varies, usually *dull.* May be *amphoric* or *cracked-pot.* Gentle percussion may give normal resonance; forcible percussion, deep-seated dulness if there is a small deep-seated cavity with healthy lung tissue intervening.	VOCAL RESONANCE. *Diminished* or *absent*, according to amount of effusion or pleuritic thickening. Compressed lung at apex may give bronchophony. *Ægophony* rare. PERCUSSION RESONANCE. *Diminished, dull* or *flat*, according to the amount of pleuritic thickening and effusion. Often *changes with position* of patient Sometimes tympanitic above water level, usually in front. Oft increased on healthy side.
| Palpation |	NORMAL VOCAL FREMITUS. Varies in different healthy cases. Usually more perceptible at right apex than left.	VOCAL FREMITUS. Varies, usually *diminished*, but may be increased.	VOCAL FREMITUS. *Exaggerated* (slightly increased) over affected part.	VOCAL FREMITUS. *Increased* on the affected side.	VOCAL FREMITUS. Usually *increased* over affected part, but varies.	VOCAL FREMITUS. *Diminished* or *absent*, according to amount of pleuritic thickening and effusion.
Inspection.	Perfectly symmetrical chest rare. There is general expansion of thoracic walls during inspiration. Scapulæ move evenly. Superior costal respiration in women, abdominal more noticeable in men.	Chest *barrel-shaped.* Sternum prominent, shoulders stooping. Intercostal spaces widened. Expansion of chest-walls diminished and they move up and down as a *solid piece.* Abd. retract. on forcible insp. Heart lowered, apex beat left and feeble. Epigast. pulsn. due to hypert. r. ventricle.	May be negative. Usually expansion on affected side is *diminished*, with *flattening*, or depression, of supra- and-infra-clavicular spaces.	Expansive movements of chest-walls *diminished* on the affected side, and increased on the other.	*Emaciation, rapid respiration, marked depression* of supra- and infra-clavicular spaces on on affected side (or sides). marked diminution of respiratory movements of chest-walls. Superficial veins prominent.	*Diminution* or *absence* of respiratory movements on affected side, according to amount of effusion, increased the other. *Bulging* of intercostal spaces, if effusion is great, and displacement of apex-beat of heart. Collapse of affected side sometimes follows absorption of fluid.
	N. B.—BRONCHITIS and ASTHMA practically give no signs except on ausculation when the various *dry* and *moist râles* may be heard. Inspection gives labored respiration in Asthma, during paroxysm. N. B.—In the diagrams the length of normal inspiration is represented as one and one-half inches, expiration as three-eighths of an inch, or one-fourth as long. In emphysema it is just the reverse, and so on.	N. B.—Guttman says "that the normal vesicular respiratory murmur may be reproduced by merely closing the lips and gently drawing a current of air inward," etc. In like manner other respiratory murmurs may be imitated by arranging the lips as in *whispering a tune*, and by drawing in and expelling air on the proper key, etc.	N. B.—RUDE is a short but undescriptive term sometimes applied to Broncho-vesicular respiration. Da Costa terms it HARSH. Guttman calls PUERILE resp'n *harsh* (rough It is evident that *any* resp'n may be *harsh* (rough) or even accompanied by râles, if the necessary conditions of the respiratory *mucous membrane* exist for their production. N. B.—The affected parts are always meant when not designated.	N.B.—The 1st STAGE OF PNEUMONIA is so short that it is rarely seen. Usually there are *crepitant râles*, slight dulness and some diminution of respiratory movements on the affected side. PHTHISIS 2D STAGE, and PNEUMONIA 3D STAGE, practically give same signs as 2d stage of pneumonia, except that they are attended with râles. Moreover, in 2d stage of Phthisis, there is emaciation, and the vocal resonance and fremitus vary, and in Pneumonia, 2d Stage, there is gradual return to health.	N. B.—PNEUMO-THORAX usually gives *bulging* of affected side, *tympanitic percussion*, diminution or *absence* of vocal fremitus and resonance, and respiratory sounds, but there may be *amphoric respiration.* N. B.—PULM. ŒDEMA gives some dulness and, during inspiration, liquid crackling râles over dependent portions of both lungs. PULM. HÆMORRHAGE may give moist râles over seat of effusion until coagulation occurs, and then dulness.	N.B.—EMPYEMA practically gives same signs as subacute pleurisy usually with less effusion and more marked emaciation. PNEUMO-HYDRO-THORAX gives same signs as pneumothorax *above* water line, with *metallic tinkle*, and pleurisy with effusion *below.* *Succussion* gives the *splashing* sound. N.B —Flatness is absence of resonance. Duration, intensity and pitch of tymp. resonance vary with size, etc., of cavities.

THE HEART.

THE HEART is obliquely situated. The base, directed upwards and backwards to the right, is on a level with the upper border of the third costal cartilages; the apex, forwards and downwards to the left, corresponds to a point between the fifth and sixth costal cartilages, one inch to the inner side of, and two inches below the left nipple.

The AORTIC (semilunar) VALVES are situated behind left border of sternum, near lower margin of left third costal cartilage; PULMONIC ditto, behind junction of left third costal cartilage with sternum; MITRAL VALVE, in left third intercostal space, near left border of sternum; and the TRICUSPID VALVE behind middle of sternum, between the fourth costo-sternal articulations.

The RHYTHM of the heart is the repetition of all the successive phenomena which go to make up what is termed a revolution. Each complete revolution is usually described as consisting of a first sound, a second sound, and a period of rest (silence), the first sound occupying half a revolution, the second sound and the period of rest each a quarter. Walshe divides it into a first sound, first rest, a second sound, and second rest.

The FIRST (inferior) SOUND, produced with closure of tricuspid and mitral valves, is synchronous with systole and best heard at apex. Twice as long as the second, lower in pitch, it sounds like *ŭb* in *tub;* at base, like *ŭp* in *cup.*

The SECOND (superior) SOUND, produced by closure of semi-lunar valves, is synchronous with diastole, and best heard at base. It is short, high pitched, and sounds like *tă* in *Rosetta*, the *ă* being very short and barely sounded.

Suppose a revolution $\frac{1}{10}$ inch long. The first sound would be $\frac{4}{8}$ (half-inch), first rest $\frac{1}{8}$, the second sound $\frac{2}{8}$ (quarter inch), and the second rest $\frac{3}{8}$ inch long, thus:

$$S^1 \quad R^1 \quad S^2 \quad R^2$$

I————I - I——I - - - - I

Rhythm, as heard at apex, may be imitated by striking palm near wrist on a table for first sound, then point of little finger for second, observing proper interval. Also at base, by substituting point of middle finger for hand to produce first sound. (Hudson.)

Endocardial or Valvular Murmurs.

TRICUSPID and PULMONIC MURMURS are rare; the former are heard at ensiform cartilage, the latter usually limited to the location of Pulmonic valves.

MITRAL MURMURS precede, accompany, or follow first sound at apex. The *mitral direct* (obstructive, presystolic) murmur is usually limited to apex region, but *may* be diffused over the heart, is *never heard behind* (Loomis), and precedes the first sound, thus:

sh-ŭb tă

I————I - I——I - - - - I

The *mitral regurgitant* (indirect, systolic) murmur is heard at apex, behind, and may be to left of apex. Accompanies or follows first sound, thus:

ŭb-sh tă

I————I - I——I - - - - I

AORTIC (basic) MURMURS, precede, accompany, or follow second sound at base. The *aortic direct* (obstructive, systolic) murmur may be diffused over whole length of sternum, into arteries of neck, and even behind. It precedes the second sound, thus

ŭp sh-tă

I————I - I——I - - - - I

Functional, or anemic, murmurs are systolic, usually aortic, and are more or less diffused.

The *aortic regurgitant* (indirect, diastolic) murmur may extend down the whole length of sternum. It accompanies or follows the second sound thus:

ŭp tă-sh

I————I - I——I - - - - I

PERICARDIAL (exo-cardial) MURMURS, according to Loomis, are superficial, rubbing, limited to cardiac region, vary in intensity with position of patient, and are independent of heart sounds.