

the others. If burn and felon are excluded, the diagnosis is obvious.

THE NAILS.

1. The *nutrition of the nails* suffers notably in many chronic skin diseases, in myxœdema, and in many nerve lesions (neuritis, hemiplegia, syringomyelia, etc.).



FIG. 35.—Grooved Nails after Acute Illness.

2. A *transverse ridge and groove* on the nails often form when their growth is resumed after an acute illness. The movement of this ridge from the matrix to the free edge is said to take about six months (see Fig. 35).

3. *Hang-nails* possess a certain medical interest, because in some individuals they become sore when the general condition is below par, and constitute a rough index of the degree of resistance to infection. They may

become infected and lead on to suppuration (*paronychia*).

4. *Indolent sores* around the nail should rouse the suspicion of tuberculosis or syphilis, especially in a child.

5. (a) *Cyanosis*, the slatey or purplish-blue color of venous congestion, can be well seen in the nails. (b) *Anæmia*, if well marked, blanches the tint of the tissues seen through the nail, but the diagnosis should invariably be confirmed by a hæmoglobin estimate.

6. *Incurvation* of the nails has already been referred to as a part of the condition known as "clubbed fingers" (page 47).

7. *Capillary pulse* (see below, page 91).

THE BACK.

The evidences of spinal tuberculosis, spinal curvature, and of the spinal form of hypertrophic arthritis will be described later (pages 489 and 502).

I. *Stiff Back.*

"Stiff back" may be due not only to the joint troubles just mentioned, but also and more commonly to *lumbago*, a painful affection of the lumbar muscles without known pathologic basis. Clinically it is characterized by pain when the muscles are used, as in bending forward to tie one's shoes and in recovering the upright position. There is no bony soreness, and sideways bending is usually freer than in hypertrophic arthritis. The pain of lumbago does not radiate around the chest or down the legs, and is not especially aggravated by coughing or sneezing, but it sometimes extends down low into the fascia of the lumbar muscles over the sacrum. The age of the patient (usually over thirty) distinguishes most cases of lumbago from spinal tuberculosis.

II. *Sacro-iliac Disease.*

Tuberculosis of this joint has long been known and calls attention to its presence by pain, psoas spasm, and a limp. If the wings of the ilium are forcibly pressed together, the pain in the joint is much increased. Abscess formation is often the first distinctive sign. The motions at the hip-joint are not restricted and the local signs of vertebral caries are absent. The duration of the disease and the formation of abscess distinguish it from other lesions of the sacro-iliac joint.

Goldthwaite¹ has recently shown that the sacro-iliac joint is subject to most of the diseases of other joints, and that some (*e.g.*, hypertrophic arthritis) are not at all uncommon there. Many of the pains in the back complained of by women during menstruation

¹Goldthwaite: Boston Medical and Surgical Journal, March 9th, 1905.

or in pelvic disorders are referred precisely to the sacro-iliac articulation and are probably due to lesions of that joint. Many cases diagnosed as "lumbago" are probably due to one or another sacro-iliac lesion. The subject is a new but very fruitful one.

III. Spinal Curvatures.

Diagnosis is not difficult, provided we are led to examine the back at all.

(a) *Kyphosis* or *backward* convexity of the spine, if sharply angular, means Pott's disease (tuberculosis). If the curve is gentle and gradual it may be due to "*round shoulders*," to *hypertrophic arthritis*, to *emphysema*, Paget's disease, or rickets. The rachitic curve is flaccid, is due simply to muscular weakness, and is associated with other evidences of rickets. In emphysema and Paget's disease the kyphosis goes with the other signs of those diseases. In hypertrophic arthritis the curve is rigid, irreducible, and usually painless. "Round shoulders" can be straightened by muscular exertion, and represent a habit of posture.

(b) *Lordosis*, an exaggeration of the normal forward convexity of the lumbar spine, is seen in tuberculosis of the hip or spine, in paralysis of the dorsal or abdominal muscles (especially muscular dystrophy), and in abdominal tumors (pregnancy), which need to be counterbalanced by backward bending.

(c) *Scoliosis* is a combination of lateral curvature with twisting of the spine. In slight or doubtful cases the tips of the spinous processes should be marked with a colored pencil, which makes the deviation easily visible. Severe cases cannot be mistaken.

IV. Tumors of the Back.

(a) *Aneurism* of the descending aorta may point in the back near the angle of the left scapula (see below, page 289). It is the only pulsating tumor of this region.

(b) *Perinephritic abscess* usually points between the crest of the ilium and the twelfth rib, a few inches from the spine (see page 416).

(c) *Tuberculous abscess* ("cold abscess"), originating in vertebral tuberculosis, may point in the same region, though more often it follows down the sheath of the psoas and points near Poupart's ligament. "Cold abscess," starting from a necrosed rib, is often seen in the back. The probe leads to dead bone at the end of the sinus. Microscopic examination of excised pieces is the only way of excluding actinomycosis, though this disease is less apt to form sinuses.

(d) *Sarcoma of the scapula*, the only tumor of the scapula that is often seen, occurs in children and rarely after the second decade. With a solid, nearly painless tumor of this bone in a child, sarcoma should always be suspected. Benign exostoses are possible, but usually occur later in life. Histological examination will decide.

(e) *Epithelioma*, arising from the skin of the back, presents the ordinary evidences of this form of cancer.

V. Prominent Scapula.

This is due usually to:

(a) *Lateral curvature* of the spine (see above).

(b) *Serratus paralysis*, recognized by the startling prominence of the scapula if the patient pushes forward with both hands against resistance ("angel-wing" scapula).

VI. Spina Bifida.

A congenital, saccular tumor, connecting through a bony defect with the interior of the spinal canal at any point between the occiput and the sacrum; nine-tenths of all cases occur in the lowest third of the spinal column. There is no other congenital tumor in this position communicating with the spinal canal.

In the sacral region there are other congenital tumors, dermoid cysts, lipomata, and others. Their nature can be learned only by incision, but they are all distinguished from spina bifida by the lack of communication with the spinal canal.

THE CHEST.

INTRODUCTION.

I. METHODS OF EXAMINING THE THORACIC ORGANS.

To carry out a thorough examination of the chest we do five things: 1. We look at it; technically called "inspection." 2. We feel of it; technically called "palpation." 3. We listen to the sounds produced by striking it; technically called "percussion." 4. We listen to the sounds produced within it by physiological or pathological processes; technically called "auscultation." 5. We study pictures thrown on the fluoroscopic screen or on a photographic plate by the Roentgen rays as they traverse the chest; technically called "radioscopy."

Measuring the dimensions or the movements of the chest ("mensuration") is often mentioned as co-ordinate with the above methods, but it yields very little information of practical value, and is at present very little used.

Without some knowledge of the regional anatomy of the chest no intelligent investigation of the condition of the thoracic organs can be carried on. Accordingly, I shall begin by recalling very briefly some of the most essential anatomical relations.

II. REGIONAL ANATOMY OF THE CHEST.

It seems to me a mistake to divide the chest into arbitrary portions and to describe physical signs with reference to such division.

The seat of any lesion can best be described by giving its relation to the clavicle, sternum, or ribs on the front and sides of the chest, and to the scapulæ and ribs behind. Thus we may speak of râles as heard "above the left clavicle in front," "below the right scapula behind," "between the seventh and ninth ribs in the axilla," and so on. When we want to state more exactly what part of the axilla anteroposteriorly is affected, we may refer to the "mid-axillary line" (see Fig. 36); or better, we may place the lesion by measuring the number of centimetres or inches from the median line of the sternum. In a similar way the place of the apex impulse of the heart (whether in the normal situation or farther toward the axilla) can be determined by measuring from the median line of the sternum. Measurements referring to the nipple are entirely useless in women and not very reliable in men. It is better to measure as above.

If, then, we confine ourselves chiefly to the bones of the chest as landmarks, and fix, with reference to them, the position of any portion of the internal organs which we desire to study, it becomes unnecessary to memorize any technical terms or to learn the position of any arbitrary lines and divisions such as are frequently forced upon the student. The only points which it is necessary to memorize once for all are:

1. The position of the heart, lungs, liver, and spleen with reference to the bones of the chest.

2. The position of certain points which experience has taught us have a certain value in physical diagnosis. I mean (*a*) the so-called "valve areas" of the heart, which do not correspond to the actual position of the valves, for reasons to be explained later on, and (*b*) the percussion outlines of the

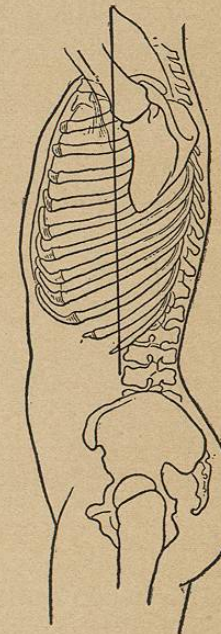


FIG. 36.—The Mid-Axillary Line.

heart, liver, and spleen. These outlines do not correspond in size with the actual dimensions of the organs within, yet there is a definite relation between the two which remains relatively constant, so that we can infer the size of the organ itself from the outlines which we determine by percussion. The position of the organs themselves is shown in Figs. 37, 38, and 39. It will be noticed in

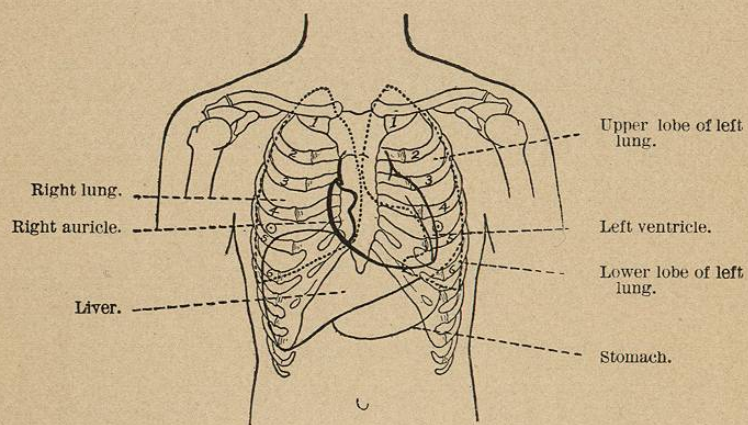


FIG. 37.—Position of the Heart, Lungs, Liver, and Stomach. The dotted lines correspond to the outlines of the lung; the heavy continuous line represents the heart; while the position of the liver and of the lower border of the stomach is indicated by light continuous lines. The ribs are numbered.

Fig. 37 that the lungs extend up above the clavicles and overlap the liver and the heart—facts of considerable importance in the physical examination of these organs, as will be later seen. It is also to be noticed how small a portion of the stomach is directly accessible to physical examination, the larger part of it lying behind the ribs and covered by the liver. The normal pancreas and kidneys are practically inaccessible to physical examination.

The percussion outlines—corresponding to those portions of the heart, liver, and spleen which lie immediately beneath the

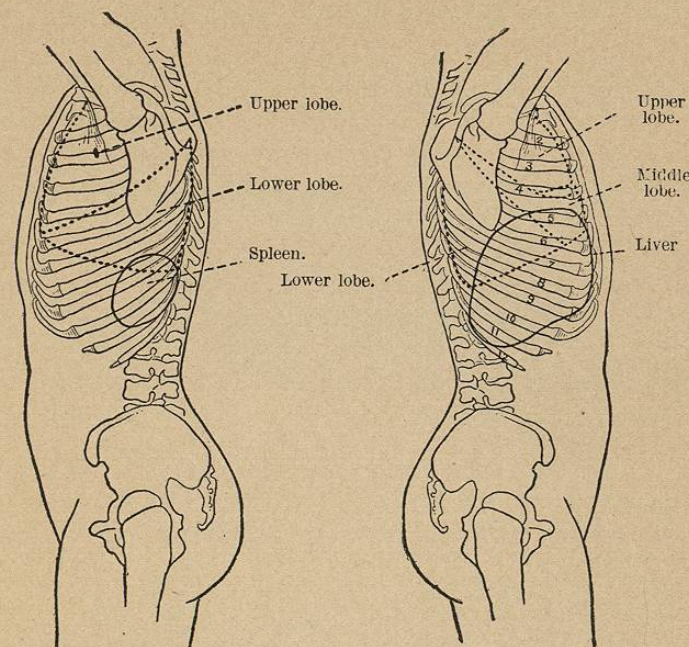


FIG. 38.—Position of the Left Lung from the Sides and of the Spleen. FIG. 39.—Position of the Right Lung from the Side, and of the Liver.

chest walls—will be illustrated in the section on Percussion (see page 118).