Cervical ribs derived from the seventh cervical vertebra (page 83) are of not infrequent occurrence, and are important clinically because they may give rise to obscure nervous or vascular symptoms. The cervical rib may be a mere epiphysis articulating only with the transverse process of the vertebra, but more commonly it consists of a defined head, neck, and tubercle, with or without a body. It extends lateralward, or forward and lateralward, into the posterior triangle of the neck, where it may terminate in a free end or may join the first thoracic rib, the first costal cartilage, or the sternum.[1] It varies much in shape, size, direction, and mobility. If it reach far enough forward, part of the brachial plexus and the subclavian artery and vein cross over it, and are apt to suffer compression in so doing. Pressure on the artery may obstruct the circulation so much that arterial thrombosis results, causing gangrene of the finger tips. Pressure on the nerves is commoner, and affects the eighth cervical and first thoracic nerves, causing paralysis of the muscles they supply, and neuralgic pains and paresthesia in the area of skin to which they are distributed: no oculopupillary changes are to be found.

The *thorax* is frequently found to be altered in shape in certain diseases.

In *rickets*, the ends of the ribs, where they join the costal cartilages, become enlarged, giving rise to the so-called "rickety rosary," which in mild cases is only found on the internal surface of the thorax. Lateral to these enlargements the softened ribs sink in, so as to present a groove passing downward and lateralward on either side of the sternum. This bone is forced forward by the bending of the ribs, and the antero-posterior diameter of the chest is increased. The ribs affected are the second to the eighth, the lower ones being prevented from falling in by the presence of the liver, stomach, and spleen; and when the abdomen is distended, as it often is in rickets, the lower ribs may be pushed outward, causing a transverse groove (Harrison's sulcus) just above the costal arch. This deformity or forward projection of the sternum, often asymmetrical, is known as *pigeon breast*, and may be taken as evidence of active or old rickets except in cases of primary spinal curvature. In many instances it is associated in children with obstruction in the upper air passages, due to enlarged tonsils or adenoid growths. In some rickety children or adults, and also in others who give no history or further evidence of having had rickets, an opposite condition obtains. The lower part of the sternum and often the xiphoid process as well are deeply depressed backward, producing an oval hollow in the lower sternal and upper epigastric regions. This is known as *funnel breast* (German, *Trichterbrust*); it never appears to produce the least disturbance of any of the vital functions. The *phthisical chest* is often long and narrow, and with great obliquity of the ribs and projection of the scapulæ. In *pulmonary emphysema* the chest is enlarged in all its diameters, and presents on section an almost circular outline. It has received the name of the *barrel-shaped chest*. In severe cases of *lateral curvature of the vertebral column* the thorax becomes much distorted. In consequence of the rotation of the bodies of the vertebræ which takes place in this disease, the ribs opposite the convexity of the dorsal curve become extremely convex behind, being thrown out and bulging, and at the same time flattened in front, so that the two ends of the same rib are almost parallel. Coincidently with this the ribs on the opposite side, on the concavity of the curve, are sunk and depressed behind, and bulging and convex in front.

THE SKULL.

The **skull** is supported on the summit of the vertebral column, and is of an oval shape, wider behind than in front. It is composed of a series of flattened or irregular bones which, with one exception (the mandible), are immovably jointed together. It is divisible into two parts: (1) the **cranium**, which lodges and protects the brain, consists of eight bones, and (2) the **skeleton of the face**, of fourteen, as follows:

- *Skull*, 22 bones
  - *Cranium*, 8 bones
    - Occipital.
    - Two Parietals.
    - Frontal.
    - Two Temporals.
    - Sphenoidal.
    - Ethmoidal.
  - *Face*, 14 bones
    - Two Nasals.
    - Two Maxillæ.
    - Two Lacrimals.
    - Two Zygomatics.
    - Two Palatines.
    - Two Inferior Nasal Conchæ.
    - Vomer.
    - Mandible.

[1] W. Thorburn, The Medical Chronicle, Manchester, 1907, 4th series, xiv, No. 3