

this, we can soon become acquainted with the machinery of motion, soon learn what apparatus is needed to bring into active exercise any muscle, learn where to distribute the exercise; if a part is undeveloped what is to be done to increase its power and size, and if a part is distorted by bad habits, what is requisite for its readjustment and harmonious appearance.

All this is needed, every parent and teacher of our country must have this information, so that it can be imparted to those under their care; every physician is recreant to his profession, to the confidence placed in him, to himself, and to the laws of our being, who fails to acquaint himself with these implements of health; every advocate of justice, every preacher of genuine morality, every lover of his race, should thoroughly understand this subject.

It should be a part of our primary education, so that, from our cradles, we may grow up gymnasts, and not pale, sickly, hot-house-plants, subject to frostbite every time we snuff a salubrious breeze, and to death, if we are so fortunate as to get a shower bath in company with the field flowers, by the fall of heaven's dew or rain.

The head upon the spine is capable of *two* motions, an up and down motion, or flexion and extension. The first bone of the spine, called *atlas*, because it supports the head, as the ancient philosopher Atlas did our globe, is capable of *one* motion upon the second bone of the spine, named *axis*; this motion is axillary.

The other bones of the spine do not have individual motions, but collective; the remaining bones of the neck are capable of *five* motions—flexion and extension, right and left lateral, and circular; the circular is a combination of the other four motions.

The bones of the back, called dorsal, those connected with the ribs, have but a limited motion; they are comparatively permanent for the protection of the lungs, heart, liver, etc.

The bones in the lower part of the back, known as the lumbar, have *five* motions, corresponding with those of the neck, called cervical.

The lower jaw has *five* motions, flexion and extension, right and left lateral, and an embarrassed circular.

The shoulder blade (*scapula*), is not connected to the trunk by a joint, as is usual in other parts of the body, but by *red flesh*, termed muscles. This connection has *five* motions, a forward, backward, upward, downward, and a circular.

The arm upon the shoulder blade, can perform *five* motions, upward, downward, inward, outward, and circular, besides a species of rotary.

The forearm upon the arm, or the elbow joint, has *two* motions, flexion, and extension. The forearm has two bones, the *ulna* and *radius*. The radius does not enter into the composition of the elbow joint, neither does the ulna assist in forming the wrist joint. The radius is on the thumb side of the hand; this bone, with the hand, has *one* motion, the rotary or axillary; it is so related to the ulna, as to allow it to roll upon it at both ends.

The wrist joint has *five* motions—flexion, extension, right and left lateral, and the circular. The hand upon the wrist has a very obscure motion, if any; the thumb upon the wrist, has *five* motions—flexion, extension, two lateral, and circular; the remaining joints of the thumb, have *two* motions—flexion and extension.

The fingers upon the hand have *two free* motions—flexion and extension, and *three* curtailed motions, two lateral, and circular; the remaining joints of the fingers have *two* motions—flexion and extension.

The hip joint has *five* motions—flexion, extension, inward, outward, circular and a difficult axillary.

The knee joint has *two* motions—flexion and extension.