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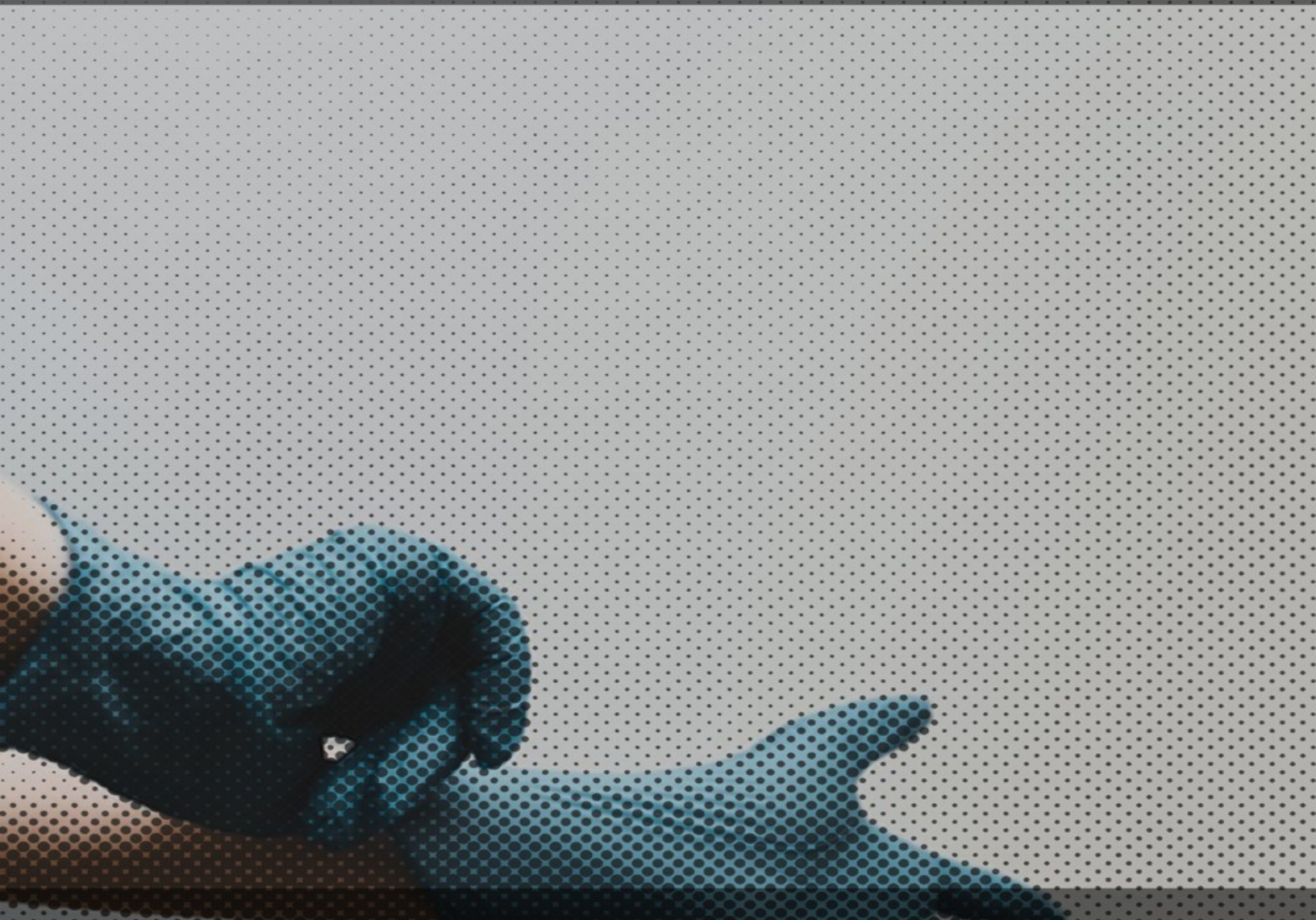

Landmarks Medical and Surgical

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Table of Contents

THE HEAD.
THE FACE.
THE NECK.
THE CHEST.
THE BACK.
THE ABDOMEN.
THE PERINEUM.
THE THIGH.
THE BUTTOCKS.
THE KNEE.
THE LEG AND ANKLE.
THE FOOT.
THE ARM.
THE FOREARM AND WRIST.
THE HAND.
PALPATION BY THE RECTUM.
EXAMINATION PER VAGINAM.

‘CHIRURGUS MENTE PRIUS ET OCULIS AGAT QUAM MANU ARMATA.’

LANDMARKS MEDICAL AND SURGICAL.

Table of Contents

1. In clinical teaching, we often have occasion to point out, on the surface of the living body, what may be called ‘medical and surgical landmarks.’ By ‘landmarks’ we mean surface-marks, such as lines, eminences, depressions, which are guides to, or indications of, deeper-seated parts. This practice is not only most useful but absolutely necessary; because many, even advanced students of anatomy, are not so ready as they ought to be in their recognition of parts when covered by skin. Students who may be familiar enough with bones, muscles, blood-vessels, or viscera in the dissected subject, are often sadly at fault when they come to put this knowledge into practice in the living.

For instance, ask a student to put his finger on the exact place where he would feel for the head of the radius, the coracoid process of the scapula, the tubercle of the scaphoid bone in the foot; ask him to compress effectually one of the main arteries; to chalk the line of its course; to map on the chest the position of the heart and the several valves at its base; to trace along the walls of the chest the outline of the lungs and pleura; to point out the bony prominences about the joints, and their relative position in the different motions of the joints; test him about the muscles and tendons which can be seen or felt as they stand out in relief or remain in repose; let him introduce his

finger into the several orifices of the body, and say what parts are accessible to the touch:—questions such as these, even a good anatomist, unaccustomed to deal with the living subject, might possibly find himself at a loss to answer.

2. **Object in view.**—Our main object, therefore, is to induce in students the habit of looking at the living body with anatomical eyes, and with eyes too at their fingers' ends. The value of this habit cannot be too highly estimated. Is it not of the utmost importance to an operating surgeon that he should have in his mind's eye the various structures of the body as they lie grouped, connected, and working together? Should he not try at least to see them with the same clearness and accuracy as if they were perfectly transparent?

Moreover, the habit of examining the living body with 'anatomical eyes' and 'surgical fingers' teaches the eye and the hand to act together, and trains that delicate sense of touch which every surgeon should possess.

This habit is within easy reach of any one who has carefully dissected for himself, and learned what to feel for. Plates will not give him this knowledge. Let a student examine his own body with a skeleton before him. Better still that two should work thus together, each serving as a model to the other.

Teachers of anatomy should follow the example of Sir C. Bell, who was in the habit of introducing, from time to time, a powerful muscular fellow to his class, 'in order to show how much of the structure of the body, such as the

articulations and the muscles, might be learned without actual dissection.’[A][1]

At the same time, it is only fair to say that ‘landmarks’ cannot always be defined with precision. A considerable latitude must be allowed for natural variations in different persons. In some, their anatomy stands out beautifully clear; in others, it is masked by obesity. Selecting, therefore, for study a moderately lean person, let us begin with the head.

[A] The references throughout are to Notes at the end of the book.

THE HEAD.

Table of Contents

3. **Scalp: its density.**—The great toughness of the scalp, more especially at the back of the head, is owing to its intimate connection with the cranial aponeurosis, the scalp vessels and hair bulbs intervening. This density often obscures the diagnosis of tumours on the cranium. A tumour growing upon the head may be either above or below the aponeurosis of the scalp. If below, it will have a firm resisting feel, being bound down by the aponeurosis. Nevertheless its firmness and resistance may depend not simply on its confinement beneath the aponeurosis, but on its having its origin within the skull. Look with suspicion, then, on every tumour on the head that will not readily permit you to move it about, so as to be sure of its connections prior to an attempt at extirpation.

The scalp moves freely over the pericranium, to which it is very loosely connected by areolar tissue. When suppuration takes place in this tissue free incisions through the dense scalp must be made to let the pus out.

4. **Arteries of scalp.**—The supra-orbital artery can be felt beating just above the supra-orbital notch, and traced for some way up the forehead; the temporal (anterior branch) ascends tortuously about one inch and a quarter behind the external angular process of the frontal bone; the occipital can be felt near the middle of a line drawn from the occipital protuberance to the mastoid process; the posterior auricular, near the apex of the mastoid process. All these

arteries can be effectually compressed against the subjacent bone.

5. **Skull-cap.**—The skull-cap is rarely quite symmetrical. This want of symmetry is often obvious. It may occur in men highly gifted, as in the celebrated French anatomist Bichat. As to shape and relative dimensions, no two heads are exactly alike, any more than are two faces. It is beside my present purpose to go into the question of craniology more than to say that, although the cranium does not exactly follow the brain in all its eminences and depressions so as to be like a cast of its surface, yet it certainly indicates the dimensions of the great cerebral masses. The prominence of the frontal and parietal ‘eminences’ and of the occipital region may be taken as a general indication of the development of the corresponding lobes of the brain. To ascertain the relative proportions of these three regions, let a thread be passed from one meatus auditorius to the other, across the frontal, parietal and occipital eminences respectively.

Frontal sinuses.—The ‘frontal sinuses’ formed by the separation of the two tables of the skull vary much in size in different persons and at different periods of life. This fact has an important bearing on wounds in the forehead and on trephining in this situation. These ‘bumps’ do not exist in children, because the tables of the skull do not begin to separate before puberty. From an examination of many skulls in the Hunterian Museum, I find that the absence of the ‘bumps,’ even in middle age, does not necessarily imply the absence of the sinuses, since they may be formed by a retrocession of the inner wall of the skull. In old persons, as

a rule, when the sinuses enlarge, it is by the encroachment of the inner table on the brain case. The inner wall of the skull here follows the shrinking brain. It is, therefore, important to bear in mind that an adult, and more especially an elderly person, may have a large frontal sinus without any external indication of it.

Neither does a very prominent bump necessarily imply the existence of a large sinus, or indeed of even a small one. The ‘bump’ may be a mere heaping up of bone, a degradation, as in some Australian skulls.

Mastoid process.—The mastoid process, which can be felt behind the ear, contains air-cells, to which the above observations may also be applied.

Occipital protuberance.—The occipital protuberance, and the superior curved line, can be distinctly felt at the back of the head. The protuberance is always the thickest part of the skull-cap, and more prominent in some than in others.

The posterior inferior angle of the parietal bone, grooved by the lateral sinus, is on a level with the zygoma, and a trifle more than one inch behind the front border of the mastoid process.

Lines of cerebral sinuses.—A line drawn over the head from the root of the nose to the occipital protuberance corresponds with the superior longitudinal sinus. Another line drawn from the occipital protuberance to the front border of the mastoid process corresponds with a part of the lateral sinus.

Middle meningeal artery.—The trunk of the middle meningeal artery runs along the front lower corner of the

parietal bone, about one inch and a half behind, and half an inch above, the external angular process of the frontal.

A straight line drawn from the front of one mastoid process to the other would pass through the middle of the condyles of the occiput, showing how nearly the skull is balanced on the top of the spine in the erect posture.

6. **Thickness of skull-cap.**—The average thickness of the cap of an adult skull is about ⅕ of an inch. The thickest part is at the occipital protuberance, where it is often ¾ of an inch or more, even in an otherwise thin skull. The thinnest part is at the temple, where it may be almost as thin as parchment. Everyone in the habit of making post-mortem examinations knows how much the skull-cap differs in thickness in different persons and in different parts of the same skull. In old persons it is often in some parts not thicker than a shilling, owing to absorption of the diploë. Another point of interest is that the inner plane of the cap is not always parallel with the outer. Hence, in applying the trephine this is not a bad rule—‘Think that you are operating on the thinnest skull ever seen, and thinner in one half of the circle than the other.’

7. **Levels of the brain.**—The level of the anterior lobes in front corresponds with a straight line drawn across the forehead, just above the eyebrows. The lower level of the anterior and middle lobes of the cerebrum corresponds with a line drawn from the external angular process of the frontal bone to the upper part of the meatus auditorius. Another line drawn from the meatus to the occipital protuberance corresponds with the lower level of the posterior lobe. The lower level of the cerebellum cannot be defined by external

examination. It depends upon the extent to which the occipital fossæ bulge into the nape of the neck; and this bulge varies in different skulls.