ART. II.—*Observations on Fractures of the Sternal Extremity of the Clavicle.* By ROBERT W. SMITH, M.D., Professor of Surgery in the University of Dublin, Surgeon to the Richmond Hospital, &c.

The subject of fractures engaging the extremities of the clavicle is one of some importance to the practical surgeon, inasmuch as these injuries are frequently the source of embarrassment in diagnosis. The absence of appreciable displacement in some of them, and the resemblance which others bear to dislocation, are the chief causes of this uncertainty. Having on a former occasion demonstrated by numerous dissections that the opinion expressed by several eminent writers, that fractures of the clavicle external to the coracoid process were unattended by displacement, was not sustained by facts, and that the existence of an extra-coracoid fracture was generally indicated by a well-marked deformity, I need not again allude to that subject. I shall, therefore, at present limit myself to a brief consideration of fractures engaging the sternal extremity of the bone.

The literature of the subject is extremely deficient, and opinions directly opposite have been expressed respecting the presence or absence of displacement. This is, no doubt, partly attributable to the comparative rarity of the occurrence of the injuries in question, but is also in some measure to be ascribed to a want of accuracy respecting the exact seat of the lesion of the bone. Authors have spoken in a general way of fractures of the sternal extremity of the clavicle, but have not with sufficient precision distinguished those which occur between the sterno-clavicular and rhomboid ligaments from those which are situated either between the fibres of or directly external to the latter structure; they have, in fact, omitted to mention the exact distance of the fracture from the sterno-clavicular articulation.

It seems to be generally believed that when the clavicle is broken internal to the rhomboid ligament, no displacement of either fragment occurs or can occur. The following is the statement of Ribes upon this point:—"Dans le cas où la solution de continuité

---

* In 1859 and again in 1865, I drew the attention of the Pathological Society of Dublin to this subject.
* Treatise on Fractures, &c., p. 209.
* Mémoires de la Société Médicale d'Emulation. 1826.
arriverait à la portion de la clavicle placée au côté interne de l'attache du ligament costo-clavículaire, nul déplacement ne peut avoir lieu, ni par l'action musculaire, ni par le poids du membre. En effet, qui le fragment interne soit divisé en plusieur pièces, ou qu'il soit entier, la capsule articulaire et le ligament rayonné antérieur, les muscles sterno-mastoïdien et pectoral, mettent ce fragment dans l'impossibilité de ce déplacer. Il ne peut survenir également aucun, ou presque aucun déplacement au fragment externe, puisqu'il se trouve retenu dans sa position par le ligament costo-clavículaire, par les muscles qui viennent d'être nommés, et par le sous-clavier."

"Si la fracture arrive un peu plus en dehors, malgré le poids du membre, le déplacement sera encore peu sensible, parce que le portion claviculaire du sterno-mastoïdien retiendra les deux fragments en haut; le grand pectoral les fixera en bas; et ils seront retenus postérieurement par le ligament costo-clavículaire, et par le muscle du même nom."

In the Gazette des Hopitaux for 1845 the case of a patient under the care of M. Blandin has been recorded, where a fracture of the inner end of the clavicle is said to have occurred between the rhomboid ligament and the sterno-clavicular articulation, without displacement of either fragment resulting, the outer being maintained immovable by the first rib and the inner by the sternum.

In commenting upon this case Malgaigne, with his usual brusquerie, observes, "La théorie est fausse;" and in support of this assertion refers to two specimens preserved in Dupuytren's museum, in each of which a very considerable displacement exists. He further states that when the fracture exists, unaccompanied by external deformity, it is altogether due to the dove-tailing of the fragments and the integrity of the periosteum. I shall presently revert to these statements.

The opinions of Ribes and Blandin, quoted above, are in accordance with those held, I may say, by all who have alluded to the subject of fracture of the clavicle close to the sternal end of the bone, that is, between the costo and sterno-clavicular ligaments. I am inclined to doubt the correctness of these statements, which appear to me to be the result of theoretical reasoning alone, but I can make no positive assertion on the subject, being unacquainted with any recorded case in which the existence of fracture, either of recent occurrence or of ancient date, inside the rhomboid ligament has been demonstrated by dissection. A similar statement, as I have