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ON UNUNITED FRACTURE.*

BY H. HILL, M.R.C.S., ENG., L.S.A., LOND., OTTAWA.

The paper I shall have the honor to read before this Association, consists of a few practical remarks on the subject of ununited fracture, the collected experience of half a century's observation of surgical cases. This subject is not only interesting in itself, but occasionally the consideration of it becomes of extreme importance, as cases of fracture where union has not taken place, have not unfrequently given rise to actions-at-law for damages for alleged mal-practice, and it will therefore be useful to enquire how far these unrepaired lesions may be debited to dame nature, or to faulty, or injudicious treatment on the part of the attending surgeon.

The process of repair is usually accomplished by bony re-union of the separated or partially separated portions, but there are instances of fractures that we can rarely expect to unite in such favorable circumstances; the neck of the thigh bone, the olecranon, and patella would be instances of this character, and fractures of the cranium where portions of the skull have been removed by trephine or otherwise, are usually only repaired by the formation of a strong and dense membrane. I say *usually* because there are exceptions to this general rule. In one case occurring in my own practice, on whom I performed the operation of trephining some twenty years ago the space on the os frontis, whence the removed portion was taken, has been filled up by bone to all appearances, as the eschar is quite hard and unyielding, giving quite a different feel and appearance from membrane, consequently I can only look upon it as an exceptional

case, and that the bone has been reproduced either by the agency of the vessels of the periosteum, Haversian system, vessels of the diploe and dura mater.

During a very lengthened practice of the profession, and with frequent opportunities of observation, I have been astonished at the wonderful efforts of nature in the reparation and reproduction of bone, after removal by exfoliation or otherwise. Memory furnishes me with one case of recent occurrence in the General Hospital of this city, under the care of my friend, Dr. Lynn, in which a sequestrum of the tibia was removed, measuring at least six inches in length, by an inch or inch-and-a-quarter in diameter. We were informed that this case was the result of twenty years' abortive attempts of nature to rid itself of a foreign body, which was ultimately removed by Dr. Lynn. It left a gap in the anterior aspect of the leg resembling very much what the Yankees call "a dug out," and I thought this cavity would remain, and that the skin would heal over it, accommodating itself to the irregularities and with much corresponding deformity; strange to say the concavity has filled up almost entirely after about two years, and the eschar gives no idea of the extent or measurement of the original destruction and subsequent removal. Still another recent case of extensive repair has occurred under the care of the same gentleman, where resection of the knee-joint has been successfully performed on a little boy about 10 years of age for disease of the end of the femur. These two instances are two creditable notices of operative surgery, and are, I think, not at all out of place in a paper of the nature before us.

Since the animal machine is so liable to accidents of more or less severity, and the purposes of life would soon be arrested if every injury produced death, or permanent or even partial disability, a provision for repair becomes as essential as that for nutrition. It has been customary, with the earlier pathologists, to assume that all repair was an effect of inflammation, but the process of repair is acknowledged to be a beneficial, gentle and painless affair, thus differing widely from inflammation, a process injurious, violent and painful. True it is that repair and inflammation have one feature in common, namely, exudation, and that exudation induced by inflammation, may after the latter has ceased, become as it were the basis of

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