

A still more striking proof of the close relation between the experimental fracture and that of Clay's skull is that in both there was extensive separation of the coronal and sagittal sutures. In fractures of the skull from the effects of blows or falls on the head, this separation of the sutures appears to be most unusual, if it ever occurs at all.

In the museum of McGill Medical College, amongst numerous specimens of fracture of the skull there is only one which presents this special feature, and this is a case of gunshot wound. The reason of this seems evident when the arched form of the cranial roof is taken into account, as external pressure or violence would tend to press the sutures more closely together, whereas pressure or shock from within would tend to separate them.

That the charge did not penetrate the skullcap and scalp and produce a wound of exit is apparently due partly to the thickness of the skull and partly to the elastic resistance afforded by the extremely thick scalp. In this connection the scattered position of the shot over an area of eight square inches, as indicated by the lead-marks on the inner table, must also be taken into account. The distance of the muzzle of the gun from the head also modifies the effect of the shot, and an increase of the distance lessens the tendency to perforation. Thus I found in another experiment, that with the same charge fired at a distance of one foot only, the shot passed quite through skullcap and scalp and buried themselves deeply in a plank placed behind. That the fracture was in any measure caused by the expansion of gas due to the explosion of the powder does not seem probable. In a third experiment we placed the muzzle of the gun directly against the left eye of a subject with a very thick skull, and with the same charge of powder as in the last-named experiment the whole of the top of the head was completely blown off and the brain entirely disintegrated. In view of the fact that at the intermediate range of one foot a circumscribed perforating lesion was produced without any general, diffuse explosive effect, it is improbable that the explosive force of the shot fired at two and a half feet was the immediate cause of the fracture in Clay's skull.