

much brain tissue can be injured without the untoward physical and mental results formerly apprehended and dreaded. He trepanned the skulls of dogs and rabbits, made a small opening through the dura mater into the substance of the brain, and then put bullets into the wound. These bullets gradually penetrated through the cerebral matter by their own weight. When the ball was small, he found that the whole thickness of the lobe of the brain, or of the cerebellum, might be traversed by it without occasioning any symptom or disturbance of function. The fissure made by the passage of the ball remains for some time as a canal; it then closes up and cicatrizes. (*L'Union Med.*, 1863.)

Dr. Thomas Smith, Surgeon to St. Bartholomew's Hospital, London, gives, in the London *Lancet*, an interesting case in which the patient made a good recovery without loss of mental or physical power. A man, 35 years of age, shot himself with a revolver through the head. The bullet passed in at one temple and out at the other. Half an hour after the accident the pupils were found to be natural, pulse feeble, and respiration natural. The patient was quite conscious, and answered questions correctly concerning his name, age, and address, and of his own accord. He was an educated man and spoke in German, but when addressed in either French or English he would reply in the corresponding language. He showed no signs of mental incapacity, nor was there any loss of motor power. He vomited a good deal at first, and at that time blood and cerebral substance were forced from the wound in the right temple. For several days he became quite irritable and had a few delusions, but no functional deprivation. On the forty-third day after the wound was inflicted he became quite well. At first a probe was passed its whole length into the wound and across the head without meeting the slightest resistance. At first the special senses were very slightly impaired; but all recovered their tone before he left the hospital, except the sight, which was slightly impaired. As regards the course of the bullet in this case, Dr. Smith says: It is certain, from the position of the apertures of entrance and exit, that it entered the outer surface of the anterior lobe of the brain, a little above the level of the highest part of the roof of the orbit, and that it emerged from the left anterior hemisphere

at a spot rather further back and at a slightly higher level. From the large effusion of blood in both orbits, which so rapidly followed the injury, there is reason to believe that in its passage across the skull the bullet fractured the roof of both these cavities. From the free and persistent epistaxis, it is probable that the cribriform plate of the ethmoid, or some part of the roof of the nasal cavity was broken into, while there was evidence, from the symptoms, that the olfactory bulbs did not escape disturbance or injury. It may be said that there is no direct proof that the left hemisphere of the brain was wounded at all; that the bullet may have run over the roof of the left orbit and up the inside of the skull to its point of exit from the bone. The surgeon is sure, however, that the probe traversed without any sensation of resistance, both hemispheres, and one would think it impossible that a bullet of the size and weight indicated, after passing through one side of the skull, could have knocked a piece of bone clean out of the opposite side unless it impinged upon the inner surface of the bone in a direct line. As further proof, pulsation and respiratory movements were observed in the blood tumour over the aperture of exit, and these were so forcible as to indicate that the interior of the brain was in direct contact with the ecchymosis. It is certain that the part of the hemisphere that was damaged was the anterior frontal portion just above the orbits. Has this part any functional centre? If so, where is the evidence of its being necessary, seeing that both frontal lobes were injured seriously, without any immediate results in proportion to the lesion inflicted? Is this an organization put in more to fill up than to be of use to its neighbours? I had the impression Nature had no garret filled with useless furniture. Some functional centres must have been badly broken up by this destructive intruder.

About seventeen years ago I was called to visit a boy, aged 13, who had been kicked by a horse. A section of the skull was crushed in on the right side, near the median line, in the upper part of the frontal and parietal bones. One of the nine pieces fractured and detached from the surrounding bone had been driven into the substance of the brain, over an inch, in a perpendicular direction. The membranes were lacerated very much and brain substance, within a few grains of an ounce in