

to avoid the cortex on the one hand, and the internal capsule on the other.

Dr. Van Peyma's case, in the Buffalo General Hospital, is quoted as an example of extensive injury to the brain, without definite symptoms. But in this case the bullet entered into the brain in the frontal region, and passed backward. From what has been positively proven, the bullet could not have injured the internal capsule, or there would have been paralysis, which there was not. The course of the bullet was too deep to have damaged the cortex.

Dr. Prewitt's case, of St. Louis, is quoted. In this case "the bullet entered the forehead about an inch and a half above the supra-orbital ridge." Here again we see that the region of "no centres" was invaded, and as a consequence, the case should not be used as an argument against the view that other portions of the brain do contain centres.

Surgeon P. F. Harvey's case is referred to. It was that of a "physician who received a Winchester rifle ball three inches and a quarter above, and one inch behind the right auditory meatus. The missile took a transverse direction across both hemispheres toward the left supra-orbital convolution." Here we have again a splendid example of an extensive brain injury, so located as not to injure known centres. The missile in this case enters the brain above the auditory centre in front of the visual centres, and behind the Rolandic or motor area. The course of the ball was towards the opposite side, and thus too deep to injure the internal capsule. It terminated in the opposite frontal region where no special centres have been located. This case affords no evidence that there are no centres.

Dr. Hopwood's case, in London *Lancet*, 1883, is quoted. The only brain injury in this case "was a depressed fracture of the temporal bone just above the zygoma, from which brain matter protruded to about the size of a strawberry." The case did well. There were no cerebral symptoms. The only centres that would be damaged by the above injury would be those for taste and smell possibly. As no observations were made on the condition of these functions, the case ceases to have any value; certainly it has not a negative one.

The case of John MacEvoy is given. He was cut in the head by a circular saw. The wound was

"a clean sweep from the upper part of the frontal bone to the right side of the nose. The right upper eyelid was completely severed, but the eyeball was untouched." Dr. Clark is of opinion that the deepest part of the wound would be two inches. Now the point in this case that carries all the value from a medical standpoint, is that the damage was done to the frontal portion of the brain where there are no special centres. This being the case, no definite symptoms should be sought for in the case.

Dr. Quinn, who attended the above, mentions another case, that of a boy who fell out of a window and produced a compound fracture of the frontal bone, with some loss of brain matter. This again is a case of injury to the frontal region.

In Joe Murphy's case the bullet entered at the right eye. The bullet passed back through the brain. He was a little lame. Mind all right. Here the frontal region again was injured and the bullet passed backwards so as to slightly touch the internal capsule and give rise to a little loss of power in one leg. The case, so far as it proves anything, proves the theory of localization.

T. R. Dupuis' case is that of "a compound fracture at the middle of the superior portion of the left parietal bone, with considerable laceration of the brain." There were no sensory or motor disturbances, which Dr. Clark would have to be the case according to the school of surface localizers. But the whole case is to be found in the fact that the injury was too far back on the parietal region to affect the motor centres, and not far enough back nor low enough down to affect sensory centres.

Two cases from the Montreal hospital reports are given. The first was a saw cut passing through "the central part of the first and second frontal convolutions on the left side." This case confirms the view adopted by all, that there are no centres in this region.

The second case, one of bullet wound, the autopsy proved that the bullet had "entered the brain in the right inferior frontal convolution, just in front of the ascending branch of the sylvian fissure. From this point the course of the bullet was forwards and upwards, passing out at the inner surface of the frontal lobe and lodging between the brain substance and the falx." This