

case the tube was worn for 13 months, and the patient, a previously confirmed epileptic, never had a single seizure.

Goldhorn, (32) after carefully considering the evidence adduced on both sides, makes the following comments which one might with profit apply to other treatments in medicine and surgery: "Before this measure," says he, "can be considered as a permanent addition to the practical treatment of epilepsy, it must be shown 1st, to be correct in theory; 2nd, that it is not dangerous to life, and 3rd, that the attacks do not return after the operation has been performed."

*Ligature of the vertebral artery.*—This surgical measure, largely employed here and in England, was in some sense the legitimate successor of the more dangerous ligature of the carotid. A too great supply of blood to the brain was in some cases supposed to be the cause of the attacks. This was to be remedied by occlusion of the vertebral artery. Wm. Alexander of Liverpool was the best known if not the first advocate of the measure, and accounts of his cases may be read in the *London Medical Times and Gazette* for 1881. Another account (33) gives a resumé of 21 patients so treated. They were workhouse people and the cases were marked and severe. *Three were quite well a year after the operation; nine others were so much improved and were so free from fits that they might be put down as cured*, and eight were said to be so improved that if they got no better the operation would have been justified. In a paper (34) on the subject by Dr. J. Lucius Gray, of Chicago, an account is given of seven such operations performed in this city by E. Andrews, Brower, Fenger and others, most of which were followed by relief.

This operation has later been performed by von Baracz (35) with apparent success,

but as none of his four patients had been under observation longer than four months, no conclusions can be drawn as to the permanency of the relief.

Hun, (36) speaking of Baracz's article, says: "This is the old, old story of operative procedures, undertaken in the wildest spirit of grouping empiricism, to cure epilepsy without first becoming acquainted with the natural course of the disease."

*Trephining.*—This is a very old surgical treatment of epilepsy. I do not refer to those rational operations for the raising of depressed bone, the opening of cerebral abscesses, and removal of tumors or for providing an exit for intracranial fluids—referred to in the early part of this paper—but rather to those cases where underneath the button of bone or in the bone itself no pathological changes could be discovered. It is true that in most of such instances (where a cure was brought about) a history of traumatism was made out, but it seems to me that here there is a fallacy to guard against, because the great majority of people have at some time or other in their lives received injuries to the head (from falls and other causes) quite as severe as those ascribed to some of the patients operated on in the histories given, and yet epilepsy is a fairly uncommon disease. There were no pathological changes, so far as could be made out, in some of even M. G. Echeverra's (37) well-known list of traumatic cases treated by trephining. A case by Saxtorph (38) was certainly of this description, yet the patient was cured.

Dr. Mason Warren, (39) of Boston, trephined in two cases of *idiopathic* epilepsy. He reports one case as cured and another as relieved. Also Burnett and Gould (40) one. Probably the case of Leo's (41) men-

36. *Annual of the Univ. Med. Sciences*, Vol. 2, 1890.

37. *Les Archives General de Medicine*, Dec., 1878.

38. *Journal de Medicine et Chir. Practique*, Paris, p. 163, 1882.

39. *Surgical Observations*, with cases, 1867.

40. *British Med. Journal*, 1888.

41. *Pepper's System of Medicine*, p. 502, vol. 5.

32. In a critical review of the subject contributed to Schmidt's Jahrbuch, Bd. 85. p. 173.

32. *Brain*, for July, 1882.

34. *Neurological Review*, July, 1886.

35. *Wien. Med. Wochenschrift*, Feb., 1889.