

duced, and the outer blade be applied on the back, so that the two include the spine, the cranioclast will seize the trunk firmly, and is capable of exerting great force as a tractor.

Crotchet and Blunt Hook.—As tractors, neither of these instruments is much in vogue at the present day. It is well, however, to become familiar with their uses, as we are not always placed where we can have a complete armamentarium at our disposal.

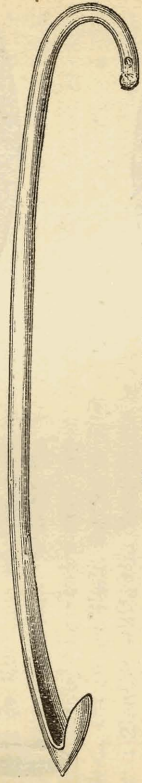


FIG. 202.—Crotchet.

The crotchet is a steel hook, with a sharp-pointed extremity. The shaft is either straight or curved to adapt it better to the convexity of the head. In craniotomy the instrument is often useful in breaking up the brain. It may be inserted into an orbit when it is desired to bring the base of the skull end on into the pelvis. In default of either cranioclast or cephalotribe, it may be employed to extract the perforated head. To this end it should be passed through the opening and its point inserted into one of the bones of the cranial vault. Two fingers of the left hand are then passed to the outer surface of the skull, to serve as a guard and to make pressure against the point fixed upon the inner surface. If much resistance is met with, the part is apt to tear away, and a new hold has to be taken. When portions of bone are broken away, they should be removed with the fingers, to prevent their doing harm. The process is often tedious, and, in unskillful hands, is not devoid of danger. When the bones of the vault yield under traction, a more effective grip may sometimes be obtained by fixing the crotchet at the foramen magnum or the sella turcica. Or, in place of introducing the instrument into the skull, it is sometimes inserted outside, behind the ear, into the mastoid process, or into the occiput, near the foramen magnum. The blunt hook, though not indispensa-

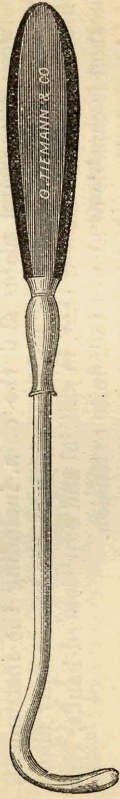


FIG. 203.—Dr. Taylor's right-angled blunt hook.

ble, is capable of rendering valuable service in delivering the head after the performance of craniotomy. Dr. I. E. Taylor gives the preference to a right-angled instrument. The blunt hook can not, of course, be attached to flat surfaces of bone. It may be used, however,

to draw down the chin, or it may be trusted into an orbit. Where perforation has been made upon the after coming head, the blunt hook may be introduced through the opening and traction made directly upon the base of the skull. In difficult cases, delivery of the trunk is sometimes favored by tractions made by a blunt hook inserted under the posterior shoulder.

Version.—Version, with extraction by the feet, with or without cephalotripsy, has been warmly commended by Bertin, Tarnier,* and Taylor,† while it has been condemned in harsh terms by others. Where it is practicable to perforate and turn early in labor, at a time when version is easy, the method has the advantage of bringing the longest diameter of the head into correspondence with the long diameter of the pelvis, and favoring the molding of the head to the shape of the canal it has to traverse. At the same time it avoids the dangers of confusing the soft parts incident to the use of the cephalotribe. Dr. Taylor recommends combining propulsion above the pubes with tractions made upon the extremities.

Great ingenuity has been exerted to devise some good way to overcome the difficulty which grows out of the defectiveness of the preceding measures in acting directly upon the base of the skull. Cephalotomy,‡ or the removal of the head by segments, has been proposed as a substitute for perforation and cephalotripsy. Van Huevel's forceps-saw divides the head from crown to base into two halves. Tarnier's forceps-saw removes from the head a triangular segment, the apex of which is cut from the skull base. Dr. Barnes# has suggested the application of Braxton Hicks's wire *éraseur* to successive portions of the head. Hubert's *transformateur* is designed to bore through the sphenoid, and thus to destroy the resistance of the base. The sphenotribe of Valette, Hüter, and the Lollines, are a combination of the cephalotribe and the *transformateur*. Notwithstanding the principle of cephalotomy is mechanically correct, the operation has never met with any general acceptance, partly owing to the high price and complicated structure of most of the instruments required for its performance, and perhaps in part to the fact that, in the higher degrees of pelvic deformity where their advantages over the more familiar methods would be theoretically most complete, the bulky nature of the forceps-saws and the sphenotribe interferes with their employment. The favorable reports made by their inventors, of the results they have personally obtained, render, however, a reference to the subject necessary.

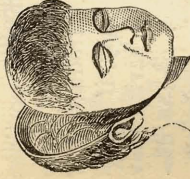
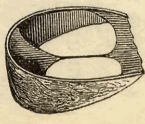


FIG. 204.—Segment removed by the Tarnier forceps-saw. (P. Thomas.)

* TARNIER, "Dict. de Médecine et de Chirurgie," art. "Embryotomie," t. xii, p. 668.
† TAYLOR, "What is the Best Treatment in Contracted Pelvis?" "Trans. of the New York Acad. of Med.," 1875.

‡ TARNIER, "Dict. de Médecine et de Chirurgie," art. "Embryotomie," p. 680.

BARNES, "Obstetric Operations," p. 411.