

his directions, from the Davol Rubber Co., of Providence, R.I., a similar rubber bag on February 11th, 1897. It is now in order for a Spaniard to prove that he made and learned how to use an aluminum hammer years ago.

Drainage through Fourth Ventricle.

BRUCE AND STILES. "Drainage through the fourth ventricle in a case of acquired hydrocephalus due to chronic non-tubercular basal meningitis."—*The Scottish Medical and Surgical Journal*, March, 1898.

A horse-shoe shaped incision was made, extending from a little behind the apex of the mastoid process on one side to a corresponding point on the opposite side. The integument and muscles being turned down, a $\frac{3}{4}$ inch trephine was applied to the occipital bone in the mesial line, a little above the foramen magnum. After the trephine opening had been enlarged by gouge forceps, a curved needle, threaded with silk, was passed through the dura at the upper and lower extremities of the wound, so as to enclose and ligature the small sinus in the falx cerebelli. The dura was incised transversely between the ligatures and additional vertical incisions being made, the dural flaps were turned back so as to expose the arachnoid covering the posterior extremities of the cerebellar tonsils and its reflection from them downwards over the lower part of the medulla. The arachnoid was slightly thickened and more opaque than normal. The opposed surfaces of the tonsils were found bound together by adhesions. Immediately they were separated several ounces of the cerebro-spinal fluid spurted out, and continued to well up copiously whenever the child retched or strained in any way. After the fluid had escaped, the posterior medullary velum, the choroid plexuses, the foramen of Magendie, and the lower part of the medulla could all be distinctly seen.

The operation in this case was undertaken to relieve symptoms which had become critical, in a case of syphilitic basal meningitis, with secondary hydrocephalus. In this way the surgeon can relieve the tension of the accumulated fluid in the ventricles. The most frequent causes of the obstruction, as shown by *post-mortem* examination, are :

1. Simple fibrous closure of the foramen of Magendie.
2. The adhesion of the surfaces of the tonsils of the cerebellum to each other and to the margins of the fourth ventricle.
3. Cysts formed by adhesions between the arachnoid and the pia