result, the bone between the arches flattens the more in a horizontal plane and breaks across, the linear fractures radiating up into the vault and down into the bones of the base of the cranium between the arches. 3. With the head in motion, the brain lags behind the more rapidly moving cranium, and as a consequence is closer to the cranial bones opposite where violence is applied; and with the axis of the skull abruptly shortened at right angles to where violence is applied, the brain is the more bruised opposite that place. 4. The resistance (weight) of the trunk and extremities transmitted to the skull via the condyles of the occipital bone tends to bend in the bottom of the skull, especially the arches, and is one factor in determining the course and distribution of the fractures. 5. When the cranial bones are broken with the head in a fixed position, contrecoup bruising of the brain is reduced to the minimum and the bruises are direct, at the place of fracturing." 6. The general direction taken by fractures, which course between the arches, is also well known, and is illustrated in this article by figures. About 85 per cent. of the total 504 cases studied were simple linear fractures or linear fractures with branches. In the others there were extensive comminution and some depressed fragments. In a table given were included a few fractures partly healed. The concomitant brain injuries were preponderantly on the outside. Most fractures of the cranium result from causes which first put the head in rapid motion and then suddenly stop it against a firm object, the brain receiving its greatest injury from being forced against the broken bone. Injuries to the back of the head have the largest percentage of contrecoup bruises, injury to the sides is next, while injuries to the front are largely direct injuries. The various forms of bone injuries and their percentages according to their location are given in more or less detail, as is the case with regard to subdural and extradural hemorrhages. There were decompression operations in twenty-three of the large extradural hemorrhages, as well as several others in which the post-mortem condition precluded conclusions as to whether a large clot was present before the operation. Bleeding into the subarachnoid space occurred in about 95 per cent. of all fractures. Their extent and the amount of hemorrhage caused are dependent on the size of the tear of the arachnoid, and are not always proportional to the extent of the bruising of the brain. Traumatic edema of the brain was the most frequent condition observed in patients dying from skull fracture. A number of cases are briefly reported, illustrating the sequences of skull fracture. The article is fully illustrated.

Bychowski, Z. CEREBRAL POLYPLEGIAS AFTER WOUNDS OF THE SKULL FROM PROJECTILES. [*Ztsch. f. d. ges. Neurol. u. Psychiat.*, 1919, Vol. 52, p. 163.]

The author here describes a symptom complex to which he directed his attention from the very first years of the war, becoming familiar with

its entire clinical course. These were cases resulting from tangential projectile wounds in the region of the sagittal suture resulting principally in paralysis of both lower extremities. Of these the author here gives eighteen cases, which present the clinical picture of what may be most fittingly called cerebral polyplegia. The initial phenomena were nearly always of stormy character, paralysis of the lower extremities, paralysis or paresis of one or both of the upper extremities, disturbances of speech. The author divides these cases into four groups: 1. Those cases in which the clinical symptoms, after the lapse of several months or even years, showed no signs of improvement (these being usually the cases which were at first characterized by pronounced paralysis of both lower limbs and one or both of the upper). 2. Cases which presented the picture of a hemiplegia or hemiparesis, but where more careful examination revealed pronounced traces of lesions in other psychomotor regions. 3. Cases where, notwithstanding alarming initial phenomena, the recovery was sufficient to permit the patients relatively free use of the limbs. 4. Cases of so-called transverse polyplegia. The author discusses the various theories on restoration of function of movement both from phylogenetic and other points of view, giving examples where recovery seemed to be due to compensatory activity of centers on the side of wound and adding: "It must be confessed that the cerebral polyplegias here described seem to offer evidence in disproof of homolateral cortex compensation, because, in many of the cases the centers on both sides were destroyed and, notwithstanding this fact, recovery, to a great extent, took place." The author is of the opinion that in some of these cases, the centers were only temporarily injured—by subdural hemorrhage, diaschisis, concussion, etc., and that later they were again brought into activity. He calls attention to the differences in the final results in these soldiers wounded in the field compared with the similar cases usually met with in peace times. These latter are nearly always forms of hemorrhage or encephalomalacia in the brains of syphilitics and alcoholics where the whole organism is suffering from serious pathological processes. Here the cases were all young men, in the very best condition physically, and with high degree of education in coördinated movements because of gymnastic exercise, marching, target practice, etc. In these patients, even where they presented an initial picture resembling that of most severe pseudobulbar paralysis there was a steady recovery of function, while in the ordinary hospital cases there would have been decline into complete helplessness.

Pfeifer, B. CONCERNING HOMOLATERAL HEMIPLEGIA FROM A SHELL WOUND OF THE BRAIN. [*Archiv f. Psych.*, 1919, Vol. 59, p. 687.]

The author describes a case of homolateral purely motor hemiplegia after a shell wound of the brain. The Roentgen picture revealed that there was a splinter of the shell in the cerebral peduncle of the side