wholly without some haziness. It is difficult to accept Marie's statement, that there is a special tendency to assume a cerebral affection of hearing *especially* if it is associated with disorders of equilibrium. In this case one would more probably look for labyrinthic disorders. Further, while Marie refutes the idea of deposits of word-images, which would have to result in the formation of veritable mushrooms in polyglots, he suggests *syllabic mechanisms* in a receiving center. Has he perhaps observed a case of aphasia with isolated loss of definite syllables?

The examination of cases of cerebral lesions demands a systematic plan and it is not easy to see how we can at present improve on the following: We test the capacity of reaction in each of the receptive functions: the extent of crude simple reaction (auditory, visual, tactile, etc.), the extent of graded elaboration from the material of each field into the channels of possible elaboration: spoken and written language, activity in the form of elaboration of orders, and utilization of combination of senses, and for each of these fields it is necessary to test various grades of elaboration. For a clinical and psychological analysis, Liepmann's plan (PSYCHOLOGICAL BULLETIN, II., p. 280) had best be applied to each series.

The *diagnosis* for practical purposes will have to determine the material for reconstructive reëducation (for this there is practically no material with accurate autopsies) and the anatomical diagnosis depends largely on features extraneous to the intrinsic speech-disorder itself — the extent of receptive and of emissive (anarthric) disorders, and their relation to crude receptive and hemiplegic disorders, etc.

An examination of concrete cases weans one of the idea that the foundations of the generalizations about the brain are so safe as dogma will have it. Untiring labor will be required to build further: above all things a sufficient number of cases which are complete in most respects, and less juggling of incompletely correlated half-observations. That cases of operative clearness, such as traumatisms, will ultimately have to decide many issues, becomes fairly plain from Marie's psychological experiments, and these cases are extremely rare and worth the most careful record and communication.

Doctrine de l'Aphasie Conception Nouvelle. Dr. BERNHEIM. Nancy. Paris, O. Doin, 1907.

Bernheim has also repudiated the existence of a special auditory or visual speech center. There are only centers for the crude sensory impressions. Visual and auditory memory images are like all phe-

nomena of consciousness evoked in *the psychic sphere*, *the frontal lobe*. There is no representation by individual cells but the same brain cell can serve for various sensory conceptions. A lesion of the first temporal gyrus or of the connections of the visual lobe interrupts the action on the frontal lobe which does not any longer evoke the memory of the word and of associated interpretation. The words which are forgotten vary from day to day. The work of the so-called motor and graphic word centers is done under the direction of the auditory or graphic word-images elaborated in the psychic sphere through fibers of the internal capsule to the bulbar and spinal mechanisms. The aphasia with or without agraphia produced by lesion of the Broca region is not due to destruction of a center but to destruction of the connection between the psychic sphere and the auditory and visual centers and the spinal-bulbar mechanisms. Motor aphasia and agraphia are therefore always 'subcortical' and they occur at times independently because the two have not the same mechanism of formation nor the same path of transmission.

We need hardly point out that B. operates with a number of conceptions which would be difficult to substantiate.

APRAXIA.

Beiträge zur Apraxielehre. F. HARTMANN. Monatsschrift f. Psych. u. Neurolog., Bd. XXI., pp. 97–118, and 248–270.

In connection with the discussion of Marie's center of the 'stock of things acquired by diadactic procedures,' Hartmann's recent study is of interest as an appatent vindication of functions of the frontal lobe. It is reported here especially because of its emphasis on a methodical issue, viz., the study of the 'stream of activity' or Bewegungsablauf, rather than mere isolated tests, and the importance given to the collaboration of support or stimulation from several sensory fields.

Hartmann furnishes first a description of three cases, one of lesion of the left frontal lobe exclusive of Broca's region, the second a tumor of the posterior two thirds of the corpus callosum, with interesting dissociation of movements of the two sides, and one of hemorrhage into the middle of the right frontal gyrus. He discusses the left frontal lobe and its probable rôle in serial movements or the stream of activity (Bewegungsablauf), the importance of the corpus callosum in apractic disorders and the rôle of the right frontal lobe for the stream of activity.

His conculsions are as follows: Within Flechsig's anterior association center there must be mechanisms not so far outlined which are