becoming more dense and firm with increasing age. The three stages are often found in the same islet, the more dense tissue being in the centre. Secondary degeneration, which is stated not to occur, was demonstrated in all, but especially in the two more acute cases.

The third section deals with the interpretation of the changes described. The primary sclerotic view is excluded, as in true cases of neurogliosis degeneration of nerve-tissue does not follow; in two of these cases the same degeneration of the fibres occurred in peripheral nerves where there is no neuroglia, and again in acute cases there is extensive myelin degeneration with but little sclerosis. The theory of primary vascular obstruction is also excluded because vessel-wall changes are not found, or, if slight changes have been discovered, they are general and not limited to the islets, and again in senile and syphilitic cases where the vascular changes are undoubtedly primary the naked-eye and histological appearances are quite different. From his cases the author therefore concludes that the essential process is one of myelin degeneration independent of vascular disease or neuroglial proliferation.

Finally, as an hypothesis, it is suggested that a toxine (yet to be discovered) is the exciting cause, with possibly an inherited predisposition in a few cases.

It would be very interesting and a valuable corollary to this paper if the author would publish some of his cases of sclerotic patches of other origin, especially those syphilitic cases which clinically so closely simulate true disseminated sclerosis, which may possibly account for some of the cases published to demonstrate that the changes are primarily of vascular origin. JOHN T. DUNSTON.

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2. Physiological Psychology.

The Interior Language of Children [*Observations sur le Langage Intérieur des Enfants*]. (*Arch. de Psychol., August,* 1904.) *Lemaitre, A.*

It is well known that, when we think, we either see, hear, or articulate our thoughts, or else adopt a combination of these methods. This endophasia—as it is now frequently termed—has been studied in Switzerland by Lemaitre among a number of children between the ages of 13 and 15. The results in each case are carefully detailed. The endophasic types in childhood are found to be very complex, even more so than among adults, a single centre gradually attaining predominance in the course of years. Lemaitre notices a frequent and interesting tendency in some boys to become auditory at puberty and associates the tendency with the awakening of "the voice of conscience," etc., at this age. Another interesting observation is that individuals of auditory, visual, or especially of mixed type have a much better memory than those of motor type. With regard to the exact classification of types, Lemaitre recognises the difficulties, such difficulties being largely responsible for the differences in the results obtained by investigators. According to his own classification, among the ninety children studied, the verbo-motor type is the most common (in the proportion of 45·5

per cent.), the visual type next (32 *per cent.*), and the verbo-auditory the third most frequent type (13 *per cent.*). It is noted that verbo-visual persons are liable to spell badly; this is attributed to the persistence in memory of words which when first thought were incorrectly visualised. With regard to the heredity of endophasic types, there is no necessary inheritance; thus in one case parents who were both purely motor had a child who was purely auditory. On the other hand, it is found that seven children of clergymen were all of motor type, as, it is believed, were also their fathers. It is among boys belonging to the visual and especially to the visual-motor type that the strongest æsthetic tendencies are found. Persons of auditory type, Lemaitre finds reason to believe, stand midway between those of visual type, who are attracted to the concrete, and those of motor type, who are attracted to the abstract.

The author suggests that endophasic type probably has an influence over a man's metaphysical beliefs; thus, in mediæval thought the Nominalists correspond to the motor type, the Realists to the visual type, and midway between these the more conciliatory Conceptualists correspond to the auditory type. HAVELOCK ELLIS.

A Sketch of the History of Reflex Action. (*Amer. Journ. Psych., Oct.*, 1904.) *Gault, R. H.*

This is a clear and instructive account of the progress of opinion as regards reflex action from the Pflüger-Lotze discussion, in 1853, onwards. Pflüger asserted that consciousness, or "soul," is divisible, and that there is a "spinal soul," as shown by the purposive movements of a decapitated frog. Lotze asserted that such movements are not due to a soul in the cord, but to the after-effects of conscious activity impressed upon a plastic organisation and transmitted by heredity, thus suggesting development from the conscious to the unconscious, the voluntary to the involuntary, the spontaneous to the reflex. The various sections of the author's paper deal with the inhibition of reflexes, the phenomena of summation, vascular tonus, muscular tonus, tendon reflexes, the direction of transmission and co-ordination of reflexes. Gault concludes that the main gain in the progress of the theory of reflex action has been rather in the slow alterations of standpoints than in the sudden appearance of new facts, and that a point has now been reached at which at least a partial solution as between the views of Pflüger and Lotze is possible. "We may define the soul objectively as that feature of the central nervous system in virtue of which the organism is enabled to profit by experience. Under this definition the question of a divisible soul does not involve the question of a subjective spinal consciousness. The question is, Can a given organism profit by experience? If it can, we are justified in inferring that it has such a soul as has been described. If it has not, it may fairly be regarded as a machine."

HAVELOCK ELLIS.

Reaction-time as a Test of Mental Ability. (*Amer. Journ. Psych., Oct.*, 1904). *Whipple, G. M.*

The author seeks to show (1) that a distinction must be made between "laboratory" and "anthropometric" reaction experiments,