Observations sur le langage intérieur des enfants. A. LEMAITRE. *Archives de Psychologie,* August, 1904, pp. 1–43.

This article gives, first, a résumé of 14 cases of word imagery in children, published by him in 1902, and, secondly, a detailed account of 18 new cases. He divides them into *verbo-visuels,* who visualize their words, *verbo-auditif,* who think in mentally heard words, *verbo-moteur,* who think in mentally spoken words, *auditivo-visuels,* who think in both ways, *symbolo-visuels,* who visualize words in print or script, at the same time representing, on or near the words, pictures symbolic of the objects denoted, and *visuelo-moteur,* in whom the visual and articulatory word images are associated. These 32 cases were distributed as follows: verbo-visuels, 10; symbolo-visuels, 6; auditivo-visuels, 6; visuelo-moteur, 3; verbo-auditif, 4; verbo-moteur, 3. In his conclusion he says that in children of 13 to 14, different types of word images are most frequently observed; that these types are more complex than in adults, where one brain center gains predominance over the others. He notices a tendency to become auditory about the time of puberty. He adds the following table giving statistical results of a study of 90 children in three school classes:

	1901–2.	1902–3.	1903–4.	Total.	Per Cent.
Verbo-moteur,	11	15	15	41	45.55
Verbo-auditif,	6	3	3	12	13.33
Verbo-visuel,	5	7	2	14	15.56
Symbolo-visuel,	5	5	5	15	16.67
Auditivo-visuel,	3	0	2	5	5.56
Visuelo-moteur,	1	0	1	2	2.22
Equilibres,	0	0	1	1	1.11
	31	30	29	90	100.00

The type called 'equilibre' is one in which the three kinds of images, visual, auditory and articulatory are simultaneous or nearly so. He also describes a so-called 'type indifferent' in which they alternate.

Results of two experiments are given. (1) On auditory memory, in which three Latin sentences, spoken three times, were reproduced by the children after three hours of school work. The best reproductions were by the visual and the auditory types. (2) On visual memory: ten sentences, in two groups, the first group all Latin, the second, three Latin and two German, were shown on a blackboard and explained, the exposure lasting seven minutes. The sentences were then rubbed out and the children asked to write what they remembered. The results were as follows:

Types.	Seconds.	Per Cent.
Audito-visuels and equilibres,	180	97.50
Auditif,	322	86.25
Visuels,	359	86.45
Moteurs,	440	64.

Other tests on the memory of texts or numbers confirmed the superiority of the auditory type.

M. Lemaitre notes that the scholastic dispute between nominalists and realists was, in his belief, entirely 'endophasique,' and that the nominalists were of the articulatory-motor type, the realists were visuels, and conceptualists were auditory.

Incidentally many examples of synæsthesia and of number forms are described.

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NEW YORK.

La Finalité en Biologie. E. GOBLOT. *Revue Philosophique,* July, 1904, pp. 24–37.

This is one of several contributions by the author bearing upon the same subject. The present article was called forth by a letter from M. Chas. Richet, which had been appended to another of the author's recent papers. Richet there formulates two great laws, to which, he holds, all living things conform: (1) an 'effort toward life,' and (2) 'progress in the manifestations of life.' Goblot rejects both of these generalizations. He admits, as he is bound to do, a general advance in the degree of organic complexity, but denies the existence of *progress* in the sense of an advance toward a goal which may be said to be *better.* Relative to the needs of a species or an individual, this or that thing may be regarded as good or bad, but such terms are purely relative, and can not be applied to the living world as a whole.

The scientist can not escape, however, from 'finalistic' conceptions, which he employs unconsciously, even while rejecting them in theory. But it is the 'providential teleology, the anthropocentric and anthropomorphic teleology, the vitalistic teleology' which he rejects as anti-scientific. Thus, 'la mauvaise finalité chasse la bonne.' No scientist would admit that the eye was 'made for seeing,' but he says correctly that vision is the reason for the eye's existence. "If vision explains itself by the structure of the eye, the structure of the eye explains itself also by vision, and this explanation is precisely what the student seeks when he investigates the how and the why of organic evolution." Again, it is the existence of finality which gives to physiology its place as an independent science, for 'function is a finalistic idea.'

Final causes, according to Goblot, 'should not be sought above and beyond the facts,' but in the series of phenomena itself. 'Final causes,' if the term may be employed at all, *are efficient causes.* In considering the variation of a species of organisms, he would designate as a final cause 'a series of circumstances such that the species would perish if it were not transformed.' These circumstances 'are, indeed, efficient causes, but they are also final causes, since the relation of fitness between them and the character in question is the reason for their efficiency.' Many of the transformations which take place in the organic world can not, however, be regarded as manifestations of finality, *i.e.,* such as are non-adaptive.

It will be seen that the author has concerned himself mainly with *defining* finality as he chooses to employ the term. From the biologist's