An appraisal of the value and influence of the theories of child development in the writings of Henri Wallon

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PREFACE

The following research began with a chance remark of a fellow colleague after a series of lectures on education in France. "The name of Henri Wallon," he said, "crops up time and time again, and yet I never seem to find any information about him." The following months and years served only to lend added support to his contention. Many of the libraries and bookshops of England, far from having accessibl e literature, had not even heard of Professor Henri Wallon. The learned journals and annals of scholastic societies, where much information was later gleaned, lay dusty and mildewed on lower shelves and in basement cupboards.

Gradually the mind of Henri Wallon emerged. The early concern with the problems of child and educational psychology, long before Professor Jean Piaget had made his mark in these spheres; his devotion to the laboratories of the University of Paris; his political affiliation which, it would appear, overshadowed his work after the Second World War. This, however, was only his thought and his work. Any information about Henri Wallon the man was maddeningly sparse. A chance reference here and there : son of Paul Alexandre Joseph Wallon,

architect; mother, Sophie Marguerite Allart; awardedthe Croix de Guerre for gallantry during the 1914-18 war; a trip to South America; Marxist; member of the Resistance movement during the 1939-45 war; an impassioned speech. The man remained hidden. Frequent and repeated letters to schools, universities, and pedagogical establishments in France received no replies, apart from one book list which did little but add further frustration. A final, desperate, attempt to contact Professor Wallon personally had no better success. The man was to remain hidden as far as the purposes of this research were concerned.

I should like to thank my supervisor, Professor F. V. Smith, at this point; he prepared me thoroughly for the dangers and set-backs of this type of research. Without his guidance and encouragement I should not have finished this work at all. While the merits of this research are due to him, the failures and shortcomings must be accredited to the writer.

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INTRODUCTION

An Historical Perspective

About the time when Henri Wallon was born in 1879, science began to intervene in philosophical thought in two ways : in educational experiment, and in child psychology. Up to this point no one had undertaken a systematic investigation into the psychology of the child. The work of Tiedman, Preyer, and Perez[1] were all works of pure science and had little contact with the psychological study of children; even the questionnaire method employed by Stanley Hall in 1891 was bound up with his philosophical ideas.[2] It was doubtlessly the lack of any methods producing precise measurement that deterred educationalists from attempting any exact appreciation of the working of the child's mind. It was precisely for this reason that Binet attacked the old methods of education; this is clearly stated in what later came to be called, "Binet's Manifesto" of 1898 :

> The old education, in spite of some good aspects, must be completely superseded, for it is affected by a fundamental corruption, it has become too superficial, the

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[1] See Bibliography.

[2] G.S. Hall, "The contents of children's minds on entering school," Jour. Genet. Psych., (I, 1891) pp. 139-173. See also J. Piaget, Encyclopédie Française, Tome 15.26.4-15.

> result of preconceived ideas; it is based on gratuitous assertions, confuses rigorous demonstration with literary citations, solves the greatest problems by appealing to the thought of such people as Quintillian, and Bossuet, it replaces fact by exhortation and admonition. ..... Education must be based upon observation and experiment : above all it must be experimental. We do not wish to speak of that vague eexperience of people who have seen a great deal; an experimental study, in the accepted scientific sense, contains evidence gathered methodically and drawn up in a manner sufficiently detailed and precise.

To put these observations into practice, Binet founded in I900 the "Société pour l'étude psychologique de l'enfant." As a direct result of his work there arose a school of experimental psychology to which Henri Wallon was one of the main contributors.

France was not alone in her attempt to bring scientific method to bear upon child psychology. Dewey in America, Montessori in Italy, and Décroly in Belgium, were all taking part in this revolution of thought.[3] In France, R. Hubert and M. Gauthier, as well as Wallon, brought into their lectures information about the new techniques involved in education. Such techniques were encouraged by the experimental work of Wallon and H. Piéron, and the administrative authority of J. Langevin. About this time the "Groupe français d'education nouvelle" began to issue a journal entitled "Pour l'ère nouvelle" to diss-

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3 3For the influence of these on French education, see Encyclopédie Practique de l'Education en France (Paris: L'Institut Pedagogique National, I960), p. I35. See also Encyc. Franc., "La psychologie de laboratoire," Tome 8.06.8-I3.

eminate information about the work of these pioneers in educational ideas.

From the nature of the articles published by Wallon during the first years of his academic career,[4] it would appear that he was involved in the study of emotional problems of maladjustment and psychiatric problems in general, as well as the study of child psychology. The major work of Wallon during these years was "L'Enfant turbulent," published in 1925, which gives some indication of the type of work in which Wallon was mainly interested, and which was to occupy him for the next twenty-five years at the University of Paris. Before the publication of this work, Wallon had been immensely interested in child psychology, and had done pioneer work in the systematic study of child behaviour. It is interesting to note that Piaget was only fifteen years old, and a student of zoology, in 1912, and that by the time of Piaget's first publication in 1926, Le langage et la pensée chez l'enfant, Wallon had already made some major contributions to the field of child psychology.

In 1927 it is reported in the Annales de l'Université de Paris that Wallon was in charge of a conference on child and educational psychology.[5] Three years later he was placed

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[4] See Bibliography.

[5] Op. cit., Vol. IV, p. 311

in charge of educational psychology at the University Institute of Psychology.[6] It was at this time that Wallon and Piéron undertook extemsive research in the schools around Boulogne.[7] Two years later saw the publication of another major work from Wallon, Les Origines du caractère chez l'enfant, which Wallon says contains all of the ideas found in L'Enfant turbulent and in his articles written during the years between 1925 and 1933. In 1935 Wallon was working in the Laboratory of Child Psychobiology in the University under its Director, A. Ombredane, on the development of language in children.[8] In the summer of the same year Wallon went to South America to give a course of lectures at the Franco-Brazilian Institute of Culture in Rio de Janeiro.[9] Up to the time of his appointment as Professor of Comparative and Genetic Psychology at the University of Paris in 1938, Wallon was working on what was to be his main contribution to psychological writing prior to the Second World War : the eigth volume of the Encyclopédie Française. This volume, edited by Wallon himself, contains much of his thought about child development and the part that education must play in this development.

During the war, Wallon played an active part in the resistance movement while holding his position as Professor of

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[6] Ibid., Vol.III. 1930, p.217. [7] Ibid., Vol.V. 1932, p.423.
[8] Ibid., Vol.IV. 1935, p.342. [9] Ibid., Vol.IV.1936, p.459.

Child Psychology in the University, giving lectures until he was suspended by the Vichy Government during the German occupation. Immediately after the war, Wallon published in 1945 what would have been his lectures given at the "Collège de France" under the title Les Origines de la pensée chez l'enfant.[10] This is concerned with the thought processes of the child and is considered by Piaget, amongst many others, to be an outstanding contribution to the field of child psychology, and probably Wallon's most exhaustive study of this aspect of child development.

During the first week of the liberation, Wallon became Secretary of State for the Department of Education. His first action in this role of political administrator was to suspend all high officials in the Ministry of Education, and set a new organization into motion. He appointed Barrée as Director of Primary Education, Monod he placed in charge of Secondary Education, and le Rolland as Director of Technical Education. Wallon's term of office, however, was short - lived; he resigned his post as Secretary after two weeks and

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[10] "Dans cet ouvrage est rassemblée la substance de cours fait au Collège de France et de ceux que j'aurais faits, si mon enseignement n'avait été suspendu, par decision du gouvernement, pendant l'occupation allemande." Les Origines de la pensée chez l'enfant (Volumes I-2; Paris: Presses Universitaires de France, 1945), I, p. i. See also H. Wallon, Les Mécanismes de la memoire (Paris: Presses Universitaires de France, 1951), p. vii.

returned to the Institute of Child Psychology, where, with Renée Zazzo, he began a series of investigations into the effects of war upon children.

In spite of the brevity of his career as an administrator, Wallon had injected some of his enthusiasm and sincerity into the educational system of post-war France. This enthusiasm was nowhere more to be seen than in the impassioned public speech he made during the first week of the liberation, August I8th - 25th, 1944. The hopes of Wallon at that time for French education are clearly set out in New Plans for Education, a monograph published in 1946 by the New Educational Fellowship. In this publication, Wallon points out that even before the war a radical reform of education was recognized by an ever widening circle of opinion :

> Since the war no one has been able to gainsay that need; the blow struck at the educational system and the country's educational need, under the working of government control and often to the orders of the enemy, has made us fully aware of it.[11]

Wallon calls for the husbanding of France's intellectual resources to restore a new order of education, demanding that outmoded forms of education should not prove a stumbling block to this reform. He goes on to give what, in effect, was to appear in the recommendations of the Langevin Report of 1946 : the fusion of primary and secondary education, and a psychol-

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[11] Op. cit., H. Wallon, "The reform of education in France," (New Educational Fellowship, 1946), p. 11.

ogical approach to the problems of education. Wallon had in fact been one of the main contributors to this plan of reform. During the war two separate committees had been meeting to discuss plans for the reform of French education; one in Algiers, convened by the Free French Government, the other in France, held in secret by members of the Resistance. When France was liberated, the two groups were united as a "Commission d'Etude" under the presidency of Paul Langevin, with Wallon and Piéron as vice-presidents. Langevin died during the deliberations and was succeeded as president of the Commission by Wallon. The actual plan of reform recommended by the Commission was published by Roger Gal in 1946.

In the following year a further plan for the reform of education in France was submitted by the "Commission d'Etude" to the Minister of Education. This Report was the first official text to concern itself with the part that psychology has to play in education. Chapter Four of the Report begins :

> The reformed educational system must be able to control and perfect its activities. This control must be pedagogical with regard to the teachers, and psychological as regards the pupil.[12]

The function of teaching and psychology are here quite distinct according to the appraisal of the Report expressed by Wallon; psychology is not intended to regulate education

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[12] La Réforme de l'enseignement (Paris: Ministry of Education, 1947), p. 25.

since this remains in the hands of the official administrators.[13] It is necessary at this point to quote at some length from the Report since it reveals the influence of Wallon so clearly :

> Psychological control is directed only towards the child. It exists as yet only in some groups of pupils in the region of Paris. It corresponds to the necessity of knowing the child in his individual characteristics, as well as in his psychological development. The functions of education are too absorbing to allow the teachers the freedom to study and apply the methods of investigation which can determine for each child the intellectual, characterological or social casues for his schelastic behaviour. They must be able to submit the case to a specialist in psychological method. The psycho-technical examinations will contribute towards the placing of the school child.
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> On the other hand, he must be able to appreciate the psychological consequences of educational methods. Good scholastic results are not always a sufficient criterion. Certain pedagogical procedures can be very effective, but at the cost of much labour to the child, and to the detriment of other mental aptitudes such as spontaneity, initiative, etc. Only well chosen psychological tests can give such balance.
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> Lastly, the time-tables for each class must be adapted according to the aptitudes of each age, and in this adjustment there can be no precision without the use of psychological criteria.[14]

Wallon points out in his comments on this Report that educational psychology must function to the exclusive profit of the child as an individual. Its purpose is not that of a yard-stick whereby selection might be made, nor to point out the social and intellectual inequalities of children, nor to

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[13] H. Wallon et al., La Psychologie scolaire (Paris: Presses Universitaires de France, 1953), p. I.

[14] La Réforme de l'enseignement, p. 26.

guage intelligence by establishing statistical norms; it is something which is used solely for the benefit of the child. as an individual. It must look for the reasons for scholastic failure, discover if it is a question of health, family, character, or of personal difficulties in understanding what is being taught. The educational psychologist must combine with the teacher to discover the appropriate pedagogical methods which should be employed.

With regard to the Report's recommendations about the time-table, Wallon says that it must be an instrument which will help to reveal the capabilities of the child. While it appeals only to certain of his aptitudes it can stultify the interests which could become the centre of the child's intellectual acquisitions. It is not the purpose of psychology to determine what the occupation of a child shall be, but to make him discover in education the activities which will allow him to satisfy and use his intellectual and aesthetic capacities.

"What educational psychology lacks," says Wallon, "is not the zeal of its first pioneers, but to become a legal reality, to receive its rightful status and to obtain official recognition."[15] It was the direct result of the work done by both Wallon and Langevin that did in fact give educational psychology this official recognition; as Maurice Debesse says :

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[15] La Psychologie scolaire, p. 4.

> they have already inspired many measures taken by the administration which, without being spectacular, are effective and full of consequence; such as the introduction of educational psychologists, educational counsellors, then the regional centres for secondary education.[16]

Although the immediate reaction to the Report of 1947 gave an impetus to the role of psychology in education, it was actually two years earlier, at the instigation of Wallon and his collaborator Renée Zazzo, that the first move was made to form a group of educational psychologists. It was necessary, however, in the absence of any ruling which would allow the formation of new posts, to have the support of official administrators, who alone were capable of finding recognized solutions, and the parents whose children were to be educated under this new scheme. The first administrator to lend his support was Richand, the Inspector of the Academy of Isère, and the first educational psychologist, Andrey, left Paris for Grenoble in October 1945 to put the new ideas into practice.

In Paris, in spite of the energetic support of David, the Director General of Education, administrative difficulties held up the start of the experiment for a year. In October 1946, David appointed seven school teachers to act as educational psychologists with authority to stream pupils, to analyse time-tables, methods and subjects of teaching. Both Barrée and Beslais, Directors of Primary Education, gave their

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[16] Encyc. Pract. de l'Educ., p. 536.

support to this initial scheme. Official sanction was further strengthened by the intervention of Monod, the Director General of Secondary Education, in 1948. This psychological experiment in primary and secondary education, and between Paris and the provinces, was affirmed publicly by the organization of two congresses; the first at Sèvres in 1949, and the second at Grenoble in December 1950.

The emphasis at the first congress was upon the need for a psychological method which looked for its material in the school itself, and did not concern itself with pure science. "I consider it very important," Monod remarked, "that psychologists are integrated in the establishment." In another address, Beslais said to the psychologists present: "You must never separate yourselves from the schools or from thought." Above all, the congress was an occasion when a badly informed public was reassured that psychology was not the intrusion of the laboratory into the life of the schools, nor the transformation of the pupils into guinea-pigs.

The Congress held at Grenoble in the following year showed the delagates from different educational establishments the results whichhad been achieved after only a year of experimental work. They came to the conclusion that educational psychology had proved itself, and that the time had come to recognize it officially, and to define its status. The day followingthe Congress, "Le Monde" ran an articles with the heading : "Educa-

tional psychology has proved itself and gained the right to speak." Some weeks later the Ministry of Education formed a committee commissioned to prepare, help, and co-ordinate the work of educational psychologists. On the sixth of July, I95I, this committee presented two projects to the Ministry of Education; the first, "To define the functions of educational psychology," while the second concerned itself with "the recruitment, formation, and rules of service for educational psychologists."

Before Wallon resigned his Professorship in I949, he had the satisfaction of knowing that his work at the Institute of Psychology in the University of Paris had helped to give to education a needed scientific basis. But it was not without opposition; there was the inevitable criticism of new ideas, and the powerful undercurrents of political enmity aimed at the allegiances of Wallon and Langevin. For many years Wallon and Langevin had been connected with the Communist Party. As far back as I933 Wallon had committed himself to Marxism with his contributions to a work entitled A la lumière du Marxisme, which reports a number of addresses given at the Conference of the "Cercle de la Russie neuve" in I933-I934.[17] It was not, then, the fear of scientific intervention on the part of educational psychology that disturbed the politicians, but the mere fact

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[17] Op. cit., (Vols I and 2; Paris: Editions Sociales Internationales, I935, I937), I. pp. 9-I6, pp. I28-I48; II pp. 7-I5.

that the Report of I946 was connected with the names of Paul Langevin and Henri Wallon, both concerned, not with political chicanery, but with a sincere desire to further the study of child psychology and so help others to bring children safely to a fully integrated, adult personality.

"Thus," says Wallon, "all the stages which lead the child to adult life reveal a close relationship between the evolution of his personality and his intelligence."[I8] We must now look more closely at the work of Wallon to discover how far this statement is amplified and explained in his theories of child development.

In many ways Wallon's work, though extensive and long, and often in a dialectical form, is convenient to study, since it contains progressive rather than changing ideas. From L'Enfant turbulent (I925) to Les Origines du caractère chez l'enfant (I933) and his contributions to the Encyclopédie Française (I938), and to his later works, L'Evolution psychologique de l'enfant (I940.I960) and Les Origines de la pensée chez l'enfant (I945), Wallon's theories of child development changed very little. He did, however, amass more evidence, and with each successive work, expand and clarify his position.

[I8] "Les Etapes de la personnalité chez l'enfant," Le Problème des stades en psychologie de l'enfant, A symposium of the Association psychologique scientifique de langue francaise, Geneva, I955 (Paris: Presses Universitaires de France, I956), p. 3I.

In all of his works there appear to be three fundamental concepts which are important to the understanding of child development : emotion, motor activity, and the origin of thought. We will consider each of these in turn, drawing upon all of his works, to evaluate their importance in Wallon's picture of the mental growth of the child.

PART I

WALLON'S THEORIES OF CHILD DEVELOPMENT

I. THE PLACE OF EMOTION IN CHILD DEVELOPMENT.

During the first few months of life, observes Wallon, a child is unable to have any direct effect upon his environment; but, nevertheless, during this period, the child is not without his desires and needs. These emotional and physical requirements are satisfied by the people who surround him; the only part that the child plays is to instigate these activities. It is therefore in society, contends Wallon, that the life of a child begins; though it is not until about the sixth month after birth that the emotions can be identified.

Authors, however, seem to be divided about the identification of emotions during the first few months of life, though most are agreed with A. T. Jersild who stresses the emotional development of the first months as an important factor in the growth of social behaviour.[1] A. Gesell would even go so far as to say that at one month a child will give different cries for hunger, pain, and discomfort.[2] Jersild, however, points

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[1] A. T. Jersild, Child Psychology (London: Staple Press, 1955), pp. 187-190, and 195-197.

[2] A. Gesell, Infancy and Human Growth (New York: Macmillan, 1928), pp. 72-73.

out that when children have been subjected to conditions which would produce pain, anger, or fear, by restricting the use of limbs and head movements, there has been little response which would fit into the classic descriptions of these emotions.[3] O. C. Irwin has reported that in some circumstances there is no emotional response at all : 24 children under one month were allowed to fall about two feet; there were only two cases of crying out of 85 trials.[4]

For Wallon, the distinction between self and others, an important factor in the development of social awareness, is acquired progressively; it is at a minimum in the young child, who seems to echo in his reactions those of the people around him, and share in their feelings. The child who has just fallen down, he observes, will only cry if he knows he is being heard; if he is alone, his tears disappear quickly. When a child is alone his anger does not last very long. Crying begins again with the appearance of a person who sympathizes with him; sometimes at the mere thought that they sympathize. Emotion, then, needs to arouse an emotional response in other people. It is difficult to remain indifferent to a display of emotion, as is often seen amongst a crowd of people when ind-

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[3] Op. cit., pp. 66-67.

[4] O. C. Irwin, "Infant responses to vertical movements," Child Development, (III, 1932), pp. 167-169.

ividuality is lost. This collective and contagious character of emotion has had, according to Wallon, an important effect upon the rituals and ceremonies of primitive peoples. For Wallon, it is emotion which makes collective life at all possible. Some people suppose, says Wallon, that between direct experience and knowledge the egocentrism of the child is interposed, so that emotional states interfere with the progress of motor activity to the representational plane. But this, he contends, would only apply if there was a literal correspondence between reality and ideas, and if thought could not modify its points of view and attitudes.[5]

Wallon criticizes Piaget and his followers for neglecting to take into account the social factors in child development. For these, he says, it would suffice to verify the qualitiative differences of mental activity at each age, as if it obeyed an internal or universal logic rather than the influences of society, making social activity a purely abstract idea. The passage of the thought of a child to that of an adult would be the gradual passage of absolutely individual thought towards thought which, in socializing itself, would learn to limit its own point of view in so far as it would perceive that it is irreconcilable with the points of view of

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[5] Origines du caractère chez l'enfant (Paris: Presses Universitaires de France, 1954), p. 78.

other people.[6] Other experiments, particularly those of F. L. Goodenough, would hardly lend support to these observations of Wallon. Goodenough, with the aid of cinematography, assessed the reaction of a ten year old girl who had been totally blind and deaf from birth, and therefore not susceptible to visual and auditory stimuli. When a doll was dropped down the dress of the girl she exhibited fear and anger, and later, when the doll was discovered, relief and happinness.[7] As N. L. Munn points out, such reactions suggests that social situatiens are not necesaary for the development of emotional behaviour.[8] Other experiments carried out with similar children by J. Thompson and J. S. Fulcher have shown much the same result.[9]

In his writing about the nature and function of the emotions, Wallon makes frequent reference to the work of Cannon, who attempted to show the necessary connection between physiological function and the expression of emotion, a subject which

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[6] Ibid., p. 225.

[7] F. L. Goodenough, "Expressions of the emotions in a blind-deaf child," Jour. Ab. Soc. Psych., (XXVII, I932), pp. 328-333.

[8] N. L. Munn, The Evolution and Growth of Human Behaviour (London: George Harrap, I955), p. 396.

[9] See R. S. Woodworth and H. Schlosberg, Experimental Psychology (London: Methuen, I958), pp. I30-I32.

has always been hotly debated amongst psychologists.[10] Wallon contends, however, that emotions can only be identified by their expression; visceral and muscular reactions play only a subsidiary part. He points out a difficulty which is raised by this point of view. If it is demonstrated, he says, that organic stimulation which accompanies emotion can intensify the reacttion which the situation demands, it is no less evident that the reaction by which an emotion is recognized can only make these gestures and actions more confused and less defined. Further studies of the identification of emotion by expression, and in particular by facial expression, undertaken by C. A. Ruckmick, O. Klineberg, C. T. Morgan and E. Stellar, would lend supprt to Wallon's theory. These have seen that much of the differentiation is the result of learned patterns grafted into the basic patterns of discharge inherent in the structure of the nervous system.[11] It would not be difficult,

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[10] Encyc. Franç., Vol. 8.24.2; also Origines du caractère, pp. 47-48. W. B. Cannon, Bodily Changes in Pain, Hunger, Fear and Rage (New York: Appleton, 1929). Munn, however, points out that with regard to the common physiological characteristics of emotion, "Psychologists have had, as yet, little success in determining whether or not such common properties exist." Op. cit., p. 390.

[11] C. A. Ruckmick, "A preliminary study of the emotions," Ps. Monogr., (136, 1921). The Psychology of Feeling and Emotion (New York: McGraw Hill, 1936). O. Klineberg, "Emotional expression in Chinese literature," Jour. Ab. Soc. Psych. (33, 1938), pp 517-520. C. T. Morgan and E. Stellar, Physiological Psychology (New York: McGraw Hill, 1950).

as Wallon suggests, to point out cases where emotional expression superimposes itself upon action. Where these are developed, it is evidently in connection with certain particular conditions and characteristics of behaviour; what appears originally as accidental is functionally developed and systematized. Emotions must therefore not be confused with automatic reaction, as Wallon points out, since this would deprive them of all significance.

When emotions appear, about the sixth or seventh month after birth, they are mainly the result of the stimulation of the more sensitive parts of the body, argues Wallon; not of the hair or of the skin, which arouses localized reflex actions, but of the bodily organs. They are proprioceptive, then, rather than exteroceptive, being connected with the physical organs and not with objective stimuli found in the child's environment.[12] Their effects are quite opposed to those of reflex actions. Instead of adapting itself to the stimulation, the effect becomes more and more diffused; muscular spasms become more extensive, until the whole body is distorted.

This increase in reaction while the stimulus remains constant is explained by Wallon as the result of a close connection between organic feeling and muscular activity; with no long drawn out transition from one to the other. The stimul-

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[12] Origines du caractère, pp. 26-37.

ation gives rise to a muscular spasm which provides yet another form of stimulation. This building up of stimulus and response can only be relieved through the uninhibited expression of the emotions.[13] Anger is often the result of the inhibition of such a build up of emotional reaction.[14]

The emotions, however, are not stimulated merely by organic excitation; environmental influence plays an even greater part. It is in these circumstances, says Wallon, that the child will give the impression that he is able to cope with the problems of causality. He might, in his excitement, shake his cot, and at the same time a toy is moved which is attached to the cot; when this has happened a number of times, the child connects the two movements. But to attribute this to a knowledge of cause and effect, says Wallon, is to endow the child with an ability which is beyond him at that age.[15] What unites the two activities in this instance is that they occur at the same time, and nothing more. For the same reason it would be wrong to think that the bad temper which appears in children could be attributed to malice aforethought. It is common knowledge, says Wallon, that what is intended to pacify a child is often the action which will excite him the most.

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[13] Encyc. Franc., 8.24.3.

[14] Origines du caractère, p. 72.

[15] Ibid., p. 50.

These emotional influences which surround a child from the very beginning of his life cannot but have a determining influence upon him. Not that they create modes of thought and feeling in a child, but because, according to the extent to which they are aroused, they give rise to automatic reactions, based upon the development of nerve structures. It is in this way, says Wallon, that organic influence is joined to environmental circumstances. To illustrate this, Wallon draws upon the experiments of different psychologists to contenst the view that a child will smile only in the presence of a face. These authors point out that up to the seventh week a variety of stimuli can cause a smile : the tickling of different parts of the face, contact with the breast, playing with the hands, after a feed and after sleep.[16] R. Spitz, for example, reports that a response to a human smile and moving masks appears about the age of two months; but this response can be elicited by any moving mask or face. It is not until about the sixth month that only a familiar face will produce it.[17]

There is hereaa clear order of stimulation for Wallon : first, the immediate stimulation of muscular tonicity and a

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[16] L'Evolution psychologique de l'enfant (Paris: Librairie Armand Colin, 1941), pp. 134-135.

[17] R. Spitz, "The smiling response : a contribution to the ontogenesis of social relations," Genet. Psych. Monogr. (1946), pp. 57-125.

general condition of organic satisfaction; then the sensory impressions of an object; and lastly the presence of a voice or face which induces contentment. While these account for the emotional significance of a smile, they fail to take into account the physiological concomitants : the contraction of the appropriate muscles, and the subordination of these to exteroceptive stimuli. The inducement to smile by smiling is so closely joined together that it would suggest a functional affinity rather than a mere sequence of events or the formation of a conditioned reflex. Whatever its nature, it is an example of the way in which an emotion in a child can be diversified through contact with the environment. This leads to a phase in which the child becomes aware of himself as an individual, as someone distinct from other people; it is at this point, says Wallon, where the personality of the child begins to emerge. Some authors, however, insist that personality traits can be seen during the first few days after birth; but, as Jersild points out :

> "Owing to the many factors which may influence a child's behaviour during the first days of life - including among other matters, the 'age' of the child when delivered (whether 'premature' or full-term) and the circumstances of his delivery - it is hardly to be expected that the infant's behaviour soon after birth will give a reliable prediction of the distinctive personality traits which the same child will show as he grows older." [18]

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[18] Op. cit., p. 73. See also R. Strang, An Introduction to Child Study (New York: Macmillan, 1959), p. 43.

Between emotional and intellectual activity the same kind of antagonism is to be found. The meaning of a situation is seen in the activities which it brings into play, and by the attitudes and opinions which it arouses. In mental development, this "practical intuition", as Wallon calls it, precedes by far the ability to compare and discriminate. It is, in fact, an elementary form of understanding, but as yet dominated in the child by the interests of the moment and the particularities of a situation. Wallon contends that it is the agreement of attitudes between individuals which first gives rise to understanding, and that such pragmatic and concrete situations will only take place when the part played by the postural reactions involved in emotion are reduced. This is often observed in an adult who reduces the emotional content of a situation by the control or the simple intellectual explanation of his motives; but it is very slow to make its appearance in a child.

The transformations on the emotional level are the result of this conflict. The intellectual theories of the emotions have succeeded only because they have given undue weight to the intellectual motivation of the emotions, and failed to take into account the part played by physical stimulation. It depends, says Wallon, upon the age and ability of the child, whether he is able to maintain a balance between these different forms of mental activity. The child who revels in emotion,

pays little attemtion to the circumstances which arouse them; he refuses any active part in the relationships which attach him to the people round about him. To attempt to force a child into such a relationship, says Wallon, will only result in bad temper and sullenness. The child on these occasions seems to be shut up within himself, absorbed in sucking his fingers for example. This early negative stage is only modified by the appearance of representational activity, which gives some kind of thematic form to his day-dreams. Feeling can be very intense in children and often repress true emotion. For its development, the child needs a certain amount of control over himself to forestall any kind of opposition to the expression of emotion. For Wallon, this ability does not appear before the child has reached the age of three years.[19]

It would appear, then, that the normal emotional development of a child up to the age of three years, according to Wallon, depends to a great extent upon motor activity and the influence of society. We will consider each of these and the part they play in Wallon's theories.

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[19] Origines du caractère, pp. 219-229.

2. MOTOR DEVELOPMENT

Wallon suggests that the most elementary response in a child is that of an action to obtain a desired effect; an action which, at its lowest level need not be connected with mental activity at all. Wallon observes that during the first few weeks all movement, whether sporadic, sudden, or intermittent, is a simple liberation of energy composed of dissociated motor activities.[1] The young child is characterized by what Wallon calls "explosive" activities : arms and legs move together, often every part of his body seems to be moving at the same time. Even when a stimulus is applied to a particular part of his body, it may occasion activity in quite different parts of the body. One investigator, K. Jensen, noted a sucking reaction to a variety of stimuli, including pulling of the hair and pinching the toes.[2] It had been suggested prior to this by O. C. Irwin that certain specific

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[1] Encyc. Franc., 8.28.I. See also L. Carmichael, Manual of Child Psychology (New York: Wiley, 1954), article by Karl Pratt on "The Neonate," pp. 215-291.

[2] K. Jensen, "Differential reactions to taste and temperature stimuli in newborn infants," Gen. Psych. Mon. (1932) pp. 361-479.

motor activities emerge from what he terms "mass activity" only after a period of maturation.[3] This categorical division prompted many investigators to test this contention. W. Dennis and B.v.H. Gilmer found that this "mass activity" contained a number of specific responses to stimuli.[4] It would appear then that the infant's responses, even shortly after birth, are not as unorganized as Wallon believes them to be.

Wallon contends further that without any exact relationship between each system of muscular activity and their corresponding effects, movement cannot play a part in the development of the child's mental activity. There are two things to consider, says Wallon, when looking for the connection made by the child between these two activities : the body itself and the environment of the child.[5] There is a quite distinct form of muscular activity connected with each of these; and some form of immediate union between the muscular activity of the body and the child's mind. It takes many months, however,

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[3] O. C. Irwin, "The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life," Gen. Psych. Mon., (1930), pp. 1-92.

[4] W. Dennis, "The role of mass activity in the development of infant behaviour," Psych. Rev., (1932), pp. 593-595. B.v.H. Gilmer, "An analysis of spontaneous responses of the newborn infant," Jour. Genet. Psych., (1933), pp. 392-405.

[5] Evolution psychologique de l'enfant, p. 50.

for the child to achieve this coordination between mental and muscular activity.

At every stage in the child's growth, says Wallon, the building up of mental life requires the adaptation of activity to the object of immediate concern; the effects of the activity upon the activity itself. Wallon often refers to these as "circular" activities.[6] The vocal emissions which precede the exact enunciation of a sound, for instance, shows how the child learns to realize all the possible relations between the acoustic and kinaesthetic fields by the joining together of certain effects with certain actions.[7] If the actions of the child result in a favourable effect, then a process of selection comes into operation which eliminates everything found to be unnecessary to obtain this effect. Effect, then, for Wallon, determines the continuation of the activity.

It often happens, Wallon observes, that a child is surprised by a gesture which results in an effect which he has not foreseen. Curiosity is awakened by the novelty of the situation, and the action is repeated which leads to the new effect. Whether the effect is expected or not, it is always carried out with the intention of deriving some pleasure from

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[6] Following the term used by Baldwin. See Encyc. Franc., 8.28.I.; also R. Strang, op. cit., pp. 64-66.

[7] Encyc. Franc., 8.28.2.

it; or often merely because the child wishes to the the initiator of an effect.

It can be seen from this that Wallon does not give any rigid form to the development of motor activities and skills. While maturation and the opportunity to bring certain motor activities into practice are important, they do not seem to be the only determining factors in motor development. It is not always true, moreover, that an effect is necessary for an action to be performed again; Jersil has observed that some children possess a tenacity which insists upon them continuing a certain activity in spite of many set-backs and failures.[8]

While the mental development of the child is concerned with the connection between both internal and external factors, Wallon contends that it is not impossible to discover the part which each of these has to play. It is well known, he says, that the chemical constituents of the body have an effect upon its growth, not only organically, but mentally. The ductless glands, for instance, which begin to operate at puberty, give rise to changes in the personality. While the adult is able to regulate both himself and his environment to some extent, the child remains powerless for a long time in face of the most fundamental necessities of life. The only thing which brings a child into contact with his surroundings is his reaction,

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[8] Op. cit., p. 168.

whether favourable or unfavourable, to this immediate environment; though this reaction, remarks Wallon, is not always a conscious activity. It is, then, quite clear, that for Wallon, the motor activity of the child plays an important part in the development of his ability to appreciate and understand his environment.[9]

Wallon also pays great attention to pre-natal motor activity; about the fourth month of pregnancy, the first movements of the child are felt by the mother. These movements, he says, which respond to certain stimuli, persist at birth, and for the first two months are difficult to define. The nerve centres upon which these muscular activities depend do not mature at the same time; their functional balance changes with the age of the child. The work of the American psychologist, M. B McGraw, would lend support to Wallon's contention. McGraw studied the Moro reflex in a number of children and found that after six or seven months the clasping response had almost disappeared.[10] She contends that such refinement of the response is the result of development in the child's cerebral cortex. In a later study of the development of locomotion, McGraw found that only after about a hundred days was any obvious

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[9] Encyc. Franc., 8.28.3.

[10] M. B. McGraw, "The Moro Reflex," American Journal of Diseases of Children, (1937), pp. 240-251.

progress made, whichshe attributes to the beginnings of cortical control over movement and posture.[11]

For this reason Wallon contends that the "pedalling" movement of a child is not the muscular activity later required in walking, since this does not appear formmany months, during which time further nerve centres come into play. Nor, for the same reason, is it a prehensile movement when the child grips an object; it is simply a reflex action. Much the same result was found by M. M. Shirley who reports that such "pedalling" and "stepping" reflexes disappear within a few weeks after birth and are connected in no way with walking.[12]

At first the child is bewildered by the multiplicity of gestures which he is able to make, and it is a long time before he can discriminate and systematize these gestures according to needs and circumstances. Faced by a novel situation, the child often has to struggle against a form of motor activity which does not bring about the desired effect. Wallon suggests that the control which a child has over its motor activity, the power to modify, select, or inhibit, follows a regional progression; the child first moves his upper body and

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[11] Idem, The Neuromuscular Maturation of the Human Infant (New York: Columbia University Press, 1943), Ch. iii.

[12] M. M. Shirley, The First Two Years : A Study of Twenty-Five Babies (Vols. I-3; Minneapolis: University of Minnesota Press, 1931-1933), I, Postural and Locomotor Development.

then later the lower limbs. This, he says, shows the interdependence of mental and physiological processes. Many studies of groups of children show that they tend to follow this general pattern of postural control : first they are able to control head and neck; then chest, back, and lower trunk; and finally legs. The time range, however, for the appearance of a particular motor ability can vary from between ten to twenty weeks.[13]

There is, however, according to Wallon, little motivation in actions at their lowest level; the child performs these actions for themselves alone. As yet, only simple vocal ejaculations or spontaneous gestures of agression or defence enter into his play activity, where the situation matters very little. The first form of motivation which comes into operation gives the appearance of a mere sensory effect which the child attempts to reproduce. For example, his hand passes across his field of vision; later he arrests this movement before his eyes, and proceeds to move his hand in different directions. The sensation is only held, discriminated, and identified, when the child is able to reproduce it for himself by the appropriate gestures. If he does not, the effect remains indistinct, mixed up with many other impressions and reactions. In this way, says Wallon, circular reactions are formed, where the child

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[13]See Jersild, op. cit., p. 149; Shirley, op. cit., pp.99f; and Munn, op. cit., pp. 280-281.

performs the correct gesture to reproduce the desired sensation. the precise adjustment of the gesture to its effect establishes relationships between the movement and the external impression, so that the child can differentiate them as well as combine them. B. Mittleman suggests that movement is in fact the dominant source of pleasure during the second year of life. She postulates a motor urge based upon the movements of a child which have no obvious purpose : movements which accompany emotion, rocking movements, and sometimes those which accompany learned motor behaviour.[14]

For Wallon, the consequences of such an adjustment are considerable. It results in a form of sensori-motor activity which allows the child to go beyond activity for its own sake. The child finds that the hand and the eye must combine in the discovery of many different objects.[15] Wallon gives as an example of this the gurgling noises of a baby. The sounds which he more or less fortuitously produces, are repeated and modified to resemble those which he hears. At the same time, these sounds become more and more varied, sometimes reaching pure consonantal vocalisation. Wallon contends that the ind-

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[14] B. Mittleman, "Motility in infants," Psychoanalytical Studies of the Child, (IX, 1954), pp. 142-177.

[15] See also J. Piaget, "Les stades du developpement intellectual de l'enfant et de l'adolescent," Le Problème des stades en psychologie de l'enfant, p. 37.

ividualisation of sounds resulting from sensori-motor changes makes the child realize the subtle difference to which words owe their structure; interest is added when the child is able to give some significance to the sounds he makes.

Another consequence which Wallon sees in this joining together of motor activity and sensory effect is that it unites the different sensory fields. Sensori-motor activity constitutes a common denominator, since the changes which it produdes are able to be seen in many of the sensory fields at the same time. Wallon admits, however, that a certain degree of functional maturity is necessary for this simultaneity to be recognized. The basic cause in the child for the connections made between certain sensory fields is motor activity. For Wallon, it constitutes a new means of co-ordinating impressions in that it allows the grouping together of these impressions round an object, and to understand why one sensory field can be replaced by another when the object remains the same.

Wallon contends that it is the mouth of the child which is the first part of the body to be used in the discovery of the external world. While primarily concerned with food, this is not its only function in a young child. It is the only part of the body where exact agreement of movement and sensation allows the appreciation of shape, volume, and resistance,[16] and

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[16]See also Jersild, op. cit., pp. 107-108 : "The mouth is a sensory avenue to the environment."

only later with such things as temperature and taste. As soon as the child is able to co-ordinate his movements, he begins to take command of his environment; but it is only when he is able to move himself that space ceases to be merely a succession of different surroundings. The reduction of sensory impressions to one field is impossible while the child is unable to reduce distance by his own movement.

For Wallon, these results are obviously not the automatic result of sensori-motor activity. On the contrary, these activities are often centred upon themselves, as happens in certain cases of psychological maladjustment where the person is preoccupied with the repetition of one particular action.[17] These stereotyped activities, Wallon argues, have some connection with the formation of habits. In a child, he says, the pleasure of repetitive action is obvious, and, at the same time, indispensable for many forms of learning. While the means and the end remain the same, the acquired action is mere formalism; but the desire to investigate, which occupies every normal child, is accompanied by certain transferences which take away this formal characteristic of motor activity. It is for this reason that he argues an ability to apply a learned response to a new situation or object; changing hands, for instance, to perform the same operation, or

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[17] Encyc. Franc., 8.28.2.

making the feet perform manual operations. It is in this way that the child is drawn towards the establishment of relationships between movement and what responds to it in different sensory fields.

Wallon often stresses the fact that one of the earliest and most powerful attractions for the child is the people who surround him. His total dependence with regard to his bodily needs, he remarks, quickly makes him aware of the actions which will bring about their gratification. In this way he comes to terms with his environment; as the child's motor actions become more co-ordinated, resulting in a differentiation between self and surroundings, the more the child deliberately seeks a balance between himself and this environment. It is at this point, according to Wallon, that the child begins to imitate the people who surround him.

Imitation in the child, says Wallon, must not be confused with similar reactions of animals in the same circumstances. The use of identical reflexes, the demands of the situation, and the modes of approach suggested by an object, are sufficient to explain in two similar animals an identity of response. To begin with, a young child does not know how to reproduce the movements or sounds made near him. If the imitative action is to be effective, argues Wallon, it must survive in the motor mechanism of the child. It is not, however, a motive for action. When two animals are playing

together, for instance, they often repeat a gesture again and again; what the circumstances have aroused, imitation makes them repeat. This is important for Wallon with regard to children since it adds a new motivation for spontaneous gestures, bringing into operation a selective process.

The novelty of imitation for the child, says Wallon, lies in the fact that he is acting upon the stimulus of an external model; it would be nonsense, he says, to talk of imitating oneself. Piaget, on the other hand, contends that it is possible to imitate oneself; as the young child can only perform certain actions, repetitions of these, circular reactions, is nothing more than the imitation of oneself.[18] But, Wallon goes on, every reproduction of a new sensory impression need not be classed as imitation. Immediate repetition of a gesture or sound which has just been seen or heard is much more likely to fall into the class of "circular" activities mentioned above. The effect of a movement which a child repeats is often so closely attached to it that he repeats the effect without having first produced the movement. Since the initiative now passes to the sensory field, the motor mechanisms become capable of repeating auditory or visual impressions whatever their origin, provided they are familiar to the child. But the connection here is only between particular elements in

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[18] J. Piaget, The Child's Construction of Reality (London: Routledge, 1955), p. 253.

the motor and sensory fields. Wallon suggests that echolalia is the failure of these motor elements to come into operation;[19] this type of sensori-motor activity is on such a low level, that its persistence in adults denotes an advanced stage of mental dissolution.

Wallon contends that imitation does not respond to the elements of a situation, but, as in perception, to the situation as a whole; it grasps the configuration rather than the parts. The reproduction of each of the elements presupposes the perception of the configuration, since without this there would be only an unconnected series of actions. However mechanistic this might be in application, it nevertheless leads to a complicated level of imitation, presupposing the ability to follow instructions, and a capacity for making comparisons; activities which only an advanced stage of mental evolution could make possible.

During the early stages of his development, a child must have a model before him, says Wallon, since he is unable to act upon a visual image of the model. He will, moreover, imitate only those people whose actions attract him. Wallon suggests that in this attraction there are three motivating forces which form the basis of imitative activity : love, admiration, and rivalry. He admits, however, that these are not always

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[19] See also J. Piaget, The Language and Thought of the Child (London: Routledge, 1959), pp. 11-13.

clearly defined because of the often ambivalent nature of the emotions.

As well as this emotional basis, Wallon also sees in imitation the first suggestions of true perception and understanding; for imitation is neither the immediate nor the literal reproduction of characteristics observed in other people. There must be a period of what Wallon calls "incubation", which might last for hours, days, or even weeks, in which the child assimilates the things which he has seen and heard.[20] The emphasis is here upon auditory and visual stimuli. It is sufficient, Wallon says, to watch a child in the presence of some movement which fascinates him to see that, even though he is merely watching this activity, he participates in the movement himself. Sometimes, while he is watching this movement, the child makes quick gestures which seem either to anticipate the result he is waiting for, or to correct what appears to him to be errors in the action in which he is taking part. In this way perception combines with what is yet only a motor impulse. Language, according to Wallon, is only a long adjustment of movement to those of a model.

Wallon points out, however, that the progress of imitative activity is not always smooth and without hindrance; it must break through a mass of motor habits which form the basis

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[20] Evolution psychologique de l'enfant, p. 160.

for so many involuntary actions and the spontaneous gestures of children. While these spontaneous gestures can prove a stumbling block to imitative activity, they are nevertheless necessary connecting links between external impressions and their repetition. A child often fails to imitate an action, says Wallon, not because he cannot reproduce it, but because he is unable to connect the component parts of the action. This means that the child must be able both to analyse and synthesise the perceptive-motor configurations with which he comes into contact.

Much of what Wallon has to say about imitation would be acceptable to many psychologists; but there is the possibility that such actions as classified by Wallon under the heading of imitation, might resemble each other and yet have little to do with imitation. In experiments with new-born chickens, psychologists found that the chickens were able to peck from the ground when they were with the hen, and attributed this at first to an imitative reflex action. It was then found that when the hen was not there the chicken would peck for food when it heard the tapping noise of a pencil. It could not then be imitative activity. Similarly, one must not confuse the results of functional development and imitation, as when kittens, for example, behave in exactly the same way when they see a mouse. The innate reaction pattern is the same in all kittens which have reached a certain degree of development. We could

not, then, speak of imitation in these cases where the same pattern of behaviour controls an action. It can be seen that these types of instinctive behaviour can complicate the understanding of imitative behaviour. We must be careful therefore, not to make voluntary imitation the only form of imitative activity, and thus conclude that imitation can appear only late in the development of a child, as Wallon implies.

G. W. Allport, for example, suggests that there are in fact three quite distinct forms of imitation :

(a) A kind of conditioned reflex imitation, called by some the "echo principle." A child learns to speak English or French, not because of specific genetic dispositions, but because English or French is spoken in his home. Conventional gestures are taken over in the same way.

(b) Unconscious mimicry of what he calls the "muscle tensions" in other people. Children in their mothers' arms are tense if the mother is tense, and relaxed if the mother is relaxed. Every teacher knows how promptly children react to gestural, postural, and physiognomic indications of friendliness, enmity, or anxiety.

(c) Conscious imitation of the behaviour of others, noted especially in children's ludic activity. "The desire to comprehend, to execute a meaningful act," he says, "shows that learning through insightful imitation may transcend the mechanical principles alleged to account both for learning

and for conditioned reflex imitation." [21]

The development of sensori-motor activity of a child, argues Wallon, depends largely upon the objects in his immediate environment. Having learned to seize them, he throws them to the ground merely to find them in another position. If they have parts which knock against each other, the child persists in manipulating them to obtain the same noise. It is again a form of sensori-motor activity. While attempting to obtain these responses, the child invariably meets with a novel factor which disturbs him. This, says Wallon, is because the child is concerned with particularities, and endeavours to fit every object into a particular pattern which he has observed. It would appear then, that for Wallon, the child is not concerned with the object qua object, but with the object as a collection of particular possibilities : the child moves from the abstract to the concrete order of things.[22] Wallon contends that the recognition of an individual object comes later, when the child is able to group together the qualities of one object. This grouping together of different qualities, he says, depends upon the understanding of the significance of a particular object.

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[21] G. W. Allport, Personality (London: Constable, 1951), pp. 151-159.

[22] Encyc. Franc., 8.28.4.

Wallon argues that this understanding can only come about when the child is able to use what he refers to as "intelligence of situations," or practical intelligence.[23] He refers, in support of this contention, to the experiments of Koehler with chimpanzees, who found that in animals closely resembling man there is evidence that they are capable of using practical intelligence. Most animals, when prevented by some obstacle from obtaining food, give up after a few attempts. The anthropoid apes, however, realized that the food must be drawn in some way round the obstacle in order to reach it. Wallon contends that the chimpanzee could see in this situation the significance of a rod, and not merely the rod as an object; if this were not so, the chimpanzee would have ignored it.

It is at this point, according to Wallon, that imagination begins to play a large part in the development of the child; without imagination the child could not bring about the effects he desires from the objects in his environment. It is, moreover, an important element in all ludic activity, where the child enlarges the scope of his imagination. The games which please him most are those where his fantasy, inventiveness and creativity are brought into play. The image, far from being an illusion, is as real as any object which a child can

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[23] Evolution psychologique de l'enfant, p. 164.

manipulate. It is a mixture, says Wallon, of three things : reality, the image itself, and the symbols whereby the image is expressed.[24]

In the Encyclopédie Française, Wallon sums up the section on sensori-motor activity in this way :

> Action upon the exterior world is made up therefore of only sensations and movements. It superimposes structures upon it which arrange themselves in configurations whose complexity and comprehension increases with the successive stages of development. They are bound to a progressive maturation of mental development. Exercise cannot take its place. A child does not profit from examples, does not understand suggestions, nor remember the eventual successes which result from the tasks beyond his age. Beneath the structures which he is capable of understanding, there is the capacity for ordering spatial relationships. For the various degrees of sublimation, this attitude will be the condition for language and those of the discursive and classificatory workings of thought. [25]

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[24] Ibid., p. 168. See also J. Piaget, La formation du symbole chez l'enfant (Paris: Delachaux et Nestlé, 1951), pp.70-71.

[25] Op. cit., 8.28.5. See also Piaget, "Perceptual and cognitive structures in the development of the concept of space in childhood," Acta Psychologica, (1955) pp. 41-46, where Piaget postulates sensori-motor ability as the basis of intelligence; it influences perception, which in turn leads to the formation of concepts on a higher level of thought.

3. THE EMERGENCE OF THOUGHT

Wallon observes that the beginning of speech in a child coincides with a marked progrees in his practical ability. To emphasize the importance of speech, Wallon compares the ability of children with that of chimpanzees in identical situations; on one occasion before language appears in the child, and on the second occasion after the child has begun to speak. To begin with there are similar reactions in both child and chimpanzee; as soon as the child begins to speak there is a marked difference in the ability of the child, who quickly surpasses the chimpanzee. To illustrate this, Wallon records the experiments of Guillaume and Meyerson, where a monkey and a child are faced with a number of boxes in a strict order, one of them containing food.[I] The attempts to find the food without error are much the same in child and chimpanzee. When the child has learned to speak, the order of the boxes is changed. The chimpanzee can do no more than try haphazardly to find the food, whereas the child knows quickly how to medify

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[I] "La croissance intellectuelle de l'enfant," Encyc. Franc., 8.32.10. Also P. Guillaume and I. Meyerson, "Reserche sur l'usage de l'instrument chez les singes," Jour. de Psych., (1930) pp. 177-236.

his reaction.

It is for this reason that Wallon suggests the necessity of language for mental enumeration, since it gives the required equipment for imagining a displacement between observed objects. It is an ability upon which depends the ordering of successive parts of a discourse. This ability to imagine a new order of objects must depend upon perception, which must not be absorbed by the objects themselves.[2] Wallon quotes the example of the aphasic who does not know how to indicate direction if his eyes are closed;[3] what he points to if his eyes are open is an object rather than a direction : the floor, the sky, or a hand which is holding something.

For Wallon, this fundamentally simple condition does not explain the entire function of language, nor its consequences. For him, it is language which changes the form of objects and actions which constitute the early experiences of the child. It is not in itself the cause of thought, but it is an indispensable factor in its progress. For this reason, Wallon contends that an object need have no direct dependence upon perception; a child can recall an object in his mind and explain and describe it with the use of words. This representational activity is not without problems; it is very often the cause of

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[2] Origines de la pensée, Vol. II, pp. IIff.

[3] Evolution psychologique de l'enfant, p. I72f.

opposition in a child's mind between such things as identity and diversity, the permanent and the transitory, position and movement, being and becoming. Many of the apparent inconsequences of a child's thought can be attributed to these contradictory notions. To illustrate this, Wallon draws upon the experiments of Goldstein with aphasics who are unable to classify objects according to characteristics which are unfamiliar to the patient.[4] One refuses to put a cork-screw into a bottle cork which is loose, saying that the bottle is already open; another associates a powder compact with a book because they are both objects which she carries on a journey. Wallon explains this by saying that the objects lose their independence because they are known only through a direct personal relationship with the patient. This egocentrism, he says, is also found in language.

Piaget is a little more categorical in his discussion of egocentric speech; he finds three types of such speech : "echolalia," where the child repeats words merely for the pleasure of talking; "monologue" when the child talks to himself; and "collective monologue," where the point of view of another person involved in a conversation is not taken into account but provides only the stimulus for his own speech. It would appear that Wallon and Piaget here have a different conception

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[4] Encyc. Franc., 8.32.10. Cf. also Origines de la pensée, II, p. 12f.

of egocentrism in speech. For Wallon it arises from the inability of the child to describe things outside of his immediate experience, while Piaget attributes it to the refusal on the part of the child to place himself at the point of view of his hearers.[5]

This egocentrism, Wallon contends, is a normal condition in so far as it is concerned with concrete objects in the child's experience; he ceases to be understood, however, as soon as he attempts to describe things which are outside of this experience. There is a lack of synchronism in the use and understanding of words according to their context; he does not know how to dissociate himself from a course of events or the reality of a situation, nor how to classify objects, except according to the relationship which he himself can supply from his own experience. It is for this reason that Wallon sees a parallel between children and aphasics. Wallon illustrates this inconsistency with the following interrogation of a child aged seven years :

> What is the shape of the moon ? - Round. The shape of the sun ? - Square. What other things are square ? - Pieces of wood. (While making this imprecise response, the child is looking around him.) Any others ? - A board, a chair, a table, a slate. (All objects which he can see.) Anything else ? A hard object that you know ? - The wall. And at home ? - A board, a weight, a chair. These chairs, are they hard ? - No

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[5]See J. Piaget, The Language and Thought of the Child p. 9, and pp. 255-267.

sir. Then ? - The top of the table. Why are the chairs not hard ? - Because they have a head-rest. What shape is the head-rest ? - Hard. [6]

Wallon explains these difficulties in children by saying that the child is absorbed entirely by the impressions and reactions of the moment. Because he is absorbed by each object in turn, he is unable to grasp the significance of their relationship. The meaning of "before" and "after" escapes him, even though he has been speaking for some years. It is not a simple matter of vocabulary, Wallon says, nor yet of ideas which are too difficult for him to express. It is rather the inability to use such words as "tomorrow", "yesterday," and "today" in their correct context, which would presuppose an advanced stage in mental evolution.

Wallon contends that motor activity has a large part to play at this stage of the mental development of the child.[7] If the child wishes to represent to himself a situation, he will first use some form of motor gesture; before a gesture is given at the same time as a word, the gesture must first have preceded the word. This means that the child indicates before he has the ability to explain; he imagines nothing without giving it some form of expression. By his gestures and facial expressions he seems to act out the events which he has

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[6] Origines de la pensée, II, p. 14.

[7] Encyc. Franc., 8.32.II.

called to mind; he must, moreover, narrate what he has called to mind, as if it were necessary to it.

L. Kanner points out that other modes of communication precede that of verbalization; children can "talk" gesturally, he contends, before they can say one symbolized word. "As children grow older," he says, " and learn to speak, the need for communication is supplemented but not supplanted by words. There is an integration of speech and nonverbal language which remains throughout life, differing individually and geographically." [8]

It would appear then, at this stage, that Wallon attaches much more imprtance to motor activity than conceptual thought. Without motor or verbal activity, he argues, ideas lack the strength to form or sustain themselves. Besides these, there are other forms of interference which prevent a child from differentiating between events or objects. His motor activities are divided between the expression of his ideas and the spontaneous reactions which a situation might arouse. The child becomes lost, Wallon says, in the digressions and diversions which prevent the expression of his ideas. There is a simple alternation of thought which gives the appearance of being both fluid and yet constant, which in turn prevents

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[8] L. Kanner, Child Psychiatry (3rd ed; Illinois: Charles C. Thomas, 1960), p. 185. See also W. N. Kellog and L. A. Kellog, The Ape and the Child (New York: Whittlesey House, 1933), pp. 275-301.

the continuity of thought. Wallon says that it is because o-f this discontinuity of thought that the child, when faced with problems which require intellectual appreciation, is unable to resolve them.[9]

In an interrogation reported by Wallon in Les Origines de la pensée chez l'enfant, he makes us of the vexed question, "Which came first, the chicken or the egg ?" to illustrate this discontinuity of thought in a child. He asked a child aged seven years :

> What use are hens ? - To make little chickens. How does it have little chickens ? - In eggs. And eggs ? - The hens hatch them. Where do the eggs come from ? - When they eat worms. Who eats worms ? - Seeds. What eats seed ? - The hens. And where do the eggs come from ? - Don't you know that hens lay eggs ? The hens make them. There must be eggs then, to have hens; how are the hens born ? Where do they come from ? - From warm countries.[10]

To add to these obstacles, the child, Wallon observes, is unable to adjust himself to the objects of his experience which require perceptual or intellectual understanding. Like a kitten, he says, whose ball of wool has rolled out of reach, leaving it undecided what to do, the child remains confused at these moments of indecision; a blank look appears on his face as soon as the object of his thoughts escapes him. This results in a change of conceptual image which makes it difficult

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[9] Encyc. Franç., 8.32.II.

[10] Op. cit., II, p. 34.

to identify each of them, and easy to confuse them with many others. This incessant changing of mental images becomes reality, to which Wallon attributes the make-believe world of the child.

The thought of a child has been described by many authors as syncretic; the same cannot be said of an adult, says Wallon, who can ennumerate and analyse objects, events, and situations into their component parts and circumstances. He uses terms with a definite and stable significance arrived at by means of analysis and synthesis. Before a child is capable of this, he must overcome many obstacles.[11]

Wallon contends that this syncretism is the result of many factors present in the thought processes of a child, but mainly because of the child's inability to discriminate between ideas. He gives the following example of this inability : a six year old child is asked

> Tell me some things which you feel ? - Insects, when they tickle. What do we feel ? - When someone tickles us... When ladies who are near us; they tickle us sometimes. What other things ? - The leaves, wind, lightning. You feel lightning ? - No. We feel when we drink, and when we wash. [12]

The child at this stage, says Wallon, lacks the ability to use conjunctions to order the content of his thinking, to

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[11] Ibid., I, Part III, passim.

[12] Ibid., I, p. 214.

put subjective and objective elements in their place; in other words, to progress from syncretic to articulated thinking. There are, according to Wallon, two factors which must be taken into account when considering syncretism : the inability to analyse an object into properties which he can use in comparisons with other objects, and the inability to see common qualities and relationships in a series of objects.[13]

Piaget, on the other hand, suggests four characteristics of syncretism : thatwhere the child's thought moves immediately from premise to conclusion without any form of deduction, which Piaget refers to as "non discursive;" the second and third forms involve the use of either imagery or analogy on the part of the child; while the fourth is characterized by the child's belief in the conviction of what he says. Up to about the age of seven or eight years, Piaget argues, the child's thought, his "verbal" or "perceptive" intelligence, contains a great deal of syncretism; verbal syncretism, however, makes its appearance only after the age of seven or eight years.[14]

Wallon observes that the necessary assimilation between language and objects is far from being immediate. The first phrases of a child, he says, are optative and imperative, made

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[13] Ibid., p. 285.

[14] J. Piaget, The Language and Thought of the Child, pp. 127-161.

up of one word or one syllable repeated. The sense of the word can change according to the situation in which it is spoken. They are, therefore, for Wallon, essentially elliptical and polyvalent : the circumstances determining the meaning of the word. Besides simple verbal ellipsis, Wallon postulates two further types : "ellipsis of circumstances" and "ellipsis of image." Wallon gives the following conversation with a seven year old child as an illustration of ellipsis of circumstances :

> Tell me something about boats. - In the water, it floats in the water. How does it float ? - In the water, because someone holds the oars and rows. If the oar falls in there is only one left. The sailing ships get lost, they go to the bottom of the sea. How do they go to the bottom of the sea ? - Because they do not want to, they bring in their oars and it falls like that (gesture of falling), and then they look out of a window which is not open, that's how the ship floats. [15]

When the child arrives at the age when "verbal knowledge" develops rapidly, it is again, for Wallon, a development concerned with words and phrases remembered for themselves, or having only an uncertain and tenuous connection with reality. During this period there are slow adaptations which allow the child to realize the significance of the words he uses. Between them, as between the configurations from which they are detached, their connections remain stronger than their relationship to an object. The translation of his thought into

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[15] Ibid., I, p. 22.

words, says Wallon, often deceives the child, who substitutes for it his own direct experience of different objects. Even when the child begins school, this conflict between words and objects has not passed. To understand the apparent contradictions in adult thought, the child must bring all three sources of understanding to bear upon the problem; for Wallon, these three sources are immediate experience, words and their meaning, and the authoritative instruction of a teacher.

Wallon shows that representational activity begins by being opposed to the primary experience of a child; when it appears in a child's mind, it undermines all his previous understanding of objects and situations. This is very much like people with a compulsion neurosis, says Wallon, who, when they are faced with a representation of a stimulus object or situation, become insensible to spatio-temporal concepts and appearance.

Syncretism, Wallon goes on, produces similar effects. It is a fomm of compromise between, on the one hand, representation, and on the other, the complexity of experience. To describe syncretism, Wallon compares the thought of a child with that of an adult, who is able to direct his thought processes by means of analysis and synthesis. For the child, the perception of things is based upon a universal impression, where details are indistinct. Wallon argues that this is the case in spite of the fact that children so often concentrate

upon the details of an object. What complicates syncretism even more is the fact that it is not merely an insufficiency; it is, in its way, a complete activity in itself. Wallon points out that an animal will react to a detail of a configuration when they have been conditioned to the whole of it; but this, he goes on, does not necessarily imply that the whole structure is visualized. An accidental detail can have the same result as an essential trait if it has the same constancy.

This becomes evident, says Wallon, when, in place of an image or object, the motivating stimulus is a concrete situation. In this case, accidental details introduce themselves more easily into the situation, and have no need of detailed repetition to become an integral part of the situation. The accidental and the essential are often confused by a child in his attempts to explain a situation. The impressions which are united by certain circumstances are based upon mutual equivalence in such a way that any detail can suggest the whole. Something of this can be seen in the memories retained by an adult of his childhood, where an unimportant colour, for example, might recall an entire incident. According to Wallon, this type of memory does not exist in a young child, since he lacks the ability to classify his impressions.

In such cases, Wallon would say that the inability to distinguish clearly is more fundamental in the child than the connection of the parts of an impression with the whole. It

is another example of the subjective elements being confused with the objective elements of a situation. The child, in his early years, does not know howto isolate characteristics from an object which attracts his attention. The life of the child, says Wallon, is broken up into so many diverse situations that he becomes confused again and again; but these situations are so permeated with emotional factors that they appear similar to a child. When he is faced by a definite object or a concrete situation the child often alters them to such an extent that they have quite the opposite meaning to that which they have for an adult. This subjective and objective confusion is transferred by the child to the words and images which would explain their relationship. Wallon takes as an example of this what he calls "croyance Magique." [16]

An object which is in some way feared by the child becomes malevolent, even though there is no direct contact with this object. Words describing the object or situation are sufficient to make it a reality for the child. There is no magical quality attached to this by the child since it has no ritual significance and is entirely spontaneous. It is simply the effect of a child's inability to differentiate between a motor and a mental schema, to distinguish between the self and the exterior world. It is more a question of egocentrism, says

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[16] Evolution psychologique de l'enfant, pp. 182-184.

Wallon, than exocentrism.

Wallon finds that this initial inability to distinguish between himself and other people is also found in the child's attempts to distinguish people other than himself. When a small child calls eveyyone "daddy", it would be wrong to suggest that the child identifies them with his father, or that he places them in a category designated by only one name because he does not know that it is a collective noun. It is only when the child becomes capable of distinguishing his own reactions from their exterior motives that these motives themselves become distinguishable.[17]

To distinguish between individuals presupposes the ability to contrast the identical with the similar as well as with the dissimilar. A simple similarity does not mean a comparison of two people; the same person can vary in his characteristics, and each of these characteristics can vary within certain limits. Wallon observes that the least change in the hair style or the clothing of a person can frighten a child; simultaneous recognition and non-recognition produces a psychological disequilibrium which causes fear.[18]

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[17] On the emergence of self, see : Munn, Evolutionsand Growth, pp. 422ff.; Jersild, Child Psychology, pp. 175-186; J. C. Dixon, "Development of self-recognition," Journ. Genet. Psych., (1957) pp. 251-256.

[18] See L'Enfant turbulent, Ch.I, passim.

According to Wallon, the constancy which a child experiences in the objects which are familiar to him is limited by his ability to differentiate.[19] It is for this reason that the comparisons which he makes between objects which have few differences can give the appearance of an illusion, whereas the diversity is in fact merely the result of different shades of colour. There is an extremely strict and unilateral relationship for Wallon between an object and its qualities. The inability of the child to distinguish between an object and its characteristics at the same time, stems from his inability to imagine these qualities as independent or qualitative categories.

Wallon again draws upon his experience with aphasics to illustrate his ideas; he contends thatsuch people reveal characteristics of the early intellectual development of the child. When an aphasic is presented with a strawberry, Wallon says, he is able to associate it with the word "red," but when he is presented with red wool he is unable to make the same judgement. Wallon rejects the explanation that it is merely the inability to use words to describe an object; it is because the aphasic associates one particular colour with one particular object, where even a difference of shade would be sufficient grounds for the rejection of an object. It is not, however,

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[19]For Wallon's theories of perception see Encyc. Franc., 8.32.2-6.

for Wallon, only a problem of colour perception, since behind their inability to appreciate colour differences there is also the inability to classify identical colours and objects. They are deprived of the ability to classify categorically.

It is much the same in a child, says Wallon, where the qualities of different objects are often confused as a result of their incapacity to rank them by systematic comparisons. They have not yet passed to the functional level of categorical thought. This is a later stage, which follows the abstract appreciation of the principles of classification. During this period a child meets problems which appear simple to the adult, but to the child they are insurmountable. The question, "Which of the three girls has the darkest hair ?" cannot easily be resolved by a child since he has no capacity for expressing his choice based upon colour category, that is, upon a colour which has become independent of any object in particular, and can serve as a basis for classification. The young boy who includes himself among his three brothers suffers from the same inability to classify objects.

Together with this relativity, without which an object cannot be classified, there is an inverse necessity, but with a similar purpose, says Wallon : the ability to endow objects with specific qualities. To give an object its correct colour, shape, and dimensions, enables a child to distinguish it from all others, whether in the same or a different class. For

Wallon, this is not a natural gift of perception; it must be acquired by a careful scrutiny of every object which comes into contact with the senses. Wallon finds good examples of this in pathological states such as depression and obsession, where every accident or variation is eliminated from the sense impression : the sky is entirely blue, the grass is absolutely green.

It is generally agreed that colours change according to the light which falls upon them. It is a question for Wallon, not merely of interpretation or secondary correction, but of a much more fundamental activity. Wallon mentions in this respect the experiments of Koffka in colour constancy.[20] Koffka describes experiments with chickens who have been made to peck on a surface which has been painted half white and half grey; the chicken leaves the seed on the grey surface which has been stuck to the ground, and quickly learns to peck only at those on the white surface. The white half of the surface is darkened so that it reflects less light that the grey half did before; it is upon this that the chicken looks for food. It is the intensity of the illumination which determines the response pattern. The system of relationships which determines the colour of each object, Wallon observes, is not an isolated

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[20] K. Koffka, "Some remarks on the theory of colour constancy," Psych. Forsch. (1932), p. 329.

impression; everything which is perceived exists in the form of a configuration, and an element is significant only in so far as it is part of such a configuration. The configurations which are perceived by a child are different in many ways to those perceived by an adult.

Wallon contends that the progressive differentiation which a child makes with colours is itself asmatter of structure. When a colour is recognized, or at least becomes capable of arousing a reaction itself, it is still, in the early stages, based upon an indistinct process. It is an appreciation of the colour contrast, Wallon says, rather than the colour itself. The warm colours are first discerned, being separated as a whole from the cold colours; they are all called "red," while the differences between light and shade are reffered to as "white" amd "black." This discernment of colour is marked at first by the ability to differentiate strongly contrasting colours; confusionsarises when the colour contrast is based upon less marked differences : blue and green, green and light yellow, violet and blue. In all the experiments observed by Wallon, the progression of colour vision was the same in all the children.

Another essential factor, according to Wallon, for the child to appreciate in his understanding of the external world is the shape of objects. The retinal image of any object is extremely varied, changingwith each new view point, and yet

resulting in a stable shape. Wallon again refers to the findings of Gestalt psychology to show that the perception of form is not the sum total of the impressions; it is entire and immediate. Each image of the object is a system of relationships between the whole object and its parts, and depends for its development upon functional growth and experience.

If the orthoscopic image is taken for the true image, says Wallon, it is because the child, through handling the object, ignores the laws and the illusions of perception. Since perception is relative to the object and not a unique sensory fact, the unity of its structure demands an agreement between factors other than visual factors. But the simplicity of orthoscopic vision is itself a relative idea, contends Wallon; it is not evident in chimpanzees, for instance, who do not know how to balance one box upon another to act as an intermediate position. Such is not the case with children, Wallon argues; it is a problem which arises at a certain stage of his development, not only how to balance objects, but to maintain his own balance as well. This is seen in the way a child displays a desire to pile up objects in such a way that they will not fall, and to perform acrobatic feats which involve the risk of falling. There is here a connection in some way between the child's understanding of the stability of vertical objects and his desire to stand upright himself.

In his discussion about the constancy of size as a

necessary element in the perception of the exterior world, Wallon is again obviously influenced by the Gestalt school of psychology. The size of a man, he says, appears the same at one yard and at four yards, while the retinal image is in fact reduced by a quarter. At a greater distance, however, the man seems much smaller.

The problem of the reversed retinal image, which is seen correctly by the mind, has no need to be repeated for each successive element in the configuration. At quite an early stage, says Wallon, the child is able to accomodate the change presented by an object which moves backwards and forwards; it remains for him the same object, in spite of the changes in the retinal image size. Yet, as Wallon points out, his appreciation of size is not consistent with that of an adult. He observes how an adult is often amazed by the smallness of a place or object which he has not seen since childhood. This suggests that a child gives larger dimensions to an object; this could not be relative to the retinal image, which must be the same size as that in an adult, but to the whole field of his experience, including motor activity. The diversity of size between the different images of the same object presents no problem for the child; at an early stage in his development, for example, he is able to recognize a person from that person's photograph. Only later, when subjective impressions are entirely absent, is the child able to construct an orderly form

of sense impressions based upon a categorical plan.

The child inevitably brings into everything a subjective point of view; he compares everything with himself. He is interested in very large objects and in things which are very small; perhaps more so in the small objects since he can exercise some form of control over them. He plays with small crumbs and dismembers insects which he has caught. His liking for giants and dwarfs, Wallon contends, comes as a result of contrasting them with himself; his experience is relative, constructed by contrast. A child's conception of size will only become categorical when this form of activity ceases.

This progression to the categorical plane of thought is more evident, says Wallon, in the learning and use of numbers, an activity which appears very slowly between the ages of three and five years. At first the child ennumerates objects which are placed before him by repeating one word such as "again" with each successive object; he takes them away while repeating such a word as "gone" with each one. The child then, according to Wallon, works upon principles of addition and subtraction; he does not need the names of numbers to register a progression of results. Often the child will use the words "two" and "three" to apply to any number of objects. Later, when the child is able to recite them in their correct order and apply them to a series of objects, the last number used would be for the last object and not for the sum of the

objects: he does not yet know the difference between ordinal and cardinal ennumeration. The child knows that he has five fingers on his hand, and is able to count them, but he does not know how many there are on the hand of another person. It would appear then, that for Wallon, number is a quality attached to a particular object or group of objects; it is what he terms, the "pre-categorical phase of number."[21] Wallon mentions the experiments of Binet and Décroly to ascertain the age at which a child could ennumerate categorically. Binet used two objects and noted the age at which the child was able to tell whichwas the larger of the two; Décroly recorded the age at which a child was able to construct two equal groups of objects and then to alter them by taking away a certain number of the objects. Experiments have thus shown, says Wallon, that it is better to train the child to use numbers in concrete situations than approach the problem on a purely abstract basis. The abstract and categorical phase of thought comes only after its appreciation in concrete terms.

The identification and classification of objects, however, are not the only requirements for understanding. To enclose the content of experience in static definitions, says Wallon, is necessary on the representational level of thought,

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[21] Evolution psychologique de l'enfant, p. 196. See also L. Long and L. Welch, "The development of the ability to discriminate and match numbers," Jour. Genet. Psych., (1941) pp. 377-387; Woodworth and Schlosberg, op. cit., pp. 94-105.

but actual contact with the exterior world demands a less abstract approach. Wallon illustrates this transition from the practical level of thought to the representational level by means of the child's conception of causality, which he achieves very slowly.

The first type of connection made by a child between mental concepts has been referred to by many psychologists as "transduction."[22] The link here lies in the subjective feeling of imagining or thinking one thing after another; a case of syncretic confusion between the subject and the object. In L'Evolution psychologique de l'enfant, Wallon refers to the experiments of Piaget on proverbs and phrases which a child must group together in pairs according to their sense, citing them as examples of transduction of thought.[23] He has proved, says Wallon, that a child will couple together any proverb or phrase, and is never at a loss to justify even the most incoherent comparisons. In passing from one to the other, the child fabricates analogies which would be impossible without the confusion of the two phrases and their mutual assimilation by means of intellectual schemas which are more subjective in origin than the phrases would allow. The child relates rather

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[22] Origines de la pensée, I, p. 114. See also J. Piaget, La formation du symbole, pp. 247-250.

[23] Op. cit., p. 199f.

than explains. He knows no other relationship of events or objects than those which he himself can give; he prefers, for this reason, such connecting words as "and then," "when," and "then." Wallon suggests that such connections are made according to the inspiration of the moment, or some recently acquired schema of thought, which can give no true unity of sense. But this is no simple transduction of thought; there is a structural basis, says Wallon, even though it takes an elementary form. In the Origines de la pensée chez l'enfant, Wallon reports a number of his experiments which illustrate this structure which he refers to as the "coupling" of ideas. The relationship between the phrases couples together can take different forms : analogy, complementary terms, circular combinations, and assonance. In the pre-categorical phase of thought, the child has no other means for expressing himself.[24] Oneexample of this process will suffice to illustrate Wallon's ideas. A six year old child is asked :

> Is there wind on the sea ? - There are no leaves on the sea when there is a wind. What does the wind do on the sea ? - It makes the leaves fall. On the sea ? - Yes. Where do the leaves come from ? - From the trees. Are there trees on the sea ? - Yes.[25]

This child, Wallon says, has known the association between "leaves" and "wind," and applied it to the coupling together of

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[24] Op. cit., pp. 41-106.

[25] Ibid., p. 46.

"wind" and "sea." The relationship between the parts is missing, says Wallon, which would give it some form of coherence. This ability to understand and account for things is very difficult for the child, and is the reason why he handles the notion of causality so imperfectly.

Causality, however, as Wallon points out, is not limited in its sphere of operation; it is present in all the desires and activities of a child; it is involved in all the situations which a child meets. The first of these situations which involves the problem of causality is that of his relationship with other people. He obtains nothing at first except through the mediation of other people surrounding him, which is such a diverse field of experience that only simple motor habits are formed and a readiness to accept any novel situation which might occur. The child is unable to understand causality, Wallon argues, because he is incapable of seeing himself as something distinct from his environment, and as the subject of his own activities. The first form of causality which a child grasps is the coupling together of action and impression as distinct things which have hitherto been confused. There is, however, according to Wallon, a certain ambivalence in a child's reactions to begin with; the child who has just run into a table, he says, hits it in spite, as if the table had run into him.

Rather than list the types of causality observed by

Wallon in a child, it would be better to see what principles underlie them for Wallon.[26] Causality, he says, answers a double need : that of useful and necessary action, and that of giving identity to the things that change in the environment of a child. On the one hand there is the syncretistic factor where the subjective is confused with the objective; and on the other hand, the transduction of thought with its corollary, what Wallon terms "metamorphism." It is a problem, he contends, of how far the cause is present in the effect, and of the action which explains the transition from one to the other. The solution will depend partly, he says, upon the analogies which a child draws from his experience, but above all from the ability to discriminate between individual factors involved in the relationship of cause and effect.

If this is the case, he goes on, then the simplest form of causal situations will be those in which the categorical distinctions are very simple. Before the child is able to explain the higher forms of causality, mechanical causality, there must be a complete depersonalisation of understanding, resulting in the ability to distinguish between objects and to analyse their structure and relationship.

The words which Wallon uses to conclude Les Origines du caractère chez l'enfant might well be quoted to sum up his

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[26] See Origines de la pensée, II, "Conclusions et Commentaires, pp. 296-333.

theories of child development :

> It is now a principle recognized by all child psychologists, that between the child and the adult there is only a quantitative difference, and that if his physical growth is not a simple addition of centimetres, but presupposes changes of proportion and balance between the parts, it is even more true of his mental growth that it is not simply an addition of ideas or aptitudes, but a transition through periods each having dominant characteristics and resulting in a specific balance. [27]

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[27] Op. cit., p. 225.

PART II

THE PSYCHOLOGICAL FACTORS INVOLVED IN SCHOOL LIFE

I. THE INTRODUCTION TO SCHOOL LIFE

The psychological and physiological processes which have been operating during the first five years of the child's life are further exercised and developed by the disciplines of school life. For Wallon, this entry into school life corresponds to a definite stage of mental development, no matter what influence the school might have on the child's mind.[1] It marks a step forward in almost every sphere of mental activity, though there are variations according to the aptitudes and abilities of the idividual child.

In the years immediately preceding the entry into school life, during the fourth and fifth years, a child suffers from a number of emotional fixations connected with one or two people in his environment. When he enters school, says Wallon, there is a violent reaction against these fixations. This does not apply, he adds, to the kindergarten, where the relationship between teacher and child still retains something of a personal and individualistic nature. It is later, when the child comes under the influence of other children, that he tends to lose this egocentricity in the development of social charact-

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[1] Encyc. Franc., 8.44.I.

eristics.

In spite of the classification attempted by school life, the child, says Wallon, still retains much of his individuality; very often, in fact, the presence of other children brings out the individuality of the child. Their competitions and games show the diversity of their personalities, where some wish to lead, others to follow. The young leaders who take up the leadership of games and gangs do not do so entirely on their own initiative; it is the function of the whole group, whose composition varies, which accepts or rejects leadership. Nothing gives more life to such groups of children than some form of rivalry with a similar group. This, however, can also produce divisions within the group when another group exercises greater attraction than the first group. It is probably the first time, Wallon observes, that a child is faced with the obligation of choice; he must, from this time forward, have some control over the decisions that he makes.

Of the many intellectual activities which come into play when the child enters school, Wallon emphasises two which he considers paramount in the understanding of the psychology of school life : attention and memory.[2] There are many other selected and controlled activities which are important for the education of a child, but the objects which have now become

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[2] Ibid., 8.44.I-IO, passim.

important in his environment are no longer those to which activity is spontaneously directed. One of the greatest difficulties in education, Wallon says, is to overcome the distractions of the young school child, to grapple with the innate curiosity which often turns him away from definite tasks and pursuits.

2. ATTENTION

One of the first observations that Wallon makes in his study of the psychological factors which can aid or undermine attention is that psychology can often be deceiving when it confines itself to collecting details from subjective intuitions, from abstract analysis, examination of children's experiences, and even from experimental research.[1] If the word "attention" exists, he says, it must be considered at the very least to have some practical significance; a significance which cannot serve as the basis for any one psychological theory, unless it escapes from the commonly understood meaning of the word. For Wallon, what is denoted by attention is the most appropriate activity in the presence of a definite object; but since activity can change as the object changes, he goes on, it can bring into play either motor or perceptual activity. If activity is not present, the object remains merely a mental representation. If this is so, Wallon says, then the nature of the results is going to be different in every case; the form and degree of attention will differ with each succeeding object.

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[1] Encyc. Franc., 8.44.3.

Attention can classified, however, says Wallon, into two basic types, depending upon whether it is diffused or concentrated.[2] Every occurence in the child's environment stimulates a response, or has no effect upon the child whatsoever; moreover, a response can be supressed for anything which has an external origin, and thus limit the child to purely endogenous and mental incentives. Within these two opposing limits there can arise a situation which gives the opposite effect to attention; thus there is between them a series of gradations which mark the limits of the field of attention in any particular case.

If a child must always react to the same stimulus with the same response, argues Wallon, then his efforts tend to reach a maximum of efficiency in a short space of time. The efforts to induce a child to attend, Wallon observes, are often defeated if he must only react to one stimulus among many others, or react in an entirely different way with each succeeding stimulus. The accuracy with which a reaction is made can thus involve a serious protraction of the time taken to respond.

Wallon wonders if there is, behind all of these activities, a factor which is common to all types of attention, in the way that Spearman maintained the presence of general intell-

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[2]Ibid.

igence behind different intellectual aptitudes.[3] He points out that it was only by means of rigorous tests that Spearman was able to postulate this common denominator. It was important to show, moreover, that it was specific and not merely a bundle of heterogeneous activities.

How, Wallon asks, can one define the specificity of attention if it manifests itself in so many different kinds of activity ? What common denominator could be found which underlies all vital forms of energy ? He goes on to say that a study of attention would involve an examination of all mental functions, with their different degrees of specificity and the variety of objects which can arouse it. Activity varies under the influence of many factors. For this reason, attention is not only a continuous form of tension, but a striving for a balance between these factors. For Wallon, there are four of these factors which can result in either balance or tension : the diminution of muscular tone, the degree of emotional excitation, the presence of rival incitements, and the inherent interest of the object.[4]

Resistance to any distraction, Wallon observes, can be reinforced by exercise. He notes how school children working amongst distracting influences develop a resistance much more

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[3] Ibid.

[4] Ibid., 8.44.4-5.

quickly than those who are used to working in quiet surroundings; but this has an adverse effect since it produces fatigue very quickly.

As in all other mental activities, Wallon stresses the part that emotion can play in attention, particularly interest, which he considers to be the basic emotional stimulus. Though he points out that repugnance can be as much a stimulus for attention as any other emotion; disagreeable and agreeable impressions can follow each other very quickly and even combine in the same activity. What is difficult reinforces effort before it has a chance to become boring; the things which shock or displease a child often arouse more curiosity than those which have no emotional content. Interest is thus not confined by Wallon to any one emotion.

This habitual combination of contrary impressions, says Wallon, makes it easier to understand how the transition is made from primary or immediate interests to what are called secondary interests. The hedonistic philosophy of life, argues Wallon, postulates the identity of interest with pleasure, and pleasure with enjoyment; but it is more the activity that underlies desire which brings enjoyment. Nothing is changed, therefore, in the principles that guide interest, when the object to be attained, instead of being immediate, is remote; it becomes then, not the satisfying of instinct, but the pursuit of ideals. There is no interest, moreover, says Wallon, whose

success is not in some measure remote. The goal of interest is not the functioning of the instincts; it is relative to all kinds of activities from the moment interest is aroused, however diverse these activities might be. The most complex activities are the less frequent, and are sustained only with increasing difficulty; supplementary stimuli become a necessity in this case, Wallon observes, where interest is divided amongst partial and auxiliary goals. This is exactly what the teacher does, he says, who offers rewards to a child.

Once the balance of attention has been achieved, the child, according to Wallon, begins to acquire knowledge, an intellectual activity shaped and guided by the school. He contends that if the child is to acquire knowledge he must learn it in such a way that it can be recalled effectively at a later date. It is for this reason that Wallon attempts a description of the part which memory plays in the mental evolution of the school child.

3. MEMORY

In the pedagogical field, observes Wallon, a child endowed with a good memory does not necessarily surpass his school fellows in academic ability; good memory is sometimes characteristic of imbecility. Superior acquisition of knowledge is not concerned with the literal recording of scholastic data, which, he contends, fosters the growth of fixed ideas. Simple comprehension, on the other hand, very often overcomes this literalism.

Wallon ascribes many of the acquisitions of this age to functional maturation, as in automatic actions such as walking, where learning is spontaneous. Wallon places language in this same category. It is not the fault of a child's memory, he says, if he fails to pronounce or recognize a word which he has heard pronounced many times before. It could be more a lack of understanding or the functional retardation of speech. "Is there any relationship between language and memory ?" asks Wallon. Faced with a name he does not know, the child is very much in the same position as an adult when he hears a foreign language. "Where is the dividing line between the part memory has to play and the functional use of language in thought ?"

Wallon finds it difficult to demonstrate the functional identification of memory since there can be no correlation between the factors upon which it seems to depend. For a memory to exist, he says, it must have been fixed in the mind, it must be preserved and be able to be recalled, and recognized as a memory, as the recall of previous circumstances, events, or impressions. These different conditions of memory, moreover, can vary independently of each other; the process being complicatedfurther by the memory content, which may be visual or auditory. These different types and conditions of memory can be developed by a child in a most unequal manner, says Wallon; the natural habits and aptitudes of an individual child often determine the type of memory which he possesses.

Wallon criticises Freud's theory of memory, where memory is in fact a question of forgetting rather than remembering, saying that it is too simple. Memory is implied in all forms of mental activity : perception, association of ideas, and reasoning, for example, where the experience of the past intervenes. Since every child is modified by his own reactions, some people think of life itself, says Wallon, as a continuous form of memory. To give memory a precise definition, there would have to be a specific and unchanging relationship between memory and its object. For Wallon this is impossible since the memory content is not immutable; it can be subject to many changes from the time it is committed to memory to the time

when it is recalled. This brings Wallon to a discussion of the psychological condition of retention.

Retention is a positive action, he says, affected by both the physical condition of the child and the nature of the object which is to be committed to memory. Retention presupposes in the first place a sufficient development of the nerve centres; this development, Wallon observes, is insufficient in early childhood and has begun to deteriorate in old age, which would account for the lack of memory content at these times. The dates given for the first memory are extreme, rangingfrom the first to the eigth year; thought Wallon contends that a memory can be recalled from the age of six months.

The nervous system involved in memory is affected by emotional as well as physiological factors.[I] From the physiological point of view, each hour of the day is not equally favourable for memorisation, since the child is affected from hour to hour by his habits and daily routine. Wallon points to the ambivalence of the emotions to show that that emotional disturbance cam produce either retention or a complete blank in the mind. A warning to pay attention to a reading or to the characteristics of the facts about to be given, brings the vigilance of the child into play and strengthens his ability

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[I] Encyc. Franc., 8.44.8.

to remember. The act of memorising which makes use of both hearing and sight at the same time, says Wallon, gives better results than each of these alone.

Besides these subjective factors, Wallon emphasizes the importance of the object itself in the act of memorisation. The time necessary for the learning of a series, he observes, increases in proportion to the square of its length; he offers this, however, as an approximation with certain limitations. If the length of a series continues to increase, the time of learning increases more rapidly; for each item there is an economy of time according to the increase of the series, provided that it does not grow beyond certain limits. The facility of learning also depends upon the place the terms have in a series; the first and the last terms are more quickly retained than any others in the series.[2] There can be exceptions to this, Wallon points out, where the terms have their own significance and individuality in a series which does not form a meaningful whole.[3]

For Wallon, the rate of forgetting is yet another important factor which must be taken into account in all learning. After some days the number of things forgotten is quite large,

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[2]H. Wallon and E. Evart-Chmielniski, Les Mécanismes de la mémoire (Paris: Presses Universitaires de France, 1951), pp. 109-110.

[3]Ibid., p. 113.

but this rate of forgetting becomes less and less; the resistance of each item depending upon the size of the group of which it is a part. Wallon deduces two principles from this : first, the more an item has resisted memorisation at a given moment, the more it will be able to resist again; and secondly, the weakening an item undergoes in a given time is in relation to the amount of material to be memorized : forgetfulness is inversely proportional to the length of a series. This rate of forgetting depends upon many factors, he says; the physical condition of the child, the situation in which a thing is learned, and the nature of the item to be learned. There is always an inverse relationship between the rapidity of learning and the persistence of the thing which is remembered. According to Wallon, the rapidity of learning increases with age, but persistence diminishes, with the exception of early infancy. Wallon observed that after one minute's interval a child of ten months reacts as if he had never seen the object which has already been presented to him; the interval is fifteen minutes when he is twenty months old.

Wallon contends that the longer an item has taken to be learned, the longer it will persist in the memory; it will also last longer in the memory if the interval between two attempts at learning has been a long time. This principle fails, however, says Wallon, as soon as logic or understanding intervene. The incitement at the time of learning to remember a certain

thing increases its persistence, even without any intervening recall. A meaningful content is more favourable to retention than an arbitrary series of syllables, letters, or numbers.[4]

Wallon found that a child was confused very often by the feeling of familiarity and recognition which accompany the recall of a memory. This, he argues, is because familiarity and recognition, while having the same origin, are quite distinct. There is an impression after each period of learning that the work not only becomes easier, but more familiar. This feeling tends to disappear as the difficulties disappear and give place to a completely automatic action. But on the other hand, Wallon says, during the learning of a series, the number of items which a child is able to distinguish from those which he does not yet know, is always about four times the number of those he is able to recall. Contrary to widely accepted opinion, Wallon contends that recognition is a stage prior to recall. He explains this by saying that recognition is not necessarily connected with recall; it has an almost exclusive relationship with representation. It fails, however, in cases of continuous amnesia where people are incapable of learning anything, since nothing is retained to be recalled; but at the same time, these people are capable of forming habits and working in society. It is not so much the loss of the ability to

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[4] Ibid., p. 114.

learn and recall, as the loss of recognition and representation.

For Wallon, the case of false recognition proves his point. For many reasons, sometimes in the object, sometimes because of the emotional disposition of the subject, his divided attention or looking at the details rather than the whole, a person gives the impression that he recognizes something when in fact it has never entered his experience.

In Wallon's study of memory he draws a subtle distinction between what he calls "evocation" and recall, with a definite type of memory characteristic of each of these.[5] Between them, as between familiarity and recognition, there is an antagonism which results in two different attitudes. On the one hand, there is the widening of the initial impression with a recollection of all the circumstances which give to a memory its individuality. On the other hand, there is the systematic choice, amongst past impressions and acquisitions, of characteristics which can be used in a present activity.

Evocation begins with something entirely subjective, based upon emotional impressions; for this reason, says Wallon, it is the type of memory which is usually found in a child, characterized by the interpenetration of accidental elements into the essential items which have been committed to memory. The other type of memory is classificatory, based upon a rela-

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[5] Encyc. Franc., 8.44.10.

tionship between things, which prevents the intrusion of accidental elements; it orders the data of experience according to the categories corresponding to practical needs, or rather to the many ways of doing things in which an individual can be involved. It is thus connected in the mind of Wallon with social relationships rather than with personal experience. It is in this sense that Wallon can speak of the social framework of memory, and for this reason that the subjective elements introduced by the child begin to lose their identity in collective experience.

It would appear that for Wallon, many different, and often radically opposed activities, are grouped under the heading of memory. He has, on one hand, a type of memory based upon the repetition of items in a series, which results in nothing more than a habit, while the other type results in a broadening of the child's mental experience. Between these two extremes, habit and rational memory, there is a functional connection : both of them are directed towards activity and concerned with the present, while the intermediary types, where there is a confusion of terms, are directed solely to the past.

In this way, Wallon contends, a true form of functional dialectic is developed.[6] These types of memory function together, he says, and it is possible to foster their growth as they make

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[6]Ibid.

their appearance in a child. While a child is capable of forming habits as early as the second year, his first memories, however, do not usually appear until after the second year, when he constantly confuses memory with reality, sometimes to the point of identifying them. School age, Wallon observes, marks the age at which a child becomes capable of rectifying the syncretism of personal memory with the disciplines required by classificatory memory.

At the third meeting of the World Health Organization held at Geneva in 1955, Renée Zazzo made the following observations about Wallon's ideas on the effect of school upon a young child; it sums up Wallon's position succinctly in this respect :

> Professor Wallon, establishing a connection between his own research and that of Professor Piaget, made the following remarks about this period : on the intellectual plane he begins to understand himself as a unity among other unities, interchangeable unities, and it is a very important new development in the feeling of identity : he has a stronger identity because he feels himself living as one among others. It is no longer a biological group, it is a group which has a more mobile structure and where the individuals, all of more or less the same age, can change their role, change their place and change their situation. Identity of self and differentiation are created interdependently. [7]

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[7] Discussions on Child Development, The proceedings of four meetings of the World Health Organization Study Group on the Psychobiological Development of the Child, Geneva, 1953-1956 (Vols. I-4; London: Tavistock, 1956-60), III, p.165.

PART III

A CRITIQUE : THE CONTROVERSY BETWEEN WALLON AND PIAGET

Wallon has not always found himself in so complete agreement with Piaget, nor Piaget with Wallon. Wallon's theories of child development have been subject to criticism from many sides; possibly the most trenchant, and most friendly, of these critics is Jean Piaget. From the publication of Wallon's L'Enfant turbulent in 1925, Piaget has underlined many of the weaknesses in Wallon's theories. Perhaps the most searching criticism of Wallon's work is found in Piaget's La Formation du symbole chez l'enfant; the English edition of this work, published in 1951, omits nearly all of Piaget's observations on Wallon's De l'acte a la pensée of 1942. Piaget's work had just been published when Wallon's Les Origines de la pensée chez l'enfant appeared in 1945; Piaget, however, pays tribute to Wallon in a later edition of this work : "We regret not having been able to take into account the fact that Wallon, using the methods of interrogation that we are using, is in agreement with ourselves on a great number of essential points." In spite of this, Piaget did not deviate from the basic ideas on which he differed from Wallon, and from criticising the wrong interpretations which Wallon placed upon his work.

One of the main criticisms of Wallon was that Piaget

paid no attention to the part which social behaviour plays in the development of a child. In De l'acte a la pensée Wallon says, "He (Piaget) presupposes purely individual factors such as the use of symbol and the expression of thought from motor activities, which can only be a part of a social being; he restricts the foundation of mental life in a quite inadmissible manner."[1] Piaget, however, points out that in his previous work[2] Wallon had accused Piaget of doing exactly the opposite, saying that the processes of logical thinking explain those of social behaviour.[3] Piaget makes his thought on this issue quite clear : if social behaviour does play an essential role in the mental development of a child, it does not by itself explain the appearance of representational and symbolic activity. At first sight, he says, it might appear that all terms used in describing mental activity, such as "concept," "symbol," "image," and "verbal sign," could be considered dependent upon social behaviour, and Piaget agrees that this is true; where he disagrees with Wallon is over the use of such concepts as "social life," which, Piaget contends, is inadmissible in psychology.[4]

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[1] Op. cit., pp. 45-46.

[2] "Les trois systèmes de la pensée de l'enfant," Bull.Soc. Franç.de Phil., (1928).

[3] La formation du symbole chez l'enfant, p. 9.

[4] Ibid., p. 69.

In the fifteenth volume of the Encyclopédie Française, Piaget discusses at length the social life of the child. In this work, while insisting upon the importance and primacy of egocentricity, he nevertheless states that the egocentricity of the child must be disciplined in some way by his social life amongst other children; though even here, he says, this does not become apparent until about the fifth or sixth year.[5]

Two of the ideas basic to all of Piaget's work are those of "assimilation" and "accomodation," which, he says, have been entirely misunderstood by Wallon. The child, according to Piaget, explores his environment using his eyes, hands, mouth, and limbs; these form the basic schemas and patterns for the mental structures which correspond to the child's environment. The child repeats an interesting activity and then extends it to achieve further experience. This activity Piaget calls "assimilation," which he regards as fundamental to the formation of concepts, even in adult life. When situations and objects appear which resist the exploratory activity of the child, the child learns to "accomodate" himself to the novel situation, which in turn results in the discovery of new schemas and patterns which are then assimilated. To begin with, the child's activities are circumscribed by the limits of touch and sight; when the child is able to control his motor activities,

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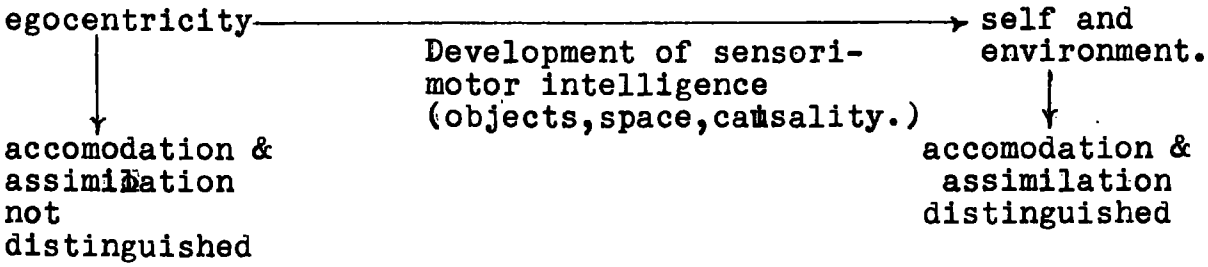
[5] Op. cit., Tome I5. 26.I4-I6.

Additional Note : the interaction of <u>accomodation</u> and <u>assimilation</u>.

To begin with the activities of accomodation and assimilation are not distinguished by the child; he is aware only of himself as the centre and controlling factor of his environment. Throught the development of sensori-motor intelligence, brought to bear upon such concepts as space and causality, the child learns to distinguish between accomodation and assimilation. At this point the child begins to differentiate between himself and his environment. During this development the child learns to assimilate his environment by using inherent schemata, such as sucking, sight, and prehension; a process which is initially interrupted by the need to accomodate himself to these same schemata. Thus we see that while the demands of the environment increase, so does the need for further accomodation to the objects of an ever-widening sphere of experience.

It could be illustrated schematically in this way :



the range of the experiences to be assimilated is widened considerably. This is widened even more when the child is able to speak; the thought of a child then becomes internalized, he can act in terms of mental images. At the age of seven or eight years the child reaches the stage of concrete thought, when he is able to control his mental processes.[6]

Piaget contends that Wallon has misinterpreted him on this basic idea of assimilation. The following lengthy quotation is taken from the French edition of La Formation du symbole chez l'enfant, not only because it is omitted from the English edition of this work, nor because it illustrates the amicable contest of ideas between Piaget and Wallon, but because it is one of the most concise accounts of assimilation given by Piaget :

> It seems advisable here to make an observation essential to the idea of assimilation, which Wallon, for instance, appears to have misunderstood. The fundamental fact which necessitates the idea of assimilation is that no new external element ever gives rise to perceptual, motor, or intelligent adaptation without being related to earlier activities. This explains why there is continuity in mental life in spite of the qualitative difference between the successive structures, and shows that the heterogeneous levels superimposed one on the other, to which Wallon wished to reduce the whole development are but one of the two aspects of this evolution.
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> We can scarcely understand how Wallon has read us, when he is able to write of assimilation that it 'compels one not only to make of experience a unique

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[6] J.Piaget, The Child's Construction of Reality (London: Routledge, 1955), pp. 350-357.

factor, but to see in it only a collection of favourable encounters,'[7] when it serves for us to explain at the same time the internal development and the use of experience without recourse either to associationism or the pressure of external events. If A resembles b, it is never by chance, but because b completes the structure of A, even if the assimilation is brought about by a chance encounter with an object. When Wallon borrows from us the hypothesis of 'chance co-ordinations' to explain the transition from one stage to another[8] he confuses the occasion of the co-ordination and the reasons for the co-ordinating assimilation, and thus reduces assimilation to a simple association, in the classical and most facile sense of the word. And when he replies to us 'Must it not be supposed, according to the occasion, the ability to utilise .... this ability is not in every isolated schema, it is no longer entirely sustained from outside. It belongs to the behaviour of the whole ...'[9] he translates our thought exactly, for the characteristic of assimilation is always to imply 'behaviour of the whole.' It is pleasing to record after this, the astonishment of Wallon when he discovers that 'if the ability to assimilate in Piaget is capable of skipping over the sensori-motor areas, it is because it is also endowed with a structure, where the levels condition the experience as much as their result.'[10] As for these same levels, Wallon seems to be persuaded that we wish to ignore entirely the organic co-ordinations and to isolate ourselves in a pure 'psychology of consciousness.' We have certainly forgotten to indicate that the first stage of the

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[7] See De l'acte a la pensée, p. 3I. All of the quotations in this criticism of Wallon's position are taken from this work. The appearance in I945 of Wallon's L'Origine de la pensée chez l'enfant did little to alter Piaget's attitude. See also Piaget, The Origin of Intelligence in the Child (London: Routledge, I953), pp. ix-xi.

[8] De l'acte a la pensée, p. 3I.

[9] Ibid.

[10] Ibid., p. 33.

> 'reflex schemas' corresponds to what the physiologists call reflexes, that the third stage of the co-ordination between vision and prehension corresponds to the connections which are established between the nervous impulses found in the working of the eye and the hand, etc. etc. But this omission rectified, one can ask if there is not an advantage in leaving to the neurologist the problem of determining the physiological cause, and for him to furnish simply for this purpose as extensive an analysis of conduct as possible, and in a language, not of knowledge, but of operations, i.e. of actions. When the two methods combine one will no doubt draw from them a greater security, not obstructing the work of neurology with psychology, or to obstruct the work of psychology with a simple neurology, as is seen in the history of ideas concerned with cerebral localisation. Let Wallon reassure himself : we admit like him that the sensori-motor coordinations correspond to physical organs, and we shall continue, in spite of what he says, to believe in a psycho-physiological parallelism. As for the 'explicit exclusion of the role of maturation,' which he attributes to us,[11] it would be necessary to ignore entirely the existence of identical twins in order to go so far. Maturation interests the physiologist above all, whilst the problem of behaviour patterns studied by the psychologist, is principally to know how progressive nervous co-ordinations make it possible to use experience. Moreover, mental assimilation plays precisely the role of intermediary between this utilisation and organic structures, and is an indispensable intermediary as long as one admits the functional continuity of development.[12]

Yet another basis for mutual criticism is found in their respective theories of the stages of child development. It would appear from the writings of Wallon that the word "personality" is taken in the sense of a psycho-physical entity, where all growth is seen as the interaction of mind and body. During

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[11] Ibid., p. 47.

[12] Op. cit., pp. 83-85.

this development a number of changes take place which are the effect of modifications in the reactions of the entire organism, and which result in new conditions of life. Wallon distinguishes a number of phases and stages within these changes.

The first, the intra-uterine stage, Wallon deals with but briefly, noting the motor reactions of the foetus after the fourth month of pregnancy to both internal and external stimuli. It is a case, he says, of total biological dependence, where the motor reactions are merely postural reflexes such as can be seen in the new-born child. The birth of the child marks the beginning of a new stage. Apart from oxygen, which the child now obtains from his own respiratory organs, he is entirely dependent upon the people about him, especially his mother. Unlike the foetal stage, the satisfaction of bodily needs is no longer automatic. He begins to know the meaning of attention and privation, which he expresses in crying and respiratory spasms. Wallon calls the gestures made at this stage "explosive," made up from unco-ordinated motor activities. During this period progress is made in muscular development, and in the formation of conditioned reflexes, directed towards the two principal needs of the child : alimentary and postural control. According to Wallon, the form which these conditioned reflexes take prepares the child for the next stage of his development.

This transitional stage is considered very important by

Wallon since it marks the beginning of true mental life in the child. The cries of the child, calmed by feeding, are later associated with a desire to clear the alimentary canal; the refusal on the part of the mother to satisfy the child's needs brings into play an elaborate system of gestures, attitudes and mimicry. By the age of six months, according to Wallon, the child already knows how to employ a whole range of emotions : anger, sorrow, grief, joy, to indicate his emotional and bodily needs. Wallon pays particular attention to this emotional stage in all his works, as he considers it paramount in the formation of the child's personality.[13]

The stage which follows towards the end of the first year and the beginning of the second is entirely different. Whereas the emotional stage is a period of radical subjectivism, this stage is almost entirely directed towards the external world. It is the awakening of the reflex actions of orientation and investigation, when the child begins to respond to gestures of other people. When the actions of the child are connected with a pleasing result, they are repeated to obtain that result again, sometimes altering the initial gesture to obtain a variation of the result. At this point, Wallon's thought follows that of Piaget on "assimilation" and "accomod-

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[13] "On ne saurait exagérer le rôle de l'affectivité dans le progrès de toutes sortes qui marquent cette époque de l'existence." Problème des stades en psychologie de l'enfant, p. 27.

ation" very closely.

By this time, the growth of the child has resulted in the formation of new cerebral connections in the sensori-motor field. These activities are further increased by the appearance of two activities during the second year : walking and speech. Only the awareness of distance makes him realize the relative position of physical objects. At the same time these newly discovered objects are scrutinised more closely for the purposes of identification; the success of identification depending upon, to a great extent, the ability to use language in the differentiation of objects. For Wallon, these co-ordinated activities give the child a stable environment in which to live. Whilst the child is investigating his environment, the next stage is making its appearance, a stage which in some ways recalls the emotional stage mentioned above. This stage often manifests itself in quite opposing activities, though all with the same object of making the child aware of himself as an individual. At this point, there is an almost habitual refusal on the part of the child to anything which might threaten this newly found autonomy. He begins to know the meaning of such words as "I," "Me," and "Mine." Yet in spite of this desire for autonomy, there is at the same time a dependence upon the people in his environment. His position within the family is a determining factor in the identification of himself as an individual person. It is at this stage that the child is part-

icularly susceptible to the formation of complexes if his exaggerated self-importance or his fears and frustrations are not rectified.

With the following stage, from six to eleven years, personality and intelligence begin to combine. The demands made by the friendships and disciplines of school life are very different from those required within the family, and must be able to change as circumstancesand environment change. The child begins to know himself as a many-sided personality with many and varied emotional reactions to his environment. In this way, says Wallon, he is able to realize the possibilities which lie within him, and arrive at a complete knowledge of himself. A similar change is taking place in his mental life at the same time; the new situations and objects are identified and classified, giving rise to systematic and coherent assimilations of knowledge. It is for Wallon the genesis of categorical thought.

Piaget has criticized Wallon's theory of stages on the grounds that a more complex understanding of the stages of child development is demanded.[14] For Piaget, these stages are defined by two main criteria : genesis and equilibrium; where equilibrium marks not only the end of one stage, but the beg-

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[14]The interpretationsgiven here of Piaget's theory of stages is based upon a concise account contained in Discussions on Child Development, Vol. IV, pp. 3-23.

inning of the next. Piaget has shown that there are three types of structure brought about by the transformation from genesis to equilibrium. The first type consists of sensori-motor operations which reach an equilibrium about the age of one and a half years; this is characterized by the ability to reverse a particular action. The genesis of the second stage, that of concrete operations, begins in early childhood and reaches its equilibrium sometime during the period between the seventh and eleventh years. Piaget calls the third type "lattice" structures, since the child can, on the equilibration of this stage, perform a number of concrete operations at the same time; the genesis of this structure takes place between the eleventh and fourteenth years and reaches its equilibrium at about the fifteenth year.

Within this structural development, Piaget posits a number of stages. The first, up to the age of one and a half years, is characterized by the appearance of sensori-motor intelligence. The second stage is divided into two parts : the genesis, between the ages of one and a half and seven years, marked by the appearance of representative intelligence, and the equilibration, between the ages of seven and eleven years, which forms the genesis of the third stage. The formal operations which mark the equilibration of this stage is reached at about the fourteenth or fifteenth year.

It would appear that Piaget, having set out to avoid

a rigid division of child development, has ended with an even more determined structure of development than Wallon proposes. In actual fact they both set out to avoid a strict classification of stages, and end with much the same ideas; so much so that Piaget, when summing up his position at the Fourth Conference on Child Development in 1956, could say, "it may be useful in concluding this essay to put a few questions personally to members of the group in the hope of systematic replies. I shall not put such questions to Inhelder or to Zazzo,[15] who are too close to the way of thinking embodied in this essay."[16]

In spite of this "concession," Zazzo criticizes Piaget's concept of child development later in the Conference.[17] While he agrees with Piaget on many things, Zazzo objects to the notion that action can be reduced to unrelated factors : "Mind ('psychism') cannot be reduced to factors."[18] Different factors may be present, but their significance depends upon their interaction. Zazzo confesses that he finds it difficult to follow one of the factors postulated by Piaget; whether equilibrium has as wide a significance as Piaget gives it. Zazzo, moreover, cannot accept equilibrium as an independent factor

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[15] Dr. René Zazzo represented Wallon at these conferences and read Wallon's papers.

[16] Op. cit., p. 23.

[17] Ibid., pp. 64-68.

[18] Ibid., p. 65.

since it is present in all factors as a relationship :

> If one classes equilibrium as a fourth factor alongside material causes and conditions one runs the risk of either substantializing, of hypostasizing the laws of equilibrium, or else of dematerializing the material factors of development, making them disappear in a pure game of intemporal relations, a mental algebra. [19]

In a later reply to Zazzo, Piaget refuses to admit that there is any difference in kind between equilibrium and other factors, he merely allows that equilibrium is a factor which is not like other factors.[20] It was not until I96I that Piaget allowed that "Wallon and Zazzo are saying the same thing in their own language."[2I]

This fact has been pointed out many times by the followers of Piaget and Wallon; they have insisted that the opposition which is taken to exist between them is based upon nothing more than a misunderstanding of terminology and the failure to appreciate the intention of their particular experiments.[22] They

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[19] Ibid.

[20] Ibid., p. 98.

[2I] J. Piaget and B. Inhelder, Le développement des quantités physiques chez l'enfant (Neuchatel: Delachaux et Niestlé, I962), p. xxvi.

[22] "Piaget has looked for what changes and what does not change in the evolution of the child. Wallon, on his part, has emphasized the dynamic continuity of this evolution, saying that the child is drawn towards the realization of adult life as to the exemplary of the species." R. Zazzo, Le problème des stades en psychologie de l'enfant, p. 23. See also, Discussions on Child Development, Vol. I, pp. I65f., and I79f.

have started from the same basic facts, which they have interpreted differently. There are, however, two basic ideas which appear to be treated in quite different ways. In The Birth of Intelligence in the Child and The Psychology of Intelligence, Piaget is concerned with the early appearance of sensori-motor intelligence. Wallon, on the other hand, using dialectical methods of study, observes how motor activity divides into two quite separate fields : the activities which lead to emotional and social behaviour, and the circular activities from which objective thought proceeds. The second basic idea where their ideas conflict is over the part which social behaviour plays in the development of the child. For Piaget, the first stage in the development is marked by egocentric activity from which a child emerges at about the age of six years and begins to see himself as part of society. For Wallon there can be no question of egocentricity in a child; a child is a social being, even during the first few months of his life.[23] Development does not start from egocentricity progressing to sociability, but

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[23] But see La formation du symbole chez l'enfant, p.301, where Piaget replies to Wallon's criticism of egocentrism : "but we are of the opinion that on this fundamental issue we are more in agreement than Wallon himself realizes, since while rejecting the term he has retained the idea. In his study Reactions to the Exterior World (see Encyc. Franc., 8.3.) Wallon develops the idea that the child begins by conceiving things through activities where he himself is the object, thus accounting for the difficulty children experience in objectifying their spatio-temporal concepts." For a more direct criticism of egocentrism as expressed by Piaget in Jugement et raissonnement chez l'enfant see Encyc. Franc., 8.34.2.

from the inability to differentiate between the self and the environment to an understanding of the self as dependent upon others.

Perhaps Wallon's greatest contribution to the understanding of the psychological evolution of the child is his emphasis upon the positive role which emotion plays, which Piaget, though not neglecting, has never treated thoroughly. Emotion is considered very often to play only a negative and disturbing role in child development. Wallon has shown that emotion, far from being a negative factor, can play a very positive part in the formation of thought processes in a child.

There are few aspects of child development which Wallon has not, in some way or another, touched and influenced. His work has been overshadowed to some extent by the more exacting and scientific experiments of Piaget; his influence in this respect might not then be so profound outside of his own school of thought at the University of Paris. He must, however, take his place amongst the foremost educational theorists and administrators that Europe has produced in the years following the Second World War.

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