MENTALLY DEFECTIVE CHILDREN

BINET AND SIMON

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BY

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AUTHORISED TRANSLATION

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"AN INTRODUCTION TO CHILD STUDY," ETC.

WITH AN APPENDIX CONTAINING THE BINET-SIMON TESTS OF INTELLIGENCE BY

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AND AN INTRODUCTION BY

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INTRODUCTION

THE Binet-Simon tests of children's intelligence have been the subject of much discussion during the past few years, both in this country and in America. Much of this discussion seems to have been carried on, at times, without any knowledge of the original aim or purpose for which these tests were devised, and as if, so to speak, they were invented as a means for ascertaining the relative intellectual powers of all children, and so of affording to the teacher a ready and sure means of accurately classifying and grading the children under his charge. As a consequence, there is a tendency, in some quarters, to search for and to endeavour to establish some absolute standard or criterion of intelligence which shall be valid, irrespective of the nationality, or the class, or the particular environment of the child.

It is hoped that the publication in translation of the work of Binet and Simon in which these tests first appeared, along with the complete series of tests as extended and revised during the lifetime of the former, will tend to remove this twofold misapprehension, and make the educationalist, as well as the wider public interested in social questions, acquainted with the real purpose which underlay the devisal or invention of the tests, and so enable all to perceive that their relative value, as measuring stages of intelligence, must be judged by the purpose for which they were devised.

Now, the main purpose of the authors in the devisal of

these tests is to furnish to the teacher a *first* means by which he may single out mentally backward children, who, upon further examination, may also be found to have some mental defect or peculiarity which prevents them from fully profiting by the education of the ordinary school, and who probably would benefit more by being educated in a special school or in a special class. But the final selection, it is contended, of defective children for special education demands the experience of the doctor and of the psychologist, as well as the knowledge of the teacher, and the aid of all three is necessary in the devisal of courses of study for the mentally defective. Especially important is the division of mentally defectives into two main classes—the feeble-minded and the ill-balanced. The latter, as a rule, are easily marked out from the normal child, and, if not specially looked after, may in later life become a menace to society. The feeble-minded, on the other hand, may easily escape the notice of the teacher, and may pass through the ordinary school unaffected and unimproved, enter into society, and propagate their kind. Both classes require the special care of the community, and their proper education and training are of the gravest importance for the welfare and stability of society. In this selection and education of mentally defective children, three positions of Binet and Simon are worthy of consideration. In the first place, it is contended that a physical examination alone can never allow us to dispense with a direct examination of the intelligence, and that "anthropometry, stigmata, and physical appearance must take a second place as means of discovering in school the feeble-minded and the ill-balanced." Again, "mental deficiency and want of balance are peculiar mental conditions which it is often impossible to connect with definite pathological changes." Hence the examination of the medical man is not decisive.

It must be accompanied and reinforced by that of the psychologist. In the second place, it is affirmed that in the devisal of schemes of training for mental defectives, we must take into account that the dominant features in their life are the "senses, the concrete perceptions, and motor ability," and that "in the education of defectives the workshop ought to become a more important place of instruction than the class-room." In the third place, the position is strongly emphasised that "every class, every school for defectives, ought to aim at rendering the pupils socially useful. It is not a question of enriching their minds, but of giving them the means of working for their living."

Hence, the utility of special schools or special classes for such children depends ultimately upon their success in making their pupils, according to the measure of their intelligence, efficient workers. These two problems—viz., (1) the method of selecting abnormal or defective children who are not sufficiently good for the ordinary school, nor yet sufficiently bad to be classed as idiots or imbeciles; and (2) the devisal of courses of education and training which may tend to make them hereafter useful workers and citizens—are of first-rate importance to us at the present time. Under recent legislation, public local authorities have been entrusted with the devisal of the means for the proper selection and the proper education of defective children, and the utmost wisdom and care should be taken in the beginning of this new movement. The many errors that administrators may fall into are fully set forth in this little volume (*cf.* p. 78 *et seq.*), and the concluding chapter on the utility of special schools should be read by all who have to do with the administration of the new Act.

The importance of the work of Binet and Simon to teachers and inspectors is without question, and were the

duties of the teacher and inspector carried out as set forth in this volume (*cf.* p. 86) throughout the whole school, a much-needed improvement in our ordinary school education would soon result.

Lastly, the volume is important as marking a new attitude towards educational problems, and as indicating the newer spirit in which we should undertake the training of all teachers. This new attitude and spirit are clearly set forth in the concluding words of the volume: "The essential thing is for all the world to understand that empiricism has had its day, and that methods of scientific precision must be introduced into all educational work, to carry everywhere good sense and light."

ALEXANDER DARROCH

UNIVERSITY OF EDINBURGH,
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MENTALLY DEFECTIVE CHILDREN

CHAPTER I

INTRODUCTORY

The Present-Day Interest in Social Questions.—Amongst questions of present-day interest, none are more discussed or attract a greater amount of attention than those which relate to social problems. The generous philanthropy of preceding generations seems to us to-day a little out of date, and we substitute for this virtue of the rich the otherwise fruitful idea that, by the very constitution of society itself, we are all in duty bound to occupy ourselves with the condition of our fellow-citizens, and especially of the less fortunate among them. This duty does not rest solely upon a sentiment of humanity. It is dictated equally by our own pressing personal interests; for unless, within a reasonable time, satisfaction is given to the just demands of the nine-tenths of society who are actually working for wages very little in harmony with their efforts and their needs, we already foresee that a violent revolution, from which the "haves" have very little to gain, will shake society to its very foundations.

The consequence is that the very people who up to the present time have kept themselves most aloof from the social problem are being brought into contact with reality. It is a curious thing to see how scientific men, who for the past fifty years have never stirred a foot outside their

laboratories, are showing a tendency to mingle in affairs. In spite of the diversity of the forces at work, there is one general fact which is undeniable. Pure and disinterested science retains its votaries, but the number is increasing of those who are turning to science for useful and practical applications; albeit, they are thinking less of science than of society, for it is those social phenomena which are capable of amelioration which scientific men are now studying by the most exact methods for the benefit of men of action, who are usually empirics.

Innumerable examples of this intervention of science in daily life might be cited. On the one hand, we see physiologists—Imbert, for example—who are setting themselves to the study of the phenomena of the labour and the nutrition of different classes of workers, in order to find out whether the increase in wages and the diminution in the hours of work which the workers are for ever crying for can be justified by physiology. The day is not far off when such scientific observations, which are becoming more exact and more extensive, will play a part in the discussions between capital and labour.

Another example may be given of a different nature, but of identical signification. Psychologists are studying the value of evidence, and are thinking out better methods of arriving at truth, in order to discover reforms which may be introduced into the organization of justice. An important movement of this nature, started in France, is being continued in Germany with even greater energy (Binet, Stern and his pupils, Claparède, Larguier, etc.).

As a last example we shall cite the most striking of all. This is the increasing interest which doctors are taking in the upbringing of the young, both in infancy and later. This is *puericulture*, and includes everything that is being done for the supervision, protection, and assistance of the mother and nurseling. It includes the medical inspection of school-children, which gives the doctor the opportunity

of caring for their ailments and preventing overpressure. It includes, lastly, all the reforms of but yesterday's date which make for a better hygiene, a better physical education. One might add also the work that is being done almost everywhere, in Germany, in America, in Italy, and in France (Laboratory of Psychology of the Sorbonne, and the Society for Child Study), with reference to the special aptitudes of children, and, as has been said a little ambitiously, the making of education an exact science.

Education of Defectives.—The movement referred to, of which we see only the beginning, but which will result, let us hope, in an amelioration of the lot of the great majority, is now being directed to the education of the mentally defective. Their problem has been discussed theoretically for a long time, but nothing has come of it. Now the problem is entering upon a new phase, and something practical will result.

Without attempting to write the whole history, which would be nothing more than the study of what has been done in other countries, let us state where we are ourselves.

It was in France that alienists first began to occupy themselves with the children known under the various names of "abnormal," "backward," "idiot," "mentally defective," "unstable," etc. Esquirol made the important distinction between the idiot and the dement; and after him many other alienists—notably Itard, Falret, Voisin—described the principal symptoms of idiocy, or attempted to show that it is capable of amelioration. Séguin, a teacher of defectives, who has left an honoured name, showed experimentally how one may, by dint of much ingenuity and patience, increase the intelligence and improve the character of some of these unfortunate children.[1] Lastly, in

[1] It is common to cite with respect the names of one's predecessors, and Séguin's portrait may justly hang in such a gallery of one's ancestors. But Séguin's work must not be examined too closely; those who praise it have certainly not read it. Séguin impresses us as an

our own day, Bourneville, the well-known physician of Bicêtre, after having organised the most important clinique for idiots which exists in France, agitated with untiring energy for the formation in the public schools of special classes for the instruction of abnormal children. This scheme has been supported by a great many doctors and philanthropists, and laid before municipal councils, general councils, scientific societies, and all the numerous educational congresses which have been held in France and abroad during the last twenty years.

This effort has had no result; and whilst in the great majority of foreign countries there have been for a long time schools and classes for defectives—the first German school, that of Dresden, dates from 1867—with us the only children of this kind who receive the care and education appropriate to their condition are the children of the rich. Poor children continue to attend the ordinary schools.

It was not till 1904 that the powers that be awakened from their indifference. The Minister of Public Instruction, M. Chaumié, appointed a Commission to study the abnormal—physical, mental, and moral—from the scholastic point of view. This Commission, over which M. Leon Bourgeois presided most ably, met a great number of times in 1904 and 1905, and drew up a complete scheme for the care and education of defective children, which has been embodied in a Bill by the Minister of Public Instruction.

Some Definitions.—Now, who are these abnormal children, and why should the authorities interest themselves

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empiric, endowed with great personal talent, which he has not succeeded in embodying clearly in his works. These contain some pages of good sense, with many obscurities, and many absurdities. We refer the curious reader to his chief work, *Traitement Moral, Hygiène, et Éducation des Idiots et des autres Enfants Arriérés*, published in 1846. One might make many criticisms on the writings of alienists; but to what end? We prefer to say of such predecessors what Ingres said to his pupils in the Rubens gallery at the Louvre, "Salute them, but pay no attention to them!"

in their education ? For the sake of clearness, we must give some definitions.

In medical terminology the term *abnormal* is applied to every subject who diverges so clearly from the average as to constitute a pathological anomaly. As a matter of fact, the abnormal constitute quite a heterogeneous group. Their common characteristic, which is a negative one, is that by their physical and mental organisation these children are rendered incapable of profiting by the ordinary methods of instruction in use in the public schools. The most definite types are the deaf and dumb, the blind, the epileptic, idiots, imbeciles, cripples, etc. There are in this list some classes which are of less interest to us than others, because the State has already to a certain extent provided for their needs. This applies especially to the blind, and to the deaf and dumb. It has always been perceived that such children were not like others, and could not be taught by ordinary methods. The blind can learn to read only in a book whose characters are printed in relief, and the deaf-mute cannot follow an oral lesson. The necessity of a special education for these two groups was therefore obvious, and at the present time about five thousand are receiving care and a professional education in the State institutions and in private schools, the majority of which are religious. We shall not concern ourselves with them here, in spite of the interest which they awaken. Nor shall we discuss whether the methods which are used for their education might not be improved, though the question is attractive. But we must simplify the subject if we wish to get on.

We shall also exclude here the lowest grade of idiots, who require continuous medical supervision, and who are very seldom educable. These subjects are received into hospitals and asylums. When we have excluded these classes of children—the deaf-mutes, the blind, and the ineducable idiots—what remains ?

Why, there remain just the very children with whom the new law will be concerned. In the meantime these are not in any special school; they are attending the primary schools, which cannot shut the door in their faces when they have arrived at school age. But they do not profit much by the instruction given in school, and this fact gives rise to vigorous complaints on the part of the teachers. These children, say they, are not in the least like the great majority of other pupils. A great many of them are mentally defective. Without being completely lacking in intelligence, they are not sufficiently endowed therewith to work alongside normal children; they do not understand, they cannot follow; they profit so little by attending the school that some of them are never able to assimilate the instruction even of the elementary course. Very often they pay no attention whatever to the work of the class; and this is quite a good thing, for then the teacher forgets them in their corner, and goes on as if they were not there. But many of these children are ill-balanced; they are excitable, and their bodies are never at rest; they are not amenable to ordinary discipline. They are a constant source of trouble and annoyance to their master and to their comrades. The supervision of a single ill-balanced child is more trouble, the teachers sometimes declare, than the direction of twenty normal ones. Either one or the other must be neglected, and the alternatives are equally objectionable.

What, then, must be done with those children who are not amenable to the ordinary school discipline? At first sight this seems a simple question. Let them be sent to an institution. We actually possess in the hospitals of Bicêtre and of the Salpêtrière, in the colony of Vaucluse—to say nothing of provincial institutions—establishments which make provision, both medical and educational, for children who are idiotic, imbecile, vicious, and epileptic. Is it not possible to send to these institutions all the abnormal children who encumber the primary schools?

No; it is neither possible nor desirable to pack them off to an asylum. These abnormal children are not in all cases so severely affected as to require segregation. We admit that such a measure is necessary for idiots of low grade who cannot even feed themselves. We have also no objection to leaving to the asylums cases of very severe nervous disturbance such as epilepsy, for only there can they receive the medical supervision appropriate to their condition. They have more need of the doctor than of the teacher. As for the other abnormal children who constitute the great majority, it seems clear that the proper place for them is not the asylum, but the special school. They have sufficient intelligence to attend a school. What they probably require is instruction specially adapted to their mental state, and such instruction can be profitably given only in classes small enough to permit of individual attention.

From all this we reach a very clear definition of what we mean by abnormal children, and a very simple indication of what should be done with them. Abnormal and defective children are those who are suitable for neither the ordinary school nor the asylum; for the school they are not sufficiently good, for the asylum not sufficiently bad. We must try what special schools and classes can do for them.

Statistics.—It is important to notice that the children so defined are not a negligible quantity. Their name is legion. And since number is the factor that gives importance to every social problem, we may say that the regulation of the lot of these children is a social question of the greatest gravity.

The statistics which have up till now been published abroad do not give such precise information as one could wish regarding the number of the defectives. Some give the bare figures; others, using a better method, state the proportion of mentally defective children to the total population. There is also much doubt as to the way in which the statisticians have used the term " abnormal " or " de-

fective." One inquiry relates only to children slightly affected; another bears upon all abnormal children, including the lowest grades of idiocy, and is therefore much more comprehensive. In other cases we are not told how the selection was made.

As to France, precise information has not been available until last year, when two inquiries were held—one at the instance of the Ministerial Commission, the other organised by the Minister of the Interior. According to the former inquiry, we find that the proportion of defectives amounts to scarcely 1 per cent. for the boys, and 0·9 per cent. for the girls. These percentages are evidently far too small, and we ourselves have discovered, by a small private inquiry, that many schools returned "none" in the questionnaires distributed, although the headmasters have admitted to us that they possessed several genuine defectives. In Paris, M. Vaney, a headmaster, made some investigations by the arithmetical test, which we shall explain presently, and reached the conclusion that 2 per cent. of the school population of two districts were backward. If we were to include the ill-balanced, whose number is probably equal to that of the backward, the proportion would be about 4 per cent. Lastly, and quite recently, a special and most careful inquiry was made at Bordeaux, under the direction of M. Thamin, by alienists and the school medical inspectors, and it was found that the percentage of abnormality amongst the boys was 5·17. Probably the true percentage is somewhere in the neighbourhood of 5. All these inquiries are comparable because they all deal with the school population. The great variation in the figures is due to several causes, the chief of which are the following: (1) The proportion of the abnormal varies to a surprising extent in different schools even in the same neighbourhood. Dr. Abadie, for example, has expressly noted that in some schools the proportion may be four times as great as in others. (2) The definition of a child of backward intelli-

gence has usually and quite gratuitously been left vague by the investigators; each interprets the term in his own way, whence arise great differences in the figures. (3) It is particularly difficult to define the cases that are to be reckoned as ill-balanced or unstable, and some teachers, if they are allowed, will place in this category all the pupils that they dislike.

We have been led to interest ourselves in abnormal children in the following way: One of us, Binet, President of the *Société Libre pour l'Étude de l'Enfant*, has for many years been in daily contact with the staff of the primary schools. In obedience to the wish of a great many teachers, he has formed, in connection with the Society, a committee for the care of abnormal children, upon which are many distinguished people, such as M. Rollet, M. Albanel, Dr. Voisin, Mme. Meusy, and, above all, M. Baguer, who is deeply interested in the education of defectives. This committee initiated various investigations relating to backward children. Some time afterwards M. Binet, having been nominated a member of the Ministerial Commission on Abnormal Children, became the director of the work of the Commission relating to the backward and the unstable. He then, in conjunction with Dr. Simon, undertook in certain districts various inquiries into the condition of such cases. In regard to several questions we enjoyed the intelligent and devoted co-operation of M. Vaney, Head of the Primary School of the Rue Grange-aux-Belles, where one of us has founded a laboratory of pedagogy. We have thus been interested in abnormal children for a long time, either from the point of view of school organisation, or from that of their differentiation from the normal. Let us add that lately M. Bédorez, the distinguished Director of Primary Education in the Seine District, has kindly permitted one of us (Binet) to co-operate in the organisation of some classes for defective children, which have

been started experimentally in the primary schools of Paris.

Let us now state quite clearly our aim in writing this book. Ever since public interest has been aroused in the question of schools for defective children, selfish ambition has seen its opportunity. The most frankly selfish interests conceal themselves behind the mask of philanthropy, and whoever dreams of finding a fine situation for himself in the new schools never speaks of the children without tears in his eyes. This is the everlasting human comedy. There is no reason for indignation. Everyone has the right to look after his own interest, so long as he does not compromise interests superior to his own—namely, those of society. It is this social interest with which we are concerned. Having found out by our own personal experience how a class for defectives may be established and conducted, we have noted the faults which could not but be committed, and the mistakes which will certainly occur unless one is forewarned and makes every possible effort to prevent them. May our book, then, be regarded as a means of prophylaxis, a means of escaping conscious or unconscious error. May it also prove a guide—imperfect, no doubt, but still useful—for the organisation of some of those social inquiries conducted in a strictly scientific spirit, which are becoming more and more necessary for the proper management of public affairs.

CHAPTER II

SOME FEATURES OF THE PSYCHOLOGY OF DEFECTIVES

ALTHOUGH this book is specially intended as a guide to the admission of mentally defective children to special schools or classes, we cannot commence by an exposition of the methods of recruiting such children. We must first describe the children and indicate their principal characteristics, mental and moral. We must also discuss the question what a mentally defective child really is—a very important question, upon which depends everything else, the organisation of the schools and the special methods of education. Every educational method depends upon a theory, formulated or implicit, which is at once its point of departure and its justification. One would run the risk of falling into a blind empiricism if one were content to apply an educational method independently of the theory which is its soul.

There are two conceptions of a totally different nature, either of which may inspire the training of defective children. Let us examine each of these in turn, and find out which is the more reasonable.

According to the first, the defective child is practically the same as a normal child several years younger; or, in other words, he is a child who has been retarded in his development. A backward child of twelve years of age, who has not yet been able to learn to read, would thus be comparable to an ordinary child of six, who is just beginning to spell. It is evident that such a comparison must not be pushed too far. Many reservations must be made. On

the one hand, the defective has not so much time in front of him for development as a normal and younger child. He is then not strictly comparable to the latter. On the other hand, the very fact of his age has given to the defective of twelve a bodily and even a mental development never attained at six. For example, he is nearer puberty; his vocabulary is more extensive; and he possesses greater general knowledge. But these reservations once made, the theory that the defective is the victim of a retardation of development has seemed reasonable to many competent people. As a rule one just accepts it without taking the trouble to formulate it in precise terms. Perhaps it is for this very reason that one accepts it so easily; it is the classic theory. To the cursory reader it may seem that we adopt this theory ourselves, for we shall frequently use such phrases as " defective of eleven who is at the level of a child of nine." But the sense in which we use such an expression must not be misunderstood, because it is only intended to imply that a certain standard has been attained. It has no bearing on the cause of the retardation, nor upon its particular nature, nor upon the means of rectifying it.

Now for the educational consequences of the preceding theory. If the backwardness is only a slowness of development, it will suffice to apply to the backward the same methods as to the normal. One will make them follow the same course of study and go just as far as possible. Every defective must work towards the primary school certificate. To attain that end, he ought to pass through seven regular stages, one each year. The teacher of defectives cannot hope that he will bring his pupils to the last stage. He will stop half-way. One day, at the agricultural colony of Vaucluse, when some foreign doctors were visiting the establishment, the teacher showing his class to the visitors remarked with naïve pride: " Our pupils follow step by step the curriculum of the primary school."

A second and totally different theory is tenable, and this one appears to us to be much nearer the truth. It is that a defective child does not resemble in any way a normal one whose development has been retarded or arrested. He is inferior, not in degree, but in kind. The retardation of his development has not been uniform. Obstructed in one direction, his development has progressed in others. To some extent he has cultivated substitutes for what is lacking. Consequently such a child is not strictly comparable to a normal child younger than himself. So far as certain faculties are concerned, he remains at the level of a younger child; but in respect to others, he is on a level with normal children of his own age. An unequal and imperfect development is consequently his specific characteristic. These inequalities of development may vary to any degree in different subjects. They always produce a want of equilibrium, and this want is the differentiating attribute of the defective child. But to draw a faithful picture we must add yet other traits. According to general opinion, mental deficiency is a disease, and although the idea of disease is very vague, we are inclined to fall in with this general opinion. In the first place, we frequently find in such children defects of speech. Besides, in studying their mental condition more closely, one finds in some cases peculiarities of understanding, reasoning, imagining, difficult to define, but which do not appear to have their equivalent in younger normal children, and which therefore do not result from simple retardation of development. Here is a boy, twelve years of age, who tries to answer our questions, and succeeds pretty well; but hardly has he finished his answer when he deserts the subject altogether and begins to talk a lot of nonsense. This want of co-ordination in thought constitutes a special defect, and not a retardation of development. Possibly one would not find analogous features in other backward children, who tend rather to be laconic; but it is also possible that a careful

analysis of their mental state might reveal in them other mental symptoms, and, indeed, such are very obvious in the variety called " unstable " or " ill-balanced."

To sum up, we are of opinion that the defective child usually exhibits the following characters: (1) A retardation of development; (2) a defect of equilibrium—*i.e.*, the retardation is more marked in some faculties than in others; (3) individual peculiarities of a pathological kind in the mental powers.

If this second theory is correct, there follows a very important practical consequence—namely, that the curriculum drawn up for normal children is very imperfectly suited to the defective. We cannot force the latter to fit the ordinary course. To attempt this would be quite as unreasonable as to make our teaching appeal to the ears of the deaf or the eyes of the blind.

The first duty of the teacher is to take account of the faculties already developed, the aptitudes which are already apparent. His work is thankless and difficult; he would be foolish not to take advantage of the indications of nature. If a pupil show a special taste for any subject, it is evidently towards such a line of study that he should be directed. Consequently, in conformity with these ideas, we would reject on principle any programme of special instruction which would rigorously include all the children in a common plan. On the contrary, we would prefer for the defective a scheme which would take the most account of their natural aptitudes.

Such considerations lead us to put the following question—What are the most common aptitudes in children of this class ? We say " the most common," because we have not to do with a single well-defined type, for there are as many varieties as there are individuals; but in spite of the number of those varieties, which shows the need for individual teaching, it will always be possible to establish categories in which those most nearly alike may be grouped

It is also possible that the aptitudes most frequently lacking are always, or almost always, of the same nature.

To solve the question which we have just raised, we shall employ two methods—

The questionnaire.
Direct observation.

A printed questionnaire containing thirty-eight questions has been distributed through the agency of M. Belot, school inspector, to the heads of all the elementary schools in two districts of Paris—one central, the other suburban. Nothing would be gained by reproducing here the questionnaire, which has served its purpose. We shall simply lay down the conclusions we have reached, after studying the replies with the greatest care.

The replies confirm the division, which we have ourselves suggested, of all the abnormal into three groups: (1) The mentally defective; (2) the ill-balanced; (3) a mixed type which includes those who are both mentally defective and ill-balanced. The simply defective do not present any well-defined anomaly of character, but they do not profit, or profit very little, from the ordinary school teaching. The ill-balanced, who might also be called the "undisciplined," are abnormal chiefly in character. They are distinguished by their unruliness, their talkativeness, their lack of attention, and sometimes their wickedness.

The Distribution of Defective Children in the Public Schools.—In which school divisions do we find these several varieties of children? Let us begin with the mentally defective. These are found chiefly in the junior division, as might be expected. Some manage to reach the intermediate division, but scarcely any reach the senior. The exact distribution is as follows: 75 per cent. in the junior department; 25 per cent. in the intermediate.

Let us be more precise with regard to two points—the age of the child and his school position. Some heads of

schools, not all, have taken the trouble to satisfy our demands, and have fixed to almost a year the mental retardation of the child as compared with normal children of the same age. The following table summarises these replies, and shows that the majority of cases present a retardation of three years:

Mentally defective children with a retardation of—	
0	0
1 year	6
2 years	12
3 „	12
4 „	9
5 „	0
6 „	4
7 „	1

According to a convention, of which we shall speak more fully later, we regard as defective in intelligence a child who shows a retardation of three years, when he himself is nine years of age or more. The results shown above agree with this convention. Moreover, one may draw the conclusion, which is of practical value, that one need not seek children of this group in the senior division of a primary school.

The distribution of the ill-balanced in the divisions of the primary school is quite different. In the first place, one is surprised to find none, or practically none (only two out of forty-five) in the senior division. We did not expect this. *A priori*, we should have supposed that, in spite of their defect in character, the unstable were not without intelligence, and that a fair number of them would succeed in passing the gates of the senior division. If none are found there, this shows clearly that instability must be associated with some mental defect, unless some independent condition, such as inveterate laziness, has checked the child on the way. The ill-balanced, like the simply defective, are to be found in the intermediate and junior divisions, but their distribution is different. While 75 per cent.

of the simply defective are in the junior division, and 25 per cent. in the intermediate, 45 per cent. of the ill-balanced are in the junior, and 50 per cent. in the intermediate: practically, they are divided equally between these two divisions. This indicates a degree of intelligence superior to that of the defective, as one would expect. But, on the other hand, their absence from the senior division shows that the intelligence of the ill-balanced is in general below the average. As this conclusion is new, and may be open to question, let us examine it more closely:

The amount of the retardation of the ill-balanced, as shown in our returns, is as follows:

Mentally ill-balanced children with a retardation of—

0	14
1 year	16
2 years	14
3 ,, ...	2
4 ,, ...	1

These figures show, in a novel form, that the mental retardation is much less clear in the ill-balanced than in the defective properly so called, since in the former group are to be found many pupils—about a third—who, in the opinion of their teachers, are not at all backward; but the majority are backward, while none are in advance of their years. Consequently, the whole group shows a slight retardation, averaging about one year, which confirms and makes more precise our original conclusion. We may therefore affirm that mental instability or want of balance is usually accompanied by an intellectual retardation of about one year.

Age Distribution.—It is worth while making another remark about the ages of these children. The simply defective are of all possible school ages, while the unstable are usually young children. Here is the distribution:

Age.	Defectives.	Unstable.
7 years	2	1
8 ,, ...	5	9
9 ,, ...	5	7
10 ,, ...	3 Total, 31	10 Total, 43
11 ,, ...	6	11
12 ,, ...	10	5
13 ,, ...	9	4
14 ,, ...	2	0
15 ,, ...	3 Total, 15	0 Total, 4
16 ,, ...	1	0

The defectives remain in the schools till the end of the prescribed terms, whilst the ill-balanced hasten to leave before the time. Thus the defective, like an inert mass, become a dead weight which encumbers the school. They adapt themselves as well as they can to their environment. Their parents are apt to leave them at school as long as possible, because they do not know what to do with them, and probably the teachers do not complain very much, but are ready to put up with these defectives who do not interfere with discipline. The ill-balanced, on the other hand, find the school environment irksome, the discipline hostile. They do not wish to stay at school; their parents do not keep them there, owing to the constant complaints of the teachers; and the teachers do not want to have anything more to do with them. Conclusion: The ill-balanced leaves school early, and takes his place in society, where, owing to his character, he may very easily become a danger. To sum up, the simply defective remain at school, while the ill-balanced leave early.

Another observation may be made. Since the ill-balanced are so numerous at ten years of age, and even at eight, we conclude that in many cases the mental instability is not the result of the perturbation which precedes puberty. This physiological explanation is not of such general application as is sometimes supposed.

The Frequency of the Mixed Type, at once Defective and Ill-Balanced.—The third category of defective children which we have suggested includes those of a mixed type, who are at once mentally defective and ill-balanced. We shall not be surprised to find that these subjects have characters which are the mean of those of the defective and the ill-balanced, since they unite in themselves the two different forms of abnormality. Thus, as regards their intelligence, one finds that none of them are in the senior division; the majority are in the junior division (71 per cent.), and the remainder (29 per cent.) in the intermediate division, which proves that they are on the average less intelligent than the simply ill-balanced, and more intelligent than the simply defective. But we need not dwell on such details, which are easy to understand and even to foresee. The most important question is the number of the mixed cases. The groups of the two simple types are almost equal in number.[1] On the other hand, we find only twenty-one mixed cases in a population where the ill-balanced which have been notified to us amount to forty-four, and the defective to fifty-seven, so that the mixed cases represent only a fifth of the whole, whereas the simple cases form four-fifths. These very different proportions indicate that as a general rule mental instability and mental deficiency are quite distinct. They are not aspects of a single pathological condition, but are two quite independent pathological conditions which may coexist in the same subject, just as happens, for example, in the case of alcoholism and epilepsy, but which are none the less distinct, since as a rule they do not coexist.

Psychological Description of the Mentally Defective.—Now let us take a closer look at the children who are going to be pupils in our schools for defectives. In looking over the replies to our questionnaire, we are struck by the

[1] On the other hand, Dr. Abadie found 309 defective to 134 ill-balanced.

recurrence of certain phrases, by which the teacher attempts to sum up the defective child. Here are some examples of such phrases. They represent only general impressions, but the frequency of similar impressions arrests one's attention.

Charles does the best he can.
Augustine is very attentive.
Emile is very obedient and gentle.
Paul is always making himself useful in little ways.
Marcelle is obliging and polite.
Jeanne blushes on the slightest occasion.
Severity paralyses *Ernestine* and makes her lose what little wits she possesses.
Camilla smiles whenever anyone speaks to her, and immediately does what she is told.
Louis is very biddable.
Angela does not answer back when her companions tease her, and takes the blame herself.
Eugenie is affectionate and is loved by her companions who make her join in their games. Although she herself is fifteen, it was a child of eight who taught her to read and write.

From all these remarks it appears that the defective is a likeable creature. He is so even in proportion to the degree of his defect. With this thought in mind, we have examined the various descriptions, and have reached this very curious conclusion: The more likeable the child is represented to be, the greater the amount of retardation one may safely attribute to him. Few, indeed, are the exceptions to this rule.

The defective child is praised for his sweetness of disposition. If he does not understand the work which is being done in class, at any rate he does not show his want of comprehension in any noisy manner. Sitting quietly in his place, he allows himself to be forgotten. The lesson can go on just as if he were not present, and usually that is just what happens. It would not be just on this account to accuse of negligence a teacher who has charge of forty to sixty pupils. The sluggishness, both mental and

physical, of these children is a negative quality which an overtaxed master is sometimes weak enough to value. When the defective child becomes subject to discipline, we are told, he does not rebel; for he is obedient, respectful, and probably suggestible. Sometimes the teacher may even recognise in him the presence of qualities of a more positive nature. Some defectives are pleased, and even eager, to do little services. They are kind to their companions, affectionate, and grateful for attentions paid to them. As they are usually older than the other children in their class, the teacher often trusts them with little commissions. So far as one can judge of the morality of natures whose intellectual level is so low, the source of the altruistic sentiments appears to be well represented in the defective, but it remains to be considered whether his docility and complaisance may not mislead us as to the true value of his sentiments; for one characteristic of the defective is his tendency to repeat the polite formulæ or moral maxims which have been taught him. He has a surface morality, possibly purely verbal. As a last trait, it may be noted that the defective is influenced by rewards and punishments, but, owing to his defective intelligence, the effect is very fleeting.

Psychological Description of the Ill-Balanced.—This description contrasts curiously with the preceding. In this there is nothing to be surprised at. In school the ill-balanced child is a perpetual nuisance. The teacher has no weakness for this naughty child, who is always disturbing the class and defying his authority.

As we have done in the case of the defective, let us quote some of the phrases by which our correspondents sum up the unstable.

Charles cannot sit still, nor keep in rank, and his heedlessness prevents reproof having any effect.

Albert never obeys but with a bad grace.

Martha always puts on an astonished look when she is checked.

Maurice receives any criticism with impatience.

Susan receives it with anger.

Eugenie, by tossing her head. She mimics her teacher, and makes the others laugh, so that they have to hide their faces.

Octavia replies, "What do I care?" She bursts out laughing and continues to do what she has been forbidden.

Leontine quibbles, answers back, and expresses aloud her bad humour.

Raoul flies into a passion when he is reprimanded. He poses as a martyr, a victim of injustice, and sometimes even utters threats. Punishment makes him give vent to intemperate language.

Victor assumes an attitude of revolt, turns pale, and refuses to obey when anyone checks him.

Lucy broke her pen in a fit of temper.

Helen in the same circumstances upsets everything in her neighbourhood.

Louise strikes her elbows on the desk, and one day she even kicked her teacher.

Leon is quarrelsome and his companions are afraid of him.

George does nothing but tease his companions. He destroys their copybooks, tears pages from their books, and puts the blame on them.

Charles, who is rendered obstinate by strictness and merely irritated by punishment, seems happy when one takes an interest in him.

Eugenie, who is greatly excited by punishment and who smiles at rewards, loves to be flattered and picked out to do some little service.

The three following traits are constantly met with in the descriptions of the ill-balanced: they are turbulent, boastful, and incapable of attention. To this may be reduced the psychology of the less strongly marked cases. They have an instability of body, of speech, of attention, which may result either from an excessively nervous disposition, or simply from a nature whose restlessness rebels against sedentary and silent study. But in many cases other features are present. In addition to the preceding symptoms, there are found impatience of discipline and a tendency to annoy their comrades. The ill-balanced are spoken of as brutal, deceitful, cruel; and as to their obstinacy, the abundant details in the questionnaires show

that these children have left a disagreeable impression on the school staff. It is especially on their account that an outcry for special schools has arisen. The way in which these children react to discipline is very interesting. We are told that they are very little influenced by rewards, which they often receive with disdain, laughter, or irony, if they do not refuse them altogether. Punishments, on the other hand, produce a bad effect. The ill-balanced nearly always become angry, and rebel against punishment, so that the teachers strive to avoid coming into conflict with them. Here we have a trait which is very interesting for psychology, but very embarrassing for pedagogy. How, then, can the ill-balanced be subjected to any discipline whatever? This is an important question, which it will be all the more necessary to solve because it is the ill-balanced who profit most by special education; it is for them that one would have most hope. Our advice is that, in order to control these children, account should be taken, in the first place, of their dominant tendency. The study of the answers to the questionnaires shows us that the chief thing to which one can appeal in these cases is their amour-propre, their pride, their vanity—in a word, the whole range of the egoistic sentiments. On natures of this stamp punishment cannot have much effect, seeing that it is opposed by an often indomitable pride. The end may be reached more directly, not by breaking the resistance, but by giving it a different direction. It is better to praise the ill-balanced when he has done well than to punish him for his faults. It is desirable also to show him some appreciation, or even to trust him with some duty of a very modest kind, which he may perform under discreet supervision.

Mental Aptitudes of the Defective.—Having briefly sketched the moral aptitudes of the abnormal, let us now examine their mental aptitudes. We have here a very captivating subject of inquiry. The study of individual

aptitudes ought to have been undertaken long ago in the interest of education. Everyone is crying out for it. No one, or almost no one, undertakes it. In the case of the abnormal there is even more urgent need that it should be undertaken, for the younger or less intelligent the pupils, the more depends upon educational methods. When a mind is of a superior kind, very little really depends upon the culture supplied to it. If a Berthelot or a Pasteur should even have had imbeciles as their first masters in chemistry, they would none the less have turned out men of genius. It is those of average intelligence who have need of good methods of instruction. It is the young children who really require intelligent methods. Consequently we should give the defectives the best teachers. Every fault of method committed in their education may have consequences which will prejudice them later on.

In order to discover the aptitudes of the mentally defective, we have three means of interrogating our questionnaires. In the first place these contain the following question: *Does the child show any particular aptitude either at school or outside?* This question has evoked replies which vary very little, for amongst the aptitudes of the children scarcely anything is mentioned but bodily occupations—errands, domestic duties, gymnastics, sewing, and drawing. In the same questionnaire another question, placed on the following page, is almost identical in form with the first: *Is there anything in which the child is particularly interested?* The replies to this second question have been a little more numerous than to the previous one. It is true that the two differ by a shade—the distinction between interest and aptitude. One may interest oneself in something for which one has no aptitude. The following table shows the distribution of the replies to the two preceding questions:

THE MENTALLY DEFECTIVE.

Aptitudes.	Pupils.
None	19
Practical life	7
Sewing	7
Gymnastics	1
Drawing	1

Interests.	Pupils
None	11
Writing	8
Drawing	7
Sewing	6
Gymnastics	5
Arithmetic	3
Recitation	3
History	2
French	1
Music	1
Singing	1
Reading	1
Object lessons	1

These two lists are not superposable, but if we take them together we shall notice that sensori-motor occupations, such as gymnastics, "practical life," sewing, writing, and drawing, are those which are most interesting to these pupils. Sewing, writing, and drawing are, indeed, their favourite lessons. We should have expected that singing would not have left them indifferent, for other investigations have shown us that the majority have a good voice; but it is quite apparent that singing is less attractive to them than drawing. A very characteristic feature is the absence of any mention of composition. Some of the abnormal are fond of arithmetic; none shine in composition. This fact, though negative, seems worth consideration. Speaking generally, we never find that a child who is good at composition is mentally defective.

We have mentioned that there is a third method of weighing the aptitudes of defective children. In our questionnaire we asked the teachers to give marks showing the relative ability of these children in the different subjects. From these marks it appears that in four subjects they are more successful than in others. These are gymnastics, drawing, writing, and reading. We regret

that we did not include in our list sewing, manual work, and object lessons. Here are our results in figures. These indicate for each pupil the two subjects in which he has obtained the highest marks.

	Pupils.		Pupils.
Reading	23	Arithmetic	6
Writing	18	Spelling	5
Drawing	11	Singing	3
Gymnastics	11	Recitation..	3

It is not at all uncommon for a defective to take the first place in writing or in drawing. This is quite a remarkable fact, although we must hasten to add that in such cases the defective is usually the oldest child in the class.

All these observations are sufficiently uniform, and lead to the same conclusion. The dominant features in the defective are the senses, the concrete perceptions, and motor ability. These are the faculties which are normally developed. His constant weakness in composition shows that the function of speech is quite evidently inferior to the sensory and motor functions. Let us weigh these facts and sum up. What a great mistake it would be to give to children of this kind the syllabus of instruction which has been made to suit normal children.' This syllabus harmonises with the development of all the faculties. How, then, could one make children follow it whose aptitudes are limited ?

Inquiries by questionnaire have one defect which has often been noted. They bring together statements furnished by correspondents who are often unknown, and whose judgment and accuracy it is impossible to estimate. Each of their observations, taken by itself, has little authority. It is the sum of concurring observations which should alone be taken into consideration; and even then it is necessary to be cautious before drawing any practical

conclusion, because an agreement in the replies sometimes indicates nothing more than a general misconception.

Such doubts, which are known to all investigators, led us to decide to make direct observations on our own account upon abnormal school-children, and to compare them with normal children of the same age—a long and difficult task, as all pioneer work is. We have collected facts which we were not seeking, whilst we often failed to find what we expected. It would be impossible to summarise here everything which contact with reality has taught and suggested. We shall extract from our observations only what concerns the aptitudes of the abnormal, and shall even limit ourselves to a single category of these. It happens that we have methodical observations relating to twelve defective children of between eleven and twelve years of age. These form a sufficiently homogeneous group from the point of view both of age and of mental ability. We shall inquire what are the best marked aptitudes and the most apparent deficiencies of this little group. Without denying individual differences or forgetting that defectives cannot easily be reduced to a single type, we have thought it more interesting for the present to emphasise their resemblances rather than their differences. Let us, then, compare them *en bloc* with a group of normal children of the same age and the same social position, attending the same schools, in the same district. This equivalence of conditions is necessary if we are to lay our finger on the distinctive characters of the defective child.

We have subjected our twelve defectives to certain tests as speedy and precise as possible.[1] We devised these tests before studying the returns furnished to our questionnaires, and the latter were tabulated before our observations. There have, therefore, been two studies absolutely inde-

[1] At the *Laboratoire de Pedagogie Normal*, 36, Rue Grange-aux-Belles. For details of the work of this laboratory see *Année Psychologique*, tome xiii., pp. 1, 233.

pendent, both in their mode of execution, and in their aim. Consequently, any points in which they agree will be very significant.

Our collection of tests of mental deficiency is already known to readers of the *Année Psychologique*.[1] In vol. xi. we described at length the details necessary for making use of our method of experimentation. Since then Dr. Decroly, who specialises on defective children in Belgium, has tried our methods, and verified our conclusions. The end which we have constantly set before ourselves has been to bring to light the intellectual capacity of the child, taken by itself, as distinct from what the child actually knows. Our psychological examinations are consequently the very opposite of school examinations, which test chiefly the candidate's memory, his judgment very little.

We have made numerous observations in this way. The best way to explain our method, and more especially our results, will be to describe a few of the experiments.

Memory of Pictures of Known Objects.—The children are allowed to look for thirty seconds at pictures of thirteen objects, which they are then told to enumerate from memory.

Comparison of Short Lines.—Two lines for comparsion are drawn in ink side by side on the same sheet of paper, so that they can both be seen at a glance. We have a whole series of such pairs. Between the lines, whose average length is 30 millimetres, there is a variable difference.

Estimation of Weights.—Five little boxes, weighing respectively 3, 6, 9, 12, and 15 grammes, are to be arranged in order of weight.

Memory of Figures.—This test consists in repeating a series of figures immediately after having heard them.

[1] [See vols. xi., 1905, p. 191; xiv., 1908, p. 1; xvii., 1911, p. 145. Also *Bull. de la Soc. pour l'Étude de l'Enfant.* 1911, p. 187.]

Memory of Phrases.—The child is asked to repeat a phrase of twelve to fifteen words immediately after having heard it.

We do not wish to insist on the details of these observations. They are still very incomplete. It will be necessary to experiment for a long time[1] before it will be possible to say exactly what it is that is wanting, or that is wrong, in the mental machinery of the defective. No doubt when the classes for defectives shall be under way, when a great many such children are brought together in conditions which suit the convenience of the experimenters, the latter will be able after persevering effort to see daylight in this matter. In the meantime we must be content with a general survey. But however superficial, however defective, our first attempts may be, they may at least give us a start.

Let us see, then, what results have been obtained from our tests. These results clearly separate the tests themselves into two groups. To the one set the defectives furnished replies practically equivalent to those of normal children. To the other, on the contrary, they gave answers which clearly exhibited their retardation, or rather their defect. This difference would be deprived of all significance if any of the tests presented no difficulty to a normal intelligence. But in all cases the difficulty was so great that even the normal made many mistakes, and we can affirm that, whilst for the one set the two groups of children were practically equal, for the other, on the contrary, the inferiority of the defective is quite clear.

The tests in which the defectives are on a par with the normal are—(1) The comparison of short lines; (2) the memory of pictures. Let us give some details of the latter test, which appears to us typical. Each child individually was shown a sheet of paper, on which were pasted thirteen

[1] [The results of later observations are embodied in the tests published in 1911, which are given complete in the Appendix.]

pictures of known objects. These pictures, drawn in black and very simple, almost reduced to outlines, represented a nose, a head of hair, a rose, two cherries, a bed, a barrel, a nail, a key, an omnibus, some eggs, a bell, a sun setting in the sea, and a mouth. We have here a test of sense memory, for the child is asked to recall a visual impression. Something more, however, is necessary, for he must understand the picture and give it a name. But this constitutes no real difficulty, and the whole exercise is a test of sense intelligence. We were quite surprised to find that in this case our defectives were at the level normal for eleven years. The average of their replies is seven, which is exactly the normal value. This is shown in the following table, which gives the comparison between them and normal children of eleven:

NAMING BY MEMORY THIRTEEN PICTURES.

Number of pictures remembered—

Normal children	4, 5, 6, 6, 7, 7, 8, 9, 10, 10.
Defective children	4, 4, 7, 7, 7, 8, 8, 9, 11.

Have we not here a very interesting confirmation of what we have already learned from the questionnaires? The exercise is one which certainly presents some difficulty, since the normal children forgot some of the pictures. If it had been too easy, one would not have been surprised at the fact that the two groups—the normal and the defective—were equally successful. Now, in spite of the difficulty, the defective shows no inferiority as compared with the normal. Any commentary would diminish the eloquence of this result.

Without lingering over each of the other tests, let us select from the group one which forms a remarkable contrast to the preceding. Just as striking as the equality between the defective and the normal in visual memory of pictures is the difference between them in memory for phrases.

The latter is a test of immediate memory. One repeats to the child a phrase of about twelve to fifteen words, and asks him to repeat it immediately afterwards. For this memory is necessary, and also voluntary attention, and some power of comprehension into the bargain; for if some of these phrases are quite easy to understand (*e.g.*, Germaine has not been good; she did not want to work; she will be scolded), others, again, are a little involved (*e.g.*, The chestnut-tree in the garden casts the quite faint shadow of its new leaves on the ground). The number of phrases which the defectives managed to repeat correctly is very small. It averages only two. Here are the figures:

IMMEDIATE MEMORY OF PHRASES.

Number of phrases repeated exactly—

Normal children	7 years	1, 2, 2, 3, 3, 3, 3, 4, 5, 5.
	9 years	2, 4, 4, 4, 4, 5, 5, 5, 6, 6, 7.
	11 years	3, 3, 4, 4, 5, 5, 6, 6, 7, 7.
Defective children,	11 years	0, 1, 1, 2, 2, 2, 2, 2, 3, 3, 4, 4.

If one examines these results, one is surprised to find that some of the defectives are superior to normal children of the same age, since they repeat four phrases, although some of the normal repeat only three. In all experiments on groups one finds exceptions of this kind. We are glad to give examples in order to show how complex everything is. In order to comprehend such anomalies, it is necessary to analyse the exceptional cases. One generally finds then that the defective who has broken the rule has made use of a pure sense memory, has repeated like an echo without understanding. If the repetition is delayed a little, he is lost. In other cases the defective is not far removed from the normal. Without stopping to discuss these exceptions, let us examine the group as a whole. When we do this we reach the important conclusion that our group of defectives resembles in a striking manner the group of children of seven years. On an average, they

repeat practically the same number of phrases. The average for seven years is 3·1; that of the defectives of eleven years is a little less: it is 2·1.

Now, to sum up, let us compare just these two extremes, the memory of pictures and the memory of phrases. Is not the contrast remarkable ? And does one not here hit upon one of the principal differences between the normal and the abnormal ? Give the defective a piece of work which interests him, which appeals to his organs of sense, and which is concrete. If the work is not too difficult, he will acquit himself tolerably well. If, however, the work involves words, phrases, composition—in a word, abstract ideas expressed in speech — the defective immediately reveals wherein his inferiority lies. Abstract thought, and all other mental operations that involve it, are to him a closed domain. The replies of the teachers to our questionnaires had already led us to suspect this. Our tests are a confirmation, and even an exact demonstration, of it.

The normal curriculum of primary education, as one can imagine, is therefore not suitable to the mental condition of the majority of defectives. Even by reducing it to its first elements, one would make only a bad fit, for if one were to diminish the abstract portion which is not intended for defectives, one would equally diminish the concrete portion, which, far from being reduced, when defectives are in question, ought to be amplified. It is necessary, therefore, to change the proportions of the different parts of the curriculum, and give the whole a special direction. We shall conclude our observations by remarking that, if we take the workshop in opposition to the class, as the symbol of concrete work opposed to the symbol of verbal work, the workshop ought in the education of defectives to become a more important place of instruction than the class.

A slight reservation, however, must be made as to the value of this conclusion. In spite of the existence for a

number of years of institutions for the abnormal, we have yet scarcely begun our researches. Everywhere we are up against the same ignorance, and shall be so for a long time to come. Our knowledge of these children is very imperfect. We do not pretend that anything we are about to say is in any way complete.

Thus, having set forth a quite general principle relating to concrete, intuitive, sensory education, let us hasten to add that in practice this principle must be applied to children of widely differing temperaments, and that nothing is more complicated than the pedagogy of defectives, if one desires it to be adapted to the numerous ends which it is necessary for it to attain. One will certainly bear in mind that a greater place must be given to intuition than to abstraction; one will bear this in mind in the detail of the education of defectives, as well as in its general direction, but without forgetting the numerous interests which it is necessary to satisfy. There is no question but that there will be admitted into the special schools and classes many children only slightly defective, who are destined to return as soon as possible to the ordinary school; and one would put an obstacle in the way of this return, or even make it impossible, if, from the day the child entered the special class, a totally different direction should be given to his education from that of the ordinary school. This would be both serious and troublesome. The amount of abstract material in the lessons should be diminished simply in proportion to the mental deficiency. There is no reason why the slight cases should not be taught in the special class in accordance with a programme little different from that of the elementary school, except that it gives them the benefit of greater individual attention. Such individual attention is still more necessary in the case of the ill-balanced, of whom we have scarcely spoken in this chapter. It is not their insubordinate spirit which sets them against anything

abstract, and one would do them a very poor service by depriving the more intelligent of them of the ordinary curriculum, and all the more as the majority of the ill-balanced are destined to improve considerably. Thus there are many reasons why, in the case of certain classes of the abnormal, one should not lose sight of the usual curriculum. These reasons are as follows: the slight degree of the deficiency in certain cases, or the existence of instability without retardation, or the necessity of sending the children who improve most back to the ordinary schools. Such are the reasons which are important from the school point of view. There are others with a social bearing which are more important still. At the present day it is necessary, especially in towns, that everyone should be able to read, to write, and to express himself in suitable language. It has been remarked, and justly, that reading is the triumph of abstraction, and that a defective may require two years to learn to read by syllables, and very poorly even then. No matter: if the thing is possible, even with considerable effort, such a defective ought to learn to read. This is demanded, not by the state of the child's intelligence, but by the society in which he lives, where illiteracy would bring shame upon him. In questions of this kind the indications of psychology and pedagogy should be subordinated to the needs of life. Necessity makes the law. All instruction given to defectives must be dominated by the question of its practical usefulness. A pedagogy which should be fitted easily to the measure of their intelligence would be dangerous, in that it might result in making them useless. It is evident, therefore, that the problem is very complex, and it would be quite useless to attempt to express it by a single formula. The nature of each individual case must be taken into account, and one must aim at an essentially practical training, a pedagogy of ends rather than of abstract principles. Our advice, consequently, is that in the meantime no definite curriculum should be fixed upon,

but that the teachers of defective children should be allowed some freedom, under the cautious control of the primary school inspectors. We ask that all intelligent initiative should be accepted and encouraged, and that the teachers in special schools should frequently meet together in order that they may compare their experience. In short, we should give to the schools and classes for defectives such freedom and elasticity that the kind of education best adapted for such children would be able to evolve and perfect itself like a living organism.

CHAPTER III

PEDAGOGICAL EXAMINATION OF DEFECTIVE SCHOOL-CHILDREN

WHEN legislation provides special schools and classes for the benefit of defectives, it will be imprudent to make use of legal force to bear down the will of the parents. It will be better, in the first instance, to have recourse to persuasion. It will be pointed out to the parents that their children are behindhand in their lessons. The parents, as a matter of fact, know this quite well. It will be explained to them that classes of forty pupils are too large for children like theirs, and that the teacher cannot devote sufficient attention to them. It will be explained also that classes are being organised for ten to twenty pupils at most, in which it will be possible to give individual attention. Before instructing their child, it will be necessary to begin by awaking his intelligence, which involves the teacher devoting himself to him with method, order, and patience. One will appeal to the heart of these parents, and will surely manage to persuade them, especially the mothers. For such interviews we must rely upon the school teachers and the inspectors. It will only be necessary to warn them to avoid the use of certain expressions. It would never do to say to the parents that their child is an idiot, an imbecile, a fool, or even abnormal. The admission of their son or daughter into a special school should be represented to them as an advantage or even a favour. Their consent should not be demanded in too formal a manner. This

would make them think that it is they who are giving something, and many would refuse. In a word, much can be done by prudence, sympathy, and a little tact; and the personal experience that we have acquired has shown us that it is not difficult to gain the parents to the cause of special education.

Composition of a Board of Examiners.—We have now to consider how the selection of the children is to be made. It has been determined by statute that the examiners shall be three in number—the head of a special school, an elementary school inspector, and a doctor. As to the manner in which this committee is to carry out its work, the law preserves an absolute silence.

When the three examiners meet in order to judge the degree of retardation of the children who are presented to them, is this absence of a definite programme embarrassing ? We do not think so. A committee which is duly authorised always manages to do something. The work is done more or less empirically, perhaps, but it is done. Tell the jury to find defective children, and they are sure to find them. The only question is, What will be the value of their selection ? and, above all, How can so delicate a quest be saved from empiricism and rendered exact ? It is to be hoped that at first there will not be too many mistakes. This would have a bad effect upon the new institution. It is unfair to a normal child to send him to a special school, just as it is unfair to a defective to keep him in the ordinary school. It is better to make such mistakes as seldom as possible. Moreover, it is of the greatest interest to try to forecast the exact way in which errors are most likely to arise. In every machine there is a point of least resistance which requires to be watched. In every human institution there is a detail of organisation where fraud and charlatanism are most liable to occur.

Since we have supervised the organisation of some classes for defectives, and have been able by some preliminary

observations to take account of these dangers, we take it upon ourselves to give warning of them in advance. We fix buoys to the rocks that they may be avoided.

It seems to us that the selection of defectives calls for three varieties of experience—that of teachers, of doctors, and of psychologists. We shall proceed to indicate the services which these various persons may render. In this chapter we shall speak only of the pedagogical examination. The duty of making the first selection among the school-children and indicating those who are suspected of being defective belongs partly to the teachers and partly to the school inspectors, whose respective rôles, it seems to us, can easily be defined.

A. THE RÔLE OF THE TEACHER: TO SELECT THE CHILDREN SUSPECTED OF BEING DEFECTIVE.

It is out of the question to make an entire school pass before a committee in order that 500 pupils may have their mental faculties analysed. Such a task, at once troublesome and useless, would require several months. One should rather, in the first place, adopt a rapid method of picking out the children *suspected of mental defect.* It is quite sufficient that they should be suspected. Such a selection once made, the committee will have before it only a moderate number of candidates upon whom it will be possible to concentrate attention.

Let us proceed to show how the teachers may make their selection:

A retardation of three years indicates a child who should be regarded as a suspect. A child enters the elementary school at the age of about six years. Each year he ought to advance one class. From six to nine years he is in the elementary course; from nine to eleven in the intermediate course; from eleven to thirteen in the senior course. All are not quite regular. Some are a little

in advance, some are behind, but the majority conform to the preceding scheme. When a school is well managed, when the assignation of the children to their respective classes is made by means of suitable tests, and without too great regard to the demands of the parents, the classification which results is very good. There is then no better means of finding out whether a child is intelligent or not than to take into consideration his age and his class. Intelligence, so extraordinarily difficult to judge, is indicated in the above way with a really curious exactness. A child two years behind his age, when irregularities in attendance, absence on account of illness, etc., do not explain his backwardness, is very likely to be less intelligent than one who is in, or in advance of, the usual class for his age. This amounts to judging intelligence by the degree of instruction. Theoretically, such a method is open to plenty of meticulous objections, of which the most important is that we are confounding intelligence and memory. To this we shall reply that the stage of instruction reached is not the result of memory alone. It presupposes also some degree of application, some facility of comprehension, quite a collection of diverse aptitudes. The child's success in his studies is, in fact, the best indication we have of his capacity to adapt himself to the school environment. If the child is unable to keep up with the classes suited to his age,if he is unable to profit like other children from the education provided, this shows that he has not the same degree or the same kind of intelligence as his companions, and there is a presumption, if not an absolute demonstration, that his intelligence is inferior to the average, or that his character is different.

From these statements, which we have expounded at length elsewhere,[1] it follows that not only the head-master,

[1] See *Année Psychologique*, vol. xii., p. 1, and vol. x., p. 116. The method sometimes adopted, for other purposes, of asking the teacher to classify the children according to their intelligence is quite fallacious.

but an entire stranger, can determine which are the less intelligent children, the less well adapted to that school, without taking the trouble to interrogate them all individually. It is only necessary to compare their position in school with their age.

We thus obtain no merely subjective appreciation, but a simple statement of the actual condition of things. The only thing one must be careful about is to make allowance for irregular attendance. Backwardness in school instruction is significant only when it coincides with regular attendance. At the present time the regulations as to school attendance are very little respected. In country districts there are children who do not go to school till they are eight or nine years of age. It is not surprising that they cannot read, when no one has taught them. Allowance must also be made for long illnesses. When the absences have been considerable, their total amount must be subtracted. A child of nine, who has come to school at the age of six—*i.e.*, the usual age—and who has been absent for about 250 days, should, from the present point of view, be counted as eight. The school authorities will have no difficulty in making such estimates. That is their business, and they will quickly make up their minds even in a difficult case. One will, of course, bear in mind that the number of classes differs in different schools, and that certain classes are parallel. Lastly, one must remember that a defective may, on account of his age, be placed in a class too advanced for his knowledge. This, indeed, is often the case.

Exception may be taken to the rôle that we have assigned

Teachers make no allowance for age. Recently an excellent teacher pointed out to us, as the most intelligent in the class, a child who had really, when his age was taken into account, a retardation of two years; but in a class of younger children his age gave him an appearance of mental superiority. [Such facts vitiate much statistical work on the correlation of "brightness" in school-children with other qualities.—TR.]

to the teachers. We may be reminded that about two years ago, when statistics concerning defectives were being collected by circular, many of the head-masters replied in a notoriously unsatisfactory manner. Even in Paris one school was stated to contain 25 per cent. of defectives, whilst not a single one was acknowledged in another in the same neighbourhood. This amounted, as M. Bédorez ironically remarked, to an average of 12 per cent.

We shall reply, in the first place, by asking whether a mistake has really been committed. This cannot be taken for granted, since the proportion of defectives varies enormously from one school to another. But let us admit a mistake, and ask who is responsible. The master of the school understood badly what the circular had explained more badly still. In these circulars we actually read the following definition of defectives: "Subjects who are in a condition of mental debility, possessing only a limited intelligence and a limited responsibility, which do not admit of their acquiring, at the ordinary school and by the usual methods of education, the average elementary instruction which the other pupils receive." If one interprets this badly constructed formula literally, it is evident that half the children of France must be defective, being of necessity below the average. If the teacher is to work intelligently, he must have more precise directions. After having explained to him that a defective child is one who does not adapt himself, or who adapts himself badly, to school life, one will tell him that the degrees of non-adaptation vary indefinitely; for it is quite exceptional for even a defective child not to adapt himself at all, and to learn absolutely nothing at the ordinary school. It remains, therefore, to decide what degree of retardation or of non-adaptation is to be recognised as determining a defective.

According to a convention accepted in Belgium, which we modify slightly, *the retardation which determines a child*

as a defective is two years when the child is under nine, and three years when he is past his ninth birthday. Here we have a very precise rule, easy to apply to all children, with the corrections already indicated relating to school attendance. The rule is, perhaps, a little rigid, we admit, but it will always be possible to make allowances when examining closely the individual cases to which it will have to be applied.

Thus, the method which we have just indicated permits the making of a first selection.

This selection will be good, without being final. It will be good, for it is based upon a wide experience extending over several years. Just think what it means in the way of inattention and want of comprehension if a child is three years behind. For our own part, we consider this evidence from experience of the greatest value. It is the obvious point of departure. We can and should try to interpret it and to complete it, but we are not justified in taking no account of it. Let us even say boldly that if, by some unhappy chance, other finer methods should conflict with this, and indicate as defective a child who has shown himself well adapted to school life, it is school life which should be considered the more important test. How, indeed, could one call a child defective who succeeds in his studies and profits by the instruction in the normal way? Thus we sum up by remarking that *we possess a very simple method which enables us to recognise all the children whom we have any right to suspect of mental deficiency. This method consists in taking account of the retardation of the children in their studies.*

For the recognition of the ill-balanced children the rule is the same. The head-master must pick out those children whose undisciplined character has kept them from submitting to the ordinary school régime, and has made them a continual source of disturbance. Whilst the simply

defective fail to adapt themselves to school life by reason of their mental deficiency, the ill-balanced fail owing to their inco-ordination of character. In the second case, as in the first, there is a similar defect of adaptation, and the best proof that this defect is present in a particular child is the continued evidence of several years, the testimony of different masters, who declare that, with the best will in the world, they cannot break in the recalcitrant child to rule. But it must be recognised that the appreciation of want of balance is more delicate, more subjective, than that of retardation. The latter is indicated by a definite incontrovertible fact—the insufficiency of instruction. On the other hand, lack of balance has only a slight effect on a child's intelligence and his success in his studies. It is indicated to outsiders especially by the complaints of the masters. And the latter, to tell the truth, may be led to exaggerate a little, especially if they see a means thereby of ridding themselves of children with whom they have not much sympathy. We shall see in a little, when we speak of the rôle of the inspector, how the latter must check the statements of the head-masters.

Distribution of the Pupils in a School.—To put into practice the principle which we have just formulated, a circular is distributed to the schools asking the head-masters to arrange the children in each class according to age upon a blank table furnished to them. The work is easy, and the return should be required in a maximum period of eight days. Within this period twenty elementary schools in Paris supplied us with the information which we asked for through their inspectors. We give one of these returns, which we shall examine briefly, insisting only on the essential points.

We ask, then, that on the table, of which a blank copy is supplied, the head-master shall give the number of children who on October 1—that is to say, the first day of the session—were of such and such an age—*e.g.*, six or

seven years. The normal ages for the different courses or standards are as follows:

Preparatory or infant	6 to 7 years of age.
Elementary, first year	7 to 8 ,, ,,
Elementary, second year	8 to 9 ,, ,,
Intermediate, first year	9 to 10 ,, ,,
Intermediate, second year	10 to 11 ,, ,,
Senior, first year	11 to 12 ,, ,,
Senior, second year	12 to 13 ,, ,,

Thus a child is "regular" in instruction when he is found in the class named at the age indicated.

The normal age for the infant class is from six to seven years. The children of that age are entered in the table in the appropriate column. Now consider the extreme ages between six and seven which obey this condition. On the one hand would be a child exactly six years of age on admission. Such a child is exactly normal as regards age. He is behind by 0 years, 0 months, 0 days. At the other extreme would be a child exactly seven—or, rather, one day less than seven—on admission. Such a child would be behind by exactly one year. Consequently, the column headed six to seven years for the infant class contains children behind by 0 day as a minimum, and one year as a maximum. The average will therefore be behind by six months (compared to the ideal). Analogous reasoning would show that the children of the infant class entered in the column headed five to six years would, on the average, be six months in advance of their age. Similarly, those shown in the column headed seven to eight years would be on the average one and a half years behind.

Interpretation of the Tables.—The next point is to sort out the defectives from these tables. Nothing is easier if we follow the rules already given. Turning to our tables, we would consider as suspects the children entered in the fourth and following columns for the infant class; in column five and following for the elementary course, first

DISTRIBUTION OF PUPILS IN THE SCHOOL FOR BOYS, RUE GRANGE-AUX-BELLES.

Classes.	Regular Age (Years).	Courses (Parallel Classes = A and B).	Number of Pupils who, on October 1, were—											Totals.
			5 to 6 Years.	6 to 7 Years.	7 to 8 Years.	8 to 9 Years.	9 to 10 Years.	10 to 11 Years.	11 to 12 Years.	12 to 13 Years.	13 to 14 Years.	14 to 15 Years.	15 to 16 Years.	
		Supplementary	—	—	—	—	—	—	—	—	—	—	—	—
		Senior A	—	—	—	—	—	—	—	—	—	—	—	—
VI.	11 to 12	,, B	—	—	—	—	—	6	12	16	4	1	—	39
V.	10 ,, 11	Intermediate (second year) ..	—	—	—	—	1	13	17	5	—	—	2	38
IV. A.	9 ,, 10	,, (first year)	—	—	—	9	14	9	6	—	—	—	—	38
IV. B.	9 ,, 10	,, (first year)	—	—	1	4	15	10	7	—	—	2	—	39
III.	8 ,, 9	Elementary (second year) ..	—	—	6	14	11	2	—	1	—	1	—	35
II.	7 ,, 8	,, (first year)	—	6	23	8	6	—	—	2	2	—	—	47
I.	6 ,, 7	Preparatory	3	42	12	—	—	8	3	—	—	—	—	68
		Totals	3	48	42	35	47	48	45	24	6	4	2	304

year; in column six and following for the elementary course, second year; in column eight and following for the intermediate course, first year; in column nine and following for the intermediate course, second year. If the reader will calculate the retardation implied in the columns which we designate, he will see that this retardation is equal to at least two years under the age of nine, and equal to at least three years above the age of nine.

The number of children suspected of mental deficiency obtained by this method varies extremely from one school to another, independently of the mistakes which are made by the head-masters with lamentable frequency. We have found the proportions varying from 0·2 to 10 per cent., with all the intermediates represented. The average of suspects for ten girls' schools, with an average of 300 pupils, was 3·7 per cent.; for eight boys' schools in the same district, and strictly comparable to the preceding, it was 5·35 per cent. It must be clearly understood that these figures are provisional. They do not correspond to real defectives, but to children *suspected* of mental deficiency; and, moreover, they do not include the unstable, unless they are also defective.

Having made these deductions, one writes to the head-masters, or perhaps summons them to a meeting, in order to ascertain the names of these children and various other particulars.

These particulars will refer to three main points:

1. Give the full names and date of birth of the backward children (by two or three years, according to the distinctions given above), and indicate also whether the retardation is explained by irregular attendance, by want of application, or defective intelligence.

2. Indicate the children who, although they do not belong to the preceding category, yet appear to be distinctly abnormal.

3. Indicate also the children who are ill-balanced and

rebellious to all discipline in the opinion of several teachers who have had them in their classes.

We have already received replies which seem to us instructive, and even carry us beyond the study of the abnormal, as they may throw some light on the psychology of those who are commonly called "dunces." As a general rule, the children classed as retarded are the victims of disease, constitutional debility, or malnutrition. We find included in our lists some who are the children of nomadic parents; some who have been kept from school; some who have attended a religious school, where they learned little but sewing and writing; some who have changed their school too often; some also who are foreigners, and understand little French; and, lastly, some who have been kept back in their studies by unrecognised myopia. Such causes are extrinsic to the child. The personal causes of retardation are defective intelligence, sluggishness of mind, insubordination, an eccentric and excitable nature, a constant want of attention, and, lastly, laziness.

The complete and methodical study of the documents relating to 223 children with a retardation of three years has taught us a number of interesting facts. It is very rare for the cause of the retardation to be single. Usually, several causes were at work simultaneously. Feebleness of mind complicated by illness is noted in 20 per cent. of the cases. Insufficient school attendance (due to other causes than illness), in conjunction with feebleness of mind, is met with in 25 per cent. of cases. If, without taking account of those associations of causes, one enumerates simply the frequency with which each single cause of retardation is mentioned, one obtains the following percentages:

Feebleness of mind	50 per cent.
Insufficient attendance (without illness).. ..	33 ,,
Illness	25 ,,
Lack of application, laziness	7 ,,

If we admit, as a hypothesis, that the frequency of each of those four principal causes indicates its importance, we shall conclude that laziness very rarely explains a retardation so great as three years, and that the most important factor is undoubtedly feebleness of mind. We should have expected the teachers to give much more frequently the banal reason of lack of application. They have not done so, and these results confirm in a quite unexpected manner the convention according to which every retardation of three years should make one suspect feebleness of mind.

It would be interesting to know whether any children really defective in intelligence escape the revelation furnished by our tables. We have put this question in writing to the heads of the schools, and they have notified fifteen children, or 6 per cent., who seem to them to be clearly defective, although without a retardation of three years. On testing the statement, we found that mistakes had been made, and the sole residue of defectives who had escaped our census consisted of three subjects who wanted only a month or a few weeks to have shown clearly a retardation of three years. They were therefore on the border, and such exceptional cases are always to be found when one fixes an exact limit. There is no need to worry about them.

Hostile Head-Masters and Teachers.—It is important to state that the procedure for selection which we have outlined can be carried out without the concurrence of the head-masters. As a matter of fact, one has to be prepared for everything, even the hostility of the school staff. It may be that a head-master who has a defective in his school refrains from mentioning the fact. It may be that he is indifferent, or does not believe in special education, or simply does not choose to put himself about; or, again, he may be timid and afraid of trouble, or may shrink from the recriminations of parents, behind whom he sees the hostile shadow of some town councillor or journalist.

Lastly, he may be an ignoramus who, even at this time of day, imagines that a child cannot be a defective unless he has incontinence of urine or a sugar-loaf head. We have already come across several fellows of this kind. The sceptical type is most common. We recollect a head-master who, in response to our inquiry, replied with irritating calmness: "I have five hundred pupils in my school. I am sure that not one of them is a defective. You are of a different opinion. Well, my school is open. Come and see for yourself." And he added with a sceptical smile: "The school doctor and myself will be very curious to learn how you manage the inquiry." As a matter of fact, the proportion of defectives in his school was just the usual one—about 2 per cent.

At the time when the Government Commission was holding its inquiry as to the number of defectives, we found in the statistical tables which we had in our hands that whole towns, even as important as Fontainebleau, had replied "None," yet we knew by personal inquiry that that reply was wrong.

The systematic reticence of the head-master is therefore already in evidence, and will certainly turn up again even when the law is in full operation. Doubtless wiser counsels will prevail in the long run, and opposition will become less. But it will never disappear entirely. However, one will not be affected by it in picking out the backward children, but the children who are abnormal, though not backward, and the ill-balanced children, will perhaps escape, unless the inspector visits the school, and, knowing the disposition of the head-master, takes the precaution of questioning the teachers as to the children in their class who give them the most trouble in regard to discipline. As a rule the masters have an interest in pointing out these pupils in the hope that they will be removed.

B THE RÔLE OF THE PRIMARY INSPECTOR: TO ACT AS REFEREE.

In the pedagogical examination the inspector should exercise a measure of control. It is he who sets the teachers to fill up the schedules, who interprets the returns, and estimates their value.

Work is better done when it is subject to inspection. The head-masters will take more care in the selection of the defectives if they know that all their cases will be examined by a person whose competence is equal to their own, and whose position is higher. The inspector, who is generally well acquainted with his personnel, will see at a glance what he ought to think of the returns which are furnished to him. He knows that one master is too severe, and another too indulgent. He has to restrain the over-zealous, to stimulate the indifferent, and encourage the despondent. When it is a question of estimating a child's want of balance, it is necessary to know the character of the judge. Some good teachers fail to gain the necessary ascendancy over one of their pupils, either because they are indulgent where strictness is necessary, or because by excessive brusqueness and severity they alienate natures which require to be humoured. The inspector will succeed in taking all these things into account. He will interpret correctly the facts which are laid before him, because it is his business, his *métier*.

Significance of Irregular Attendance.—The inspector will begin, let us suppose, by examining the returns given concerning the backward children. From the notes sent to him he will be able to distinguish between the children whose backwardness is due to irregular attendance and those who may justly be suspected of mental deficiency or want of balance. He will thus make a first selection.

Here are some examples of the notes referred to:

Renné G——, age thirteen years, is in the intermediate course, second year; she is therefore three years behind for her age. The explanation given by the teacher is as follows: "Had contagious ophthalmia; not admitted to school till ten. Intelligence middling." If the return is correct, one is not surprised that the child has not made more progress.

Suzanne M——, age twelve and a half years (two years behind); always very delicate and frequently absent; of average intelligence.

Yvonne D——, age ten and a half years (two years behind); lived a long time on a boat without going to school; intelligence average; very industrious.

Eugenie V——, age eleven and a half years (three years behind); educated at a convent school until October last; intelligence little developed; slow of comprehension; writes and sews pretty well; spelling poor.

Suzanne B——, age eleven and a half years (two years behind); an intelligent and industrious child, who has travelled much with her parents, and afterwards stayed in a little boarding-house. At school since October; she has made great progress.

Anna E——, age eleven and a half years (two years behind); born in German Switzerland, brought up in England, and has been in Paris only a year and a half.

Germaine G——, age ten years (three years behind); very short-sighted. It was only last year that it was noticed that this defect of vision was keeping the child from learning to read. Since spectacles were provided she has made rapid progress.

Marguerite L——, age ten years (two years behind). This child has some affection of the eyes; she has been operated on several times.

Without pretending to give a final opinion on the above cases, one may believe that the retardation is due to the ailment or to irregular attendance. If it were necessary, one might make further inquiries at the schools previously attended by the child, or find out at the present school the exact number of days of absence.

In other cases it seems clear that it is the intelligence of the child that is at fault. For example—

Jeanne L——, age ten years (two years behind); attends school regularly; stupid and lazy.

Hortense G—— (two years behind); irritable temper; very backward in arithmetic and spelling; intelligence mediocre.
Marie R—— (two years behind); intelligence very mediocre; inattentive; progress very slow.
Blanche B—— (three years behind); intelligence much below the average; has some slight aptitude for sewing and arithmetic, but very backward otherwise; incapable of giving a reply indicative of good sense and reflection.
Jeanne B—— (two years behind); intelligence decidedly mediocre; none of her answers particularly sensible.

When the inspector has read these notes and formed an opinion on the children, and obtained as far as necessary additional information about their school attendance,[1] etc., he will make his first choice. He will decide which children are to be examined, and will have them brought to him.

Be it understood, then, that the child must now be presented, and that it is by questioning him that the inspector will form an opinion of his mental level. This examination is important. The inspector must observe the child, induce him to talk, watch the play of his features. In this way he receives a living impression which rarely deceives an experienced eye. He will even chat with him a little about something—for example, the occupation of his parents. . . . After these preliminaries, the examination proper begins. It includes the estimation of the degree of instruction and the degree of intelligence.

Tests of Instruction.

A child is presented to the inspector, for example, as belonging to the intermediate course, first year. Is this correct? It may be that the child is at the foot of the class, or is even incapable of following the lessons. Thus, it may be that his class gives a very poor indication of his capacity. There are plenty of cases where the head-

[1] Teachers have a troublesome habit of saying simply "attendance regular" or "irregular." The inspector should demand an exact return of the absences.

master, in order to please the parents, puts a child in a class too high for him. A rapid examination will suffice to test the grading. This testing is absolutely necessary, and presents no difficulty to the inspectors. They have the fortnightly report brought to them, examine the pupil's marks and his exercises, whereby they form a first impression. It is then necessary to ask some questions, and on this point we have something to say with respect to method.

There are two ways in which the degree of instruction may be tested. There is what we may call the *casual method,* which consists in putting the first questions that come into the mind; and there is the *systematic method,* which consists in putting questions arranged in advance, whose difficulty is known, and for which we have a scale (p. 54), which shows the average number of errors to be expected from normal children of each age. The latter method takes no longer than the former, and is even easier, because it makes no demand on the imagination. Moreover, we consider it quite indispensable for fixing in an objective manner the degree of instruction of the defectives on the day of their admission to the special school. It is very important that this degree of instruction should be definitely known, because it will be necessary to refer to it every time one wants to find out to what extent the child is profiting by the special instruction. We shall return to this point in our concluding chapter.

It has seemed to us that the test of instruction might bear upon three exercises, which are easily marked—reading, arithmetic, and spelling. Here is a very simple table of tests (p. 54), of which we have made much use. It has been arranged with the help of M. Vaney. The table is suited to the elementary and to the intermediate course, and that is sufficient for examining defectives, since none of them are found in the senior division. It is scarcely necessary to say that this table of tests is the outcome of

SCALE SHOWING KNOWLEDGE ACQUIRED BY PUPILS OF ELEMENTARY SCHOOLS.

Age of Children on October 1.	Course.	Grade of Reading.	Arithmetic.	Number of Mistakes in Dictation.			Spelling (Dictation).
				Phrases 1, 2, 3, 4.	Phrases 1, 2, 3.	Phrases 1 and 2.	
Years. 6 to 7	Preparatory	Sub-syllabic to syllabic	From 19 apples take away 6 (Answer 13)	119	62	28	*Phrase* 1. Émile est un petit garçon bien sage, il écoute son papa et sa maman, il va à l'école.
7 ,, 8	Elementary (first year)	Hesitating	Subtract 8 pence from 59 pence. (Answer 51)	119	62	30	*Phrase* 2. J'ai une tête, deux bras, deux jambes, une bouche, vingt dents, une langue, dix doigts.
8 ,, 9	Elementary (second year)	Hesitating-fluent	A box contains 604 oranges. If 58 are sold, how many will be left ? (Answer, 546)	78	47	19	*Phrase* 3. Le soleil brille déjà de ses plus gais rayons. Les hommes partent en chantant. Les bergers sont heureux de la belle journée qui se prépare, ils suivent au pâturage le grand troupeau des vaches pesantes.
9 ,, 10	Intermediate (first year)	Fluent	To make a dress, 7 yards of stuff are required. How many dresses can be made with 89 yards, and how much will be left over ? (Answer, 12 dresses and 5 yards left)	42	25	4	*Phrase* 4. Le garçon de ferme, de son pas lourd, entrait dans la grange, encore obscure, où nous réposions. Les bœufs mugissaient tout bas. Dans la cour le coq, les poules, le chien, allaient et venaient.
10 ,, 11	Intermediate (second year)	Fluent-expressive	A workman makes 250 shillings in February. He spends 195 shillings. How much does he save per day, February having 28 days ? (Answer, 1s. 11½d.)	11	4	1	

careful experiment. We have established for each age the average acquirements of all the children of that age whatever their place in school. One might quite as well have taken into account only the results given by typical children in the class proper to their age, but on reflection we rejected this proceeding as arbitrary, because it is affected by the difficulty of the curriculum, which is constructed *a priori*, whilst the average furnished by all the children of a given age is less artificial and is an adequate expression of the reality. Let us remark in passing that these two methods of calculation do not lead to equivalent results. The average furnished by the *typical* children is higher than that furnished by *all* the children, for, as we have shown above, more children are backward than in advance. Lastly, the time of year when the tests are made is not a matter of indifference. For spelling and arithmetic the time chosen was the end of February—that is, the middle of the session. For reading we are obliged to make use of results a little more advanced, for they were furnished later, namely, in June.

Let us now explain the details of the exercises shown on our table.

Reading.—The proceeding we adopt consists essentially in distinguishing five grades of reading:

1. *Sub-Syllabic.*—The child reads in syllables, but very slowly and with many mistakes.

2. *Syllabic.*—This consists in stopping at every syllable, but reading these pretty correctly. Thus the child reads "The—sol—di—er—car—ries—a—big—gun."

3. *Hesitating.*—There are stops as in (2), but they are less frequent. The child reads by words or groups of words—*e.g.*, "The soldier carries—a big gun."

4. *Fluent.*—There are no stops except at the marks of punctuation, but the reading is monotonous, as if the child does not understand what he reads. The voice may fall at the end of the sentences.

5. *Expressive.*—The child shows by his intonation that he understands what he reads.

We found it necessary, as may well be believed, to use not only the expressions *syllabic* reading, *fluent* reading, etc., but compound expressions, such as *hesitating-fluent, fluent-expressive,* and even compound expressions with accentuation of one of the epithets, as **hesitating-*fluent*.** This is very useful in practice.

We have stated that the scale of reading was founded on experiments made by M. Vaney at the end of the school year. We have modified it slightly in consequence of experiments made by ourselves in February. It may be of interest to give here the table arranged by M. Vaney. It has been arranged not by age, but by class.

	Number of Children who have the Following Grades of Reading.					Totals.
	None.	Syllabic.	Hesitating.	Fluent.	Expressive.	
Infant	12	26	2	—	—	40
Elementary (first year)..	—	5	32	4	—	41
,, (second year)	—	—	24	11	2	37
Intermediate (first year)	—	—	15	18	8	41
,, (second year)	—	—	10	19	9	38
,, (second year)	—	—	8	11	15	34
Senior	—	—	—	5	35	40
Totals	12	31	91	68	69	271

We shall now give some hints as to the method of procedure.

Reading is a test which requires only a minute. One chooses a text which the children can understand easily, preferably a lively piece with dialogue, so that one may judge more easily whether the pupil can read with expression. One should avoid prolonging the reading for more than forty-five seconds, for a young child tires quickly

and reads worse at the end of a minute than at the beginning. Instead of contenting oneself with judging that the child reads well or ill, which does not mean very much, it is a great advantage to adopt these five grades of reading, which are easy to distinguish with a little practice, and are less subjective than might be imagined, for two judges generally give the same mark. On referring to the scale, it will be noticed that children quickly pass from syllabic reading to hesitating reading, but the passage from hesitating to fluent reading is slower and more troublesome. One will notice this difficulty in practice.

By way of example let us quote our judgment of the grades of reading in the case of some backward children, and our consequent estimates of the degree of retardation. We draw them from our own observations made in a class for defectives in Paris.

Name.	Age.	Grade of Reading.	Retardation.
Coch	14 years	*Hesitating*-fluent	6 years
Grio	10½ ,,	Hesitating-fluent	2½ ,,
Sev	13½ ,,	Hesitating-fluent	5 ,,
Coff	11 ,,	Syllabic-hesitating	4 ,,
Ro	12 ,,	Syllabic-*hesitating*	5 ,,
Ostro	12½ ,,	Hesitating-*fluent*	4 ,,

It will be noticed that in spite of their advanced age none of these children have attained the fluent grade of reading.

In marking the reading one is sometimes at a loss owing to the absence on the scale of an exact description. Thus little Coff is judged syllabic-hesitating. The scale does not contain such a combination, which ought to figure between the syllabic reading of the infant class and the hesitating reading of the elementary class, first year. One may calculate the retardation either by admitting the existence of this intermediate term, or by marking Coff's

reading "hesitating." The choice is of little practical importance, since its effect is a variation in the amount of retardation of only six months.

Arithmetic.—Although arithmetical ability depends upon special aptitude, and a child may be quite intelligent though backward in arithmetic, the tests here chosen are so elementary, and the ignorance one tolerates is so great, that failure is of serious significance. We follow here the directions of M. Vaney, who has taken the trouble to simplify them at our request. All the questions in arithmetic ought to be dictated. This may even be done collectively. It is essential not to interpose to ask the child what operation is to be done. Such help would make the work much too easy, and indeed that is the very problem which has to be solved in the very exact and carefully considered form in which it has been stated. It is the problem rather than the operation which requires intelligence. Moreover, it will be noted that the difficulty of our mode of expression is calculated. The words *subtract, take away, remain,* ought not to be replaced by synonyms, and still less should they be explained. Even when, as often happens, the child makes a mistake in the first problem (for example, $19-6=12$), he must not be allowed to stop there; his mistake might be due to carelessness. One must always try the higher problems until one obtains a clear demonstration that the child is incapable of solving them. M. Vaney has suggested a scale of marking for these sums. It enables one to take into account slight differences by the aid of a system of points. Here it is:

Correction of Sums.

First Sum (1 point).—1 point for correct answer (*vide* p. 54).

Second Sum (2 points).—1 point for subtraction; 1 point for correct answer.

Third Sum (3 points).—1 point for 604 correctly written; 1 point for subtraction; 1 point for correct answer.

Fourth Sum (4 points).—2 points for correct division (1 if

wrong); 2 points for the remainder (1 if obtained by long division).

Fifth Sum (5 points).—2 points for the subtraction (1 if answer wrong); 3 points for correct division (2 if it is wrong).

Sixth Sum (6 points).—A dressmaker buys 8 yards of velvet at 9s. 6d. a yard and 25 yards of cloth; she pays for the whole £6. Find the price of the cloth per yard. 2 points for the price of the velvet; 2 points for the price of the cloth (1 for subtraction, if answer wrong); 2 points for price of cloth per yard (1 for division if answer wrong).

Seventh Sum (7 points).—A merchant mixed 25 pints of wine at 2s. a pint with 60 pints at 2s. 6d. a pint; at how much per pint must he sell the mixture in order to gain 55s. ? etc.

This scale enables us to determine by the total number of points obtained the level of the child in arithmetic, and at the same time we find out what sums can be done by the pupils of each age. This is shown in the table.

RESULTS OF ARITHMETIC TESTS IN AN ELEMENTARY SCHOOL IN PARIS.

All the Children of—	Average Points.	Children in Proper Class.	Average Points.	All Children in Class—	Average Points.
6 years	1·45	6 years	1	Infant	1·5
7 ,,	3·93	7 ,,	6	Junior (first year)	6·5
8 ,,	7·00	8 ,,	7	,, (second year	6·83
9 ,,	9·65	9 ,,	14	Intermediate (first year)	16·00
10 ,,	15·47	10 ,,	23	Intermediate (second year)	22·42
11 ,,	21·47	11 ,,	29	Senior	28·45
12 ,,	22·50				
13 ,,	24·75				

It will be noticed in the table that the averages are a little less when calculated on *all* the children. We have indicated this difference already, and have explained the reason for it. We have based our scale upon the marks obtained by all the children.

In practice we consider that M. Vaney's system of points is not indispensable. It is sufficient to find out whether or not the pupil can do the sum set. If he can, he is at

that level; if not, he must be placed in the grade below. Some examples will show how we use these results. We select them from a class of defectives.

Roger B——, age ten and a half years, is asked orally, for he cannot write: "If I had 19 apples and ate 6, how many would be left?" He replies first 9, then 6. One then tries easier sums. *Q.* "I have 4 apples, and eat 1?" *R.* "Three are left." *Q.* "I have 12 apples, and eat 2?" *R.* "There are 9 left." *Q.* "I have 8 apples, and eat 2?" *R.* "There are 7 left." Evidently this child does not clear even the first step. He has therefore four years and a half of retardation.

In this connection let us remark that as Roger is a child whose attendance has been regular, it follows that in his four and a half years at school he has scarcely learned more than a normal child learns in two months. We recently met with a similar case at Bicêtre. This was a child of twelve, who had begun to learn his letters at the age of four, and who did not yet know how to spell! In presence of such cases one may well ask whether the teacher who has not managed in four and a half years or in eight years to teach a defective child what a normal child learns in a month has not wasted his own time and that of the defective. At this point let us call attention to a defect in the mechanical calculation of retardation. Little Roger, who is ten and a half years, and cannot yet read by syllables, has only four and a half years of retardation, if we apply to him the usual rule. It would therefore appear that he is at the same level of intelligence as a child of thirteen and a half, who belongs to the intermediate course, first year, for the latter has also a retardation of four years and a half. The error of this method of calculation is at once apparent. The real significance of retardation is proportionate to the class and course which the pupil has reached. We shall return presently to the exact estimation of retardation.

Let us quote another example to show the application of the arithmetical test.

Ostrow, twelve and a half years, replies correctly to questions 1, 2, and 3. At the fourth he hesitates and begins by multiplying 7 by 89, and obtains as answer 783, which is doubly inexact, because he ought not to have multiplied, and the multiplication is incorrect. Then he draws back, and tries a division of 89 by 7; he obtains an incorrect answer (11), which does not satisfy him. Finally, he tries a multiplication: says 7 times 10 makes 70. He next adds 7 several times to reach 89, but he becomes confused, and finishes by finding the number 13, which is almost correct. This child is therefore at stage 4; he does not clear it, but he attempts it. Look at the scale.

We give him full points for Problems 1, 2, and 3, plus 2 points for Problem 4, or a total of 8, which puts him at the level of children of eight and a half years, which amounts to a retardation of four years.

Spelling.—The test of spelling is a piece of dictation given individually or collectively. The scale contains the first phrases of the dictation. We reproduce them all here, pointing out the grammatical difficulties which they contain, and the scale for marking faults which seemed to us most fair. [We quote the phrases in French, as a translation would not indicate the real difficulties. It will be observed that in many cases correct spelling implies grammatical knowledge.—TR.]

Phrase 1.—To write phonetically, without liaison, a phrase dictated in the ordinary vocabulary of the child.

Example.—Émile est un petit élève bien sage; il écoute son papa et sa maman; il va à l'école.

Phrase 2.—To put the *s's* of the plural to words chosen from the vocabulary of the child.

Example.—J'ai une tête, deux bras, deux jambes, une bouche, vingt dents, une langue, et dix doigts.

Phrase 3.—Plural of qualifying adjectives in simple cases; verbs to the third person plural, present indicative.

Example.—Le soleil brille déjà de ses plus *gais* rayons. Les hommes *partent* en chantant. Les bergers sont *heureux* de la belle journée qui se *prépare :* ils suivent au pâturage le *grand* troupeau des vaches *pesantes.*

Phrase 4.—Feminine of the qualifying adjectives without phonetic indication; verbs with the plural endings *ons, ont, ez, aient.*

Exercise.—Le garçon de ferme, de son pas lourd, *entrait* dans la grange encore *obscure,* ou nous *réposions.* Les bœufs *mugissaient* tout bas. Dans la cour le coq, les poules, le chien, *allaient* et *venaient.*

Phrases 5, 6, and 7.—Finals of verbs in the singular of the different tenses of the four conjugations. Past participle with or without *avoir.* Infinitive in *er,* and past participle in *é.*

Example.—Joyeux merle, ne *viens* pas dans le bocage. *Prends* garde à ce méchant qui *veut* te saisir et t'*enfermer.* Pendant que je te *parle,* tu *viens picorer* les raisins que l'oiseleur a *disposés* comme un piège. Ils sont *garnis* de glu: si tu y *touches,* c'en est fait de ta liberté.

Method of Marking Mistakes.

One mistake for a letter omitted.
One mistake for a letter too much.
One mistake for a letter substituted for another.

There may therefore be several mistakes in the same word, but the number of mistakes for any word cannot be greater than the number of letters in the word. A word omitted counts as many mistakes as it has letters.

The liaison of two words counts for one mistake. Failure to join the two parts of a word also counts one mistake.

It is to be noticed that we do not speak of grades of spelling—that is to say, of different phrases which the children of each age should be able to write without mistake. No doubt such could be found. But we have been content to count the mistakes; it is by the number of mistakes that the children of each age are distinguished.

The dictation given in February by M. Vaney in his school and corrected by the teachers there has enabled us to draw up the following table, which shows the number of mistakes committed, counted by the method indicated above:[1]

Age of Children.	Class.	Course.	1st Phrase.	2nd Phrase.	3rd Phrase.	4th Phrase.	5th Phrase.
6 to 7 years	1	Preparatory	13	22	—	—	—
7 „ 8 „	2	Elementary (first year)	6	15	32	—	—
8 „ 9 „	3	Elementary (second year)	2	10	19	20	—
9 „ 10 „	4	Intermediate (first year)	0	2	6·6	6·9	17
10 „ 11 „	5	Intermediate (second year)	0	0	4	4	12
11 „ 12 „	6	Senior	0	0	0·6	0·7	5

[1] There are two methods of stating the representative value of a group, the *average* and the *median*. Everyone knows the average. The median is obtained by arranging the values in linear series from the smallest to the greatest and taking the middle one. When should one use the average, and when the median? It is not easy to give a

To show how we classify a child from the point of view of spelling, let us take an example. We shall choose *Ostrow*, the defective whom we have already tested in arithmetic. He writes the first phrase with one mistake, the second with one mistake, the third with eight mistakes; he is at the level of a child of nine to ten (*vide* Table, p. 54). He has therefore a retardation of three years. He must be reckoned as slightly feeble-minded.[1]

We now understand the manner of judging the capacity of a child in arithmetic, reading, and spelling. Which of all these tests is of the greatest value ? We shall reply to

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general rule, but in this case of spelling, we have a good example. If we wish to calculate the number of mistakes for each age, to take the average might be a disastrous proceeding. A single child who made a hundred or so mistakes would obviously make the average unfairly high. The median is affected much less by such aberrant cases, and consequently is more suitable for very heterogeneous series, in which the difference between the maximum and the minimum is very great.

[1] By way of comparison, the following dictation was given to ninety-two children in an Edinburgh school. The progressive difficulties depend upon the non-phonetic spelling and the lesser familiarity of words. Most of the children came to school in their sixth year.

1. Tom is a good boy. He has a book and a bat. He can run fast.

2. The dog is bigger than the cat, but he cannot climb so well. He would if he could.

3. The farmer walked through the wood till he came to the field. It was a fine day for sowing the corn. He hoped it would not rain till he had finished his work.

4. The weather was very stormy. The boughs of the trees were blowing to and fro in the wind. Clouds were chasing each other across the sky. The crows were watching the ploughman in the field.

Mistakes were marked according to the directions in the text. Thus " bows " for " boughs " counted three mistakes. The results were as follows:

Age of Children.	Average Mistakes in Test Sentences.			
	1.	2.	3.	4.
6 to 7 years ..	0·32	2·64	—	—
7 ,, 8 ,, ..	0·22	1·77	3·45	6·18
8 ,, 9 ,, ..	0·2	0·36	1·68	5·91

this question by giving a summary in a few words of the tests we applied to twenty children in a special class. The amount of retardation varied considerably from one child to another, and for the same child from one test to another. On the average, the amount of retardation was 3·3 years for spelling, 4 years for reading, and 4·5 years for arithmetic. These children did not do so badly in spelling; there was even one who was at the normal level. It was especially in the problems that their deficiency was noticeable, because the problem requires not only memory, but some understanding. They have great difficulty in defining what is the proper arithmetical operation. When addition is necessary they have a tendency to subtract, and if they ought to divide they will more readily multiply. These mistakes lead to absurd results, which usually do not put them about, unless their attention is drawn to the absurdity. A defective will admit quite readily that if I have 604 apples, and sell 58, I shall have 662 left. These results show that in the ordinary school they do, we will not say too much spelling, but too little arithmetic in comparison to the amount of spelling. Finally, we again insist upon the evidential value of methodical tests. We demand that the elementary school inspector should have these tests carried out without assistance to the pupils, without intervention to indicate the solution or the step to take. He must neither assist nor do the lesson, but simply note the result achieved. He must therefore reduce himself to the easy rôle of a benevolent spectator.

Retardation and Knowledge Percentage.—We said above, in estimating retardation, account should be taken of the course to which the pupil belongs—that is to say, the grade of instruction to which he has already attained. A child of nine years of age who has a retardation of three years has learned absolutely nothing; on the other hand, a child of twelve years who has a retardation of three years has learned something, since he has reached the inter-

mediate course, first year. The difference between the two pupils is apparent; probably it will increase still more as years go on. To understand the matter clearly, it is necessary to compare the amount of retardation with the period of school attendance. The latter may be represented by the figure 100. Thus, our child of nine, who has learned nothing, has a retardation of three years in three years at school—that is to say, a percentage of 0; our child of twelve, who is in the "intermediate course, first year," has made in six years half the normal progress; he has therefore a "knowledge percentage" of 50. Such figures have evidently a quite different significance from those of the amount of retardation. Our opinion is that it suffices to make use of the simple calculation of retardation in selecting the defectives, for it is an easy and useful method; but when one is in the presence of a child, and desires to estimate his knowledge, not only for the actual moment, but with reference to his future and his capacity for learning, it is necessary to note also, and more especially, his "knowledge percentage."

We suggest the following schedule to be filled up after the examination of the child:

Examination of Instruction of a Child proposed for Special Class.

Date of examination:
Place of examination:
Full name of pupil:
Date of birth of pupil:
This child has attended..... school, ... class.
Attendance regular or irregular ?
Has he been able to follow his class ?
What is the amount of his retardation ?
Reading.
(Syllabic, hesitating, fluent, expressive, intermediate—*e.g.*, fluent-expressive.)
Observations on reading:

Arithmetic.
The pupil can do the problems noted without mistake (Refer to scale.)
Observations on arithmetic:
Spelling.
Phrase dictated:
Number of mistakes:
Conclusion.
Retardation in reading (taking account of school attendance):
Retardation in arithmetic (*ibid.*):
Retardation in spelling (*ibid.*):
Knowledge percentage:
Name and position of examiner:

In spite of the lengthy details into which we enter, it is evident that all this work of examination can be done pretty rapidly. The arithmetic alone is a little long, because it is necessary to allow time to put the child at his ease. We may put the total examination at fifteen minutes. Often it will be possible to abridge the time. The inspector is now in a position to estimate the retardation of the pupil and his knowledge percentage. He has several means at his disposal—the evidence of the teachers, the notes concerning the pupil, the examination of his copybook, observation of the attitude of the child, his physiognomy, etc., and, above all, the exact and personal test which he has made.

Is this enough ? When the inspector has established the retardation and determined its causes, may he, should he, give his opinion immediately ? In most cases, without doubt, a further inquiry is not necessary. But in other cases the need of further inquiry is felt. Instruction is not everything, and there are some children who have difficulty in assimilating school knowledge owing to want of aptitude, to inattention, to laziness, who are yet quite intelligent. It is the intelligence of these children that one would like to determine, and for this it is necessary to make use of some tests of intelligence. We propose, therefore, for the inspectors a last examination, a psychological one. Let no one accuse us of complicating the examinations. We do not impose them, we do not even

advise them in all cases. But these tests are none the less very valuable tools to which one is very happy to have recourse when one feels embarrassed.

PSYCHOLOGICAL EXAMINATION.

This consists in putting the following questions,[1] which have been grouped in such a manner that the four first can be answered by normal children at seven years of age, the five following by normal children at nine years of age, and the four last by normal children at eleven years of age,

Tests of Intelligence.

Seven Years.

1. If you were late for school, what would you do ?
2. If you lost a train, what would you do ?
3. If one is lazy and does not want to work, what happens ?
4. If you were tired and had not enough money to take an omnibus, what would you do ?

Nine Years.

5. If one needed sixpence, how could one get it ?
6. Why should we not spend all our money, but put a little past ?
7. If you break an object that does not belong to you, what should you do ?
8. If a companion should strike you without meaning it, what should you do ?
9. If you require some good advice, what should you do ?

Eleven Years.

10. Before taking part in anything important, what should you do ?
11. Why do we forgive a bad deed done in anger more readily than a bad deed done without anger ?
12. If anyone asks your opinion about a person whom you know very little, what would you do ?
13. Why should one judge a person by his acts rather than by his words ?

[1] The complete set of tests as revised in 1911 is given in the Appendix, with notes regarding their subsequent use in Britain and America.

These questions present various difficulties, both in thought and in vocabulary. We have tried them upon a great number of school children, and they correspond pretty exactly to the level of children at the ages indicated.

The answers of the children may be good, passable, mediocre, or negative (the child makes no reply), or even absurd or unintelligible. In marking the replies one does not take account of a wrong word or an awkward phrase, but considers the meaning and whether the child has really understood. It may seem that marking these replies would be rather delicate and arbitrary, but in practice the difficulty is not great. Here are some examples:

(10) The reply, "Ask some capable person, a master, a parent," is a good reply. "Ask it," "Listen for it," are passable replies.

(7) The reply, "Pay and apologize," is good. "Pay for it," is passable.

(8) The reply, "Forgive him," is better than the reply, "Don't tell tales."

(1) The reply, "Hurry up," is better than, "Ring the bell," "Hurry to-morrow," "One is kept in."

(3) The reply, "One remains ignorant," is better than, "One is punished."

(4) The reply, "Take a rest, then walk," is better, being more explicit, than simply, "Walk."

We mark the good replies 3, the passable 2, the mediocre 1, the absurd and silence 0. Silence sometimes makes one hesitate. It may result from timidity, or even from prolonged reflection. It is necessary, without changing the form of the question, to encourage the child and to press him to reply. With a little practice one can easily see who is trying to find an answer and who does not understand.

We have stated that normal children of eleven years of age replied to the questions 10 to 13. It must be understood that by this we mean that the majority replied.

There are no tests which can characterise all the subjects without exception of a given group. There are always failures. By way of example, we shall quote the observations we made in an elementary school with our questions 10 to 13, which we put to all the children of eleven, who were distributed, according to their ability, in the different classes. There were thirty-six of these pupils. The maximum of marks obtainable was 12, since there were four questions, and a good reply was worth 3. We then obtained the following averages:

Tests of Intelligence put to Normal Children of Eleven Years of Age.

	Average Marks.
Senior, first year	11
Intermediate, second year	6
Intermediate, first year	4·7

In the "intermediate course, second year," there were two children who obtained 0 and 1. In the "intermediate course, first year," there were four who got 0, and one who got only 1. What were these pupils, who had certainly not reached the average intellectual level of eleven years? Two are said to be defectives by the head-master. Let us subtract them, and there remain five, and these work sufficiently well to remain in their class and to follow the lessons. Their success is a very important fact. A child may not have very much intelligence, but if he has a good memory, application, and will, he is regular in his studies, and this compensates for the mental feebleness. We have often noticed this. If a child is regular in his school work, the question whether he is a defective does not present itself. It only presents itself if the case is reversed. Supposing he is very clearly backward, by two years, by three years, with a sufficient school attendance. If, in spite of this retardation, the psychological examination shows that he is all the same quite intelligent, this is a favourable

circumstance of which he should have the advantage. In other terms, the psychological examination is capable of showing that he is normal, even when he is behindhand in his studies. This examination cannot, in any case, serve to make him be regarded as defective if he is regular in his studies. This is why we place this examination last.

Here are some very good replies from normal children:

G. R——:

10. It would be necessary to consider where the affair would lead us.

11. Because when a bad action is done without anger one knows what one is doing, while when one is angry one does not know what one is doing.

12. One should say nothing. If one does not know the person one cannot tell what he is.

13. By his words he may deceive us. By his acts we can tell what he is.

G——:

10. It is necessary to think what one is going to do.

11. Because when one acts without anger one has thought beforehand, and is more to blame; while, on the other hand, it is an act of passion, and afterwards one regrets what one has done.

12. I would say that it would be necessary to know him first and then afterwards to judge him, not to say anything bad or good about him without knowing him.

13. Because there are people who say words and often do not do them.

Here are some replies which are mediocre or absurd:

12. You should try to ask the particulars of the person you do not know. (Mediocre.)

13. Because his acts are more terrible while his words are less threatening. (Mediocre.)

11. Because the action which has been done in anger is not so violent. (Mediocre.)

13. Because you must not speak after the person who speaks. (Absurd.)

In a class of defectives of eleven years of age we obtained from seven children an average of replies equal to 1·3. This figure, therefore, is considerably less than that of the

normal children regular in their studies, and even than that of the normal with a retardation of two years. Let us note in passing a very curious fact. We had had to examine these defectives before their admission into the special class. Now, the teachers sent us as defective two children who were clearly intelligent, for one of them obtained five marks and the other eight. Let us give the replies of the latter, whose name was Cler, age eleven years:

10. You would have to think. (Good.)
11. Because anger is less serious. (Absurd.)
12. Say nothing bad about him, because I do not know him well. (Good.)
13. Because words are not correct. It is not certain that he will do it. (Passable.)

These replies are evidently not very brilliant, but they are so superior to the level of a defective that we have sent this child back to the ordinary school. We have since learned a fact which was not originally communicated to us. This child came from the country, and he did not begin to go to school until the age of ten.

To sum up, we offer the psychological examination as a means of rehabilitating a child who has a marked degree of retardation. That is its sole utility. Never, in any case, must this examination be used to label as defective a child who keeps up with his lessons.

A last word regarding the necessity of these examinations.

We know that, after having read the preceding pages, more than one inspector, more than one teacher, will exclaim, "What is the use of all this? I am quite accustomed to questioning children, and I don't require such precautions in order to distinguish between those who are intelligent and those who are not. By two or three questions which are quite familiar to me I can judge the state of instruction."

We have paid homage to the ability of the teachers and

inspectors sufficiently often to be permitted to maintain here against those who would contradict us the necessity of our methods or of others of a similar kind. In order to determine the degree of intelligence or the state of instruction of a child one would require to have in mind the normal levels. Now, frankly, who knows what these are? Let any inspector, any teacher, glance over our test questions. He will be very much at a difficulty to say whether it is at nine years or at seven years that a child ought to be able to reply suitably to a particular question. We will go even farther. Let an inspector look at our scale, and say at what age reading is "fluent," at what age a child should write the third phrase with less than ten mistakes. Just let him try, and he will find the result. Let us add that people who are neither inspectors nor teachers will be still more embarrassed. We recollect that at the recent opening of a special class some eminent people appeared much astonished at the intelligence of the pupils. They were surprised at children of twelve years who made replies of which in reality normal children of eight should have been capable. It is impossible to form a correct judgment about matters so delicate unless one makes use of exact tests. We insist upon this because we foresee that all who visit the class for defectives will be subject to this illusion. All the more will they have an optimistic tendency to overestimate the intelligence and instruction of the children since they know in advance that they are going to see defectives, and consequently have a preconceived expectation of seeing degraded imbeciles with low foreheads and dirty habits. They will be quite surprised to find that the great majority of defectives do not answer to this description, and seeing that they have fallen into an error, they will correct themselves as usual by falling into the opposite mistake.

Estimation of Want of Balance.—If it is easy to determine backwardness by a direct examination of a child's state

of instruction, the difficulty of establishing a lack of mental balance is, on the other hand, very great. Such want of balance is indicated by breaches of discipline, inattention, naughtiness, lying, violence, brutality, etc. But it would be a very unruly child who would not behave quietly when taken apart by the inspector. Isolated in the examination room, surrounded by strange, grave people, the child shrinks into himself. He has little occasion or desire for a display of rebellion or naughtiness when his comrades are not there to admire him. Possibly an exact estimation of his reactions, of his motor ability, of his power of attention, would indicate the presence of some anomalies; but this is not certain, and is not to be relied upon. There may be some hope in that direction for the pedagogy of the future, but scientific investigations cannot help us to-day. In short, mental want of balance cannot, in the majority of cases, be the object of direct examination.

How, then, can it be estimated? Indirectly, by the evidence of others.

The inspector, then, must be content to accept the facts which are given to him by the teacher, but he must not accept them altogether on trust. Are these facts correct? Are they probable? Is any evidence of them to be found? Have they been altered in the telling? Such will be the first queries to awaken the critical spirit of the inspector. Then it must not be forgotten that he can question the parents, and hear their replies before letting them know the opinion of the teacher, and that everything they say will help him to judge not only the child, but the family circumstances in which he lives. The ill-balanced are often spoiled, or only children, or children not looked after, or children whose father has disappeared. The sons of widows form a considerable contingent. Now, the inspector will gain a good deal of information from the school history of the child. The ill-balanced is a nomad. He has attended several schools. It

is important to find out what impression he has left behind him. The proof of want of balance is not to be taken from a single teacher. If three teachers, at least, whose pedagogic reputation is good, agree about a child, the chances are that their estimate is correct. The inspector will resort to such controls, and if he is not satisfied, and if the alleged facts are not very serious, he will remove the child to another class or another school rather than send him to a class for defectives.

Elimination of Hospital or Asylum Cases.—Only defectives likely to improve are to be admitted to the special schools. That is only common sense. Everyone knows that the epithet "defective" does not belong to a single type. There are various categories which extend between two extremes: the purely *vegetative idiot* who cannot speak, or walk, or even feed himself; and the slightly *feeble-minded*, who may easily be taken for normal. In spite of all our sympathy for these poor creatures whom Nature has treated so cruelly, we could not think of supplying them without distinction with all the benefits of education. It is certain that the worst affected would not profit much thereby. It is pure folly to devote six or eight years to teaching the letters to a child who will never be able to read, or who, if he should manage to read a little, will not understand what he reads. To such an unfortunate it is quite enough to give lessons in walking, feeding, dressing himself, and in simple occupations, such as dusting or sweeping. Such cases do not require schools so much as places where they can be taken care of. These will cost less to establish, especially in the country. Educational efforts should be concentrated on the defectives who are less profoundly affected. It is they alone whom one should try to instruct. This is the practice which is rightly followed abroad. For administrative purposes the defectives of different grades may be divided into two groups, medical cases and educational cases, or preferably,

in order to obviate the use of the equivocal term "medical," we may speak simply of hospice cases and school cases to show the difference in their destination. The exact terms employed matter little so long as we understand what we mean by the words.

We have just pointed out the importance of reserving the schools for defectives for improvable cases. But it is necessary to correct this word "improvable," because all defectives can be improved more or less. Their asserted *arrest* of development is not complete, and the expression is equivocal. It would be better to replace the word "improvable" by the following more precise phrase: "Capable of being taught to gain, in part, their own living." Which of them are in this position? Unfortunately, we do not know. All such questions should have been solved long ago, since thousands of defectives have passed into the hospices. It would have been enough to have followed them up, to have found out what became of them, and to have drawn conclusions. But this has never been done methodically, and for the present we are reduced to conjecture. The nearest estimate we can form is that the social value of any individual case, not epileptic, is in inverse proportion to the degree of deficiency; the imbecile would seem to be more improvable than the idiot, and the feeble-minded than the imbecile. But this is simply hypothesis, and we accept it quite provisionally, until exact investigations have been made which will permit us to replace conjecture by demonstrated truth. Consequently we shall open wide the doors of the school to the feeble-minded and close them to the idiots, while as to the imbeciles, we shall have to find out whether the proper place for them is the school or the hospice. It will be necessary to find out in what measure, and at the price of what effort, an imbecile can be instructed to the point, say of being able to read. There are two other indications which may help us. Cases of *acquired* mental deficiency—

that is to say, cases who have become defective as the result of something which affected them after birth—are usually less improvable than *congenital* cases, or cases where the deficiency is due to some cause acting before birth. And, secondly, cases affected by epilepsy, with fits or frequent attacks of vertigo, usually undergo a progressive mental deterioration.

What distinctions can we draw between the different degrees of mental deficiency ? Such a question, we think, might be asked with regard to the ill-balanced as well as the defective. With respect to the former, we have no criterion at present to offer. It will be enough to pick out and send to the hospices *the most ill-balanced,* those whose presence among normal children would be a danger owing to the perversion of their instincts or the brutality of their impulses.

With regard to mental deficiency, we think it possible to formulate precise definitions which will enable all competent persons to agree as to the diagnosis of idiocy, imbecility, and feeble-mindedness. We are aware that in making this statement we are running counter to the general practice of medical alienists. When these, in an admission certificate, call a child "idiot," "feeble-minded," or "imbecile," they are rarely in agreement with the confrère who, a few days later, examines the same child, and makes a new diagnosis. We have made a methodical comparison between the admission certificates filled up for the same children with a few days' interval by the doctors of Sainte-Anne, Bicêtre, the Salpêtrière, and Vaucluse. We have compared several hundreds of these certificates, and we think we may say without exaggeration that they looked as if they had been drawn by chance out of a sack. This is a fact which many alienists have already suspected, and Dr. Blin[1] has expressed himself frankly on the subject.

[1] "Les Débilités Mentales," *Rev. de Psychiatrie,* 1902.

What is the cause of such contradictions? They result in great measure from the use of ill-defined terms. To the majority of alienists, the idiot is one who is *profoundly* affected in his mental faculties, the imbecile is *a little less*, and the feeble-minded *less still*. What mean these words: "profoundly," "a little less," "less still"? No one defines them. They are taken to be indefinable. It is no wonder they are understood so differently. All this trouble would disappear if the following definitions were adopted:

Definition of an Idiot.

An idiot is any child who never learns to communicate with his kind by speech—that is to say, one who can neither express his thoughts verbally nor understand the verbally expressed thoughts of others, this inability being due solely to defective intelligence, and not to any disturbance of hearing, nor to any affection of the organs of phonation. Since a normal child of two years of age can understand the speech of others, and can make itself understood by others, so far as its simple wants are concerned, it is evident that the distinction between an idiot and a normal child is easily made.

Definition of an Imbecile.

An imbecile is any child who fails to learn how to communicate with his kind by means of writing—that is to say, one who can neither express his thoughts in writing, nor read writing or print, or, more correctly, understand what he reads, this failure being due to defective intelligence, and not to any defect of vision or any paralysis of the arm which would explain his inability. One will not count a child an imbecile until he has had much more than the normal time to learn to read and write. The normal time in schools is six months. A child who does not yet know his letters after being at school for two years is likely to be an imbecile.

Spontaneous writing or writing from dictation must not be confounded with mere transcription from a copy. The latter is a kind of drawing, and may be acquired by some who are incapable, from defective intelligence, of writing from dictation. Nor must real reading be confused with reading which consists in transforming graphic signs into sounds without meaning to the reader. The distinction can easily be made by giving the child in writing some simple order which he is to carry out, such as "Shut the door," "Knock three times on the table."

Definition of a Feeble-Minded Child.

A feeble-minded child is one who can communicate with his kind by speech or writing, but who shows a retardation of two or three years (according to the rules already indicated) in his school studies, this retardation not being due to insufficient or irregular attendance.

These distinctions are pedagogical. The inspector will make them easily. If he is ever in doubt, he has a doctor at hand who will advise him.

Obviously the idiot is a case for the asylum or hospice. Obviously also the feeble-minded is a case for the school. There remains the imbecile, about whom we may hesitate. From the moment the imbecile proves himself unable to learn to read or write, his place is in the workshop. We must find out to what extent he can profit by special education.

True and False Defectives.—We shall formulate a rule which will surely meet with no objection. It is that *none but defectives should be admitted to schools for defectives.*

The moment we begin to apply this rule in practice, however, we meet with difficulties. There are normal children who are very backward in their studies. They cannot profitably follow the proper class for their age. Such children are numerous, and of great interest socially.

As they are really intelligent they can certainly be helped to make up for lost time. Various terms have been applied to them, but it will be simplest to call them "backward" or "ignorant." In Belgium many such "ignorant" children were admitted to the first school for defectives. In fact, they formed the majority, and one can understand how easily the teachers collected them. These are the cases which give such grand results, and are sometimes exhibited as genuine defectives who have been improved by teaching. In France it has been agreed that the ignorant are not to be admitted to the classes for defectives. The principle is sound. But let us not confuse the questions by approaching them both at once. Let us consider the defectives first, the ignorant or backward next. Even when we are agreed as to the principle, we find difficulties in practice. In the first place, there are the doubtful cases, children of whom we cannot say, even after prolonged examination, whether they are defective or backward. Demoor, in the return he published concerning the pupils of the first school for defectives at Brussels, noted a considerable number of these doubtful cases.[1] What should be done with such cases? The best thing to do is to admit them to the classes for defectives, writing on their schedule a large mark of interrogation in order to guard against future deception. Again, it is not always easy to establish irregular or insufficient attendance when this is the cause of the backwardness. The child may have been at several schools, and at some the teaching may have been faulty. There are some schools which practically produce mediocrity. In the next place, it is necessary to discover the causes of defective attendance. Sometimes these causes are completely extrinsic to the nature of the child—frequent removals, constant domestic disturbances, laxity of the parents, an infirm parent to be taken care of, etc.

[1] *Année Psychologique*, vol. vii., 1901, p. 296.

In such cases the interpretation presents no difficulty. But sometimes the case is more embarrassing. It may be a thin child, who has been out of sorts for a long time. Without being, properly speaking, of defective intelligence, he is weakly, anæmic, and consequently incapable of sustained attention. Would it not be advisable to admit such a case, at least as a temporary measure, into the class for defectives, until his system had recovered tone? Should we not also open the door to cases retarded by adenoids? And if we enter upon this work of charity, shall we not also accept some of those physically abnormal children who, affected by Little's disease or Pott's disease, are so little at their case among their more robust companions? And what, lastly, is to be done with children retarded in their studies by an unrecognised myopia? It is evident that the question ceases to seem simple and easy when regarded closely. We may rigorously exclude from the class of defectives the child who is simply ignorant, but there is a whole series of complex cases intermediate between the ignorant and the defective. The inspector, let us say in anticipation, will consult his colleague the doctor with advantage about all these border-line cases. No breach of principle is involved here. It is necessary to be guided by circumstances. *The essential point is to mark distinctly upon the child's schedule the special reasons for his admission, in order to prevent ultimate deception in the shape of presenting the child as an average defective who has been improved by tuition in the special class.*

We now come to the normal, the really normal cases. There can evidently be no doubt as to what is to be done with them. They are provided for. They have only to remain in the ordinary school. We hope they will be kept there. We hope it; we even demand it with all our power. But we are not certain that it will be possible to save them from the special schools. How many vital interests are

leagued against the keeping of that rule! And interests, when they are not looked after, are like the millions of ship-worms which slowly and silently corrode the most solid barriers.

In the first place, there is the interest of the parents. When it is a question of secondary education, of rich or middle-class parents, there is nothing to fear. The bourgeois do not love their defectives; they are ashamed of them. They send them to a distance, to some private institution. They never speak of them to anyone; they do not visit them; they abandon them. But the common people have more heart or less prejudice. They will not be afraid of the special school for defectives any more than they are of the hospice. When they have a really defective child in the hospice, they never cease to visit him. We can imagine the results which such a state of mind will bring about. If these fathers and mothers of the working class were to hear of the existence of a boarding-school where children receive board, lodging, and clothing, they would flock to obtain admission even for their normal children, although it were well known that the school admitted only the feeble-minded, defectives, and fools. If necessary, they would get municipal councillors to back up their demands. This abuse was practised recently in the case of a reformatory, which was rapidly filled with ordinary children, whose sole characteristic was this—that their parents had political backing.

This fraud—for it is one—will not be perpetrated in the case of the special schools and classes where no greater material advantages are given to the pupils than is the case in the public schools, but it is to be feared that it will recur in the case of special boarding-schools for defectives. Such schools, if they are not carefully looked after, will turn out plenty of normal young people!

And this is not all. It is not only the parents who will try to deceive. Think also of the heads of the schools for

defectives. What is their interest ? Take note of it, for it is important. One should always try to foresee the results of human frailty. In every new school which is started one should watch that part of the organisation which gives most scope for charlatanism.

The head-masters and the teachers of the defectives will certainly have a tendency to show off before visitors children who have never been mentally defective, or who have been so to a very slight degree. They will take good care to say nothing about the condition of the child on admission. Or, if necessary, they will tell lies—pious lies, told in a good cause, and for the honour of the school ! These children will be shown off as advertisements, which will be just as illegitimate as if the schools for deaf-mutes were to present to visitors the semi-deaf-mutes, or the deaf who had formerly been able to hear, and to claim the entire credit for the facility with which these pupils could read the lips or pronounce words.

All such impositions will continue to be practised as long as those who visit such institutions are content to look about and docilely question the children presented to them by the teachers, instead of personally selecting the pupils to interrogate.

There is another reason why the heads of schools for defectives will keep their doors wide open to normal cases. This is, that in some cases a dearth of pupils may arise. A school is opened; it begins its work; the staff signs on. There is not much to do; there is no gossip about the matter; everyone is happy. But the number of admissions slowly decreases. It begins to be feared that the inspector will in his report notice the decrease, and that the school will be closed as of no public utility. Pupils, therefore, must be found, and if they must be found, found they will be. Recollect those evening classes held in the elementary schools, where the teacher, fearing he will have to speak to empty benches, begs the head-master to send him some

school children as an audience. Think of those libraries, where the staff, uneasy at the desertion of the public, pays a gratuity to an industrious reader for show!

We strongly insist that the inspectors should be alive to this danger. They will be seated by the side of the manager of the special school. Let them take note that this manager has a direct vital interest to admit normal children. It is upon the inspectors that we rely to see that everything is done honestly and correctly.

Schedules of Particulars.—Full and detailed particulars regarding every child admitted to a class for defectives should be furnished by the head-master and teachers of the school from which he came. They will do this easily, for when a child is a little peculiar he attracts attention. Abnormal children never escape unnoticed. It is of the greatest importance that the future teacher of the child in the special class should be correctly informed, and that what has already been observed should not be lost. Let it be remembered that the education of defectives should be individual, *made to measure,* as has been said with picturesque exaggeration. Now, if the child is to be individualised, he must be well known, well studied.

The necessity of some definite method of collecting particulars has been experienced abroad. A scheme of questions has been prepared, to be answered by the teacher who sends the child. The plan is a good one. It avoids the worry of lapses of memory. We suggest the following questionnaire:

PARTICULARS.

SUPPLIED BY THE ORIGINAL SCHOOL.

Concerning..... *Admitted*.....

to the special class at ..... *school.*

General Particulars.

Original school:
Full name of child:
Date of birth:
Standard to which he belongs:
Is the child considered mentally defective ?
Is the child considered ill-balanced ?

Family History.

Names of father and mother:
Address of parents:
Occupation of parents:
Particulars of family which it would be useful to know:

School Attendance.

How long has the child attended school ?
What standards has he passed through, and how long was he in each ?
Regularity of school attendance: How many days was he absent each year ?
What were the most frequent reasons for absence, if any ?
What other schools has he attended, and at what periods ?

Instruction.

What amount of intelligence has he (count from 0 to 20) ?
What do you know of his memory ?
In which subjects does he do least badly ?
In which subjects is he weakest ?
How many years behindhand do you consider him in school instruction compared with average children of the same age ?
Annex to the present sheet one of his exercise-books and samples of his drawing and manual work.

Character and Discipline.

Conduct in class. Does the child keep his place ? Is he sleepy, unruly, talkative ? Does he laugh without apparent cause ? Does he disturb the class ?
Application. Is he attentive in class ? Does he do his exercises ? Does he learn his lessons ? To what extent does his family assist him with the school work ?
What is his attitude towards the teacher ? How does he receive remarks ? Does he pay attention to them ? How often ? Is he indifferent ? Is he restive ?

What are his relations with his companions ? Is he kind, docile, compliant ? Does he make himself liked ? Is he the object of marked attention ? Or is he indifferent ? Does he keep apart from others ? Is he bullying, brutal, irascible, untruthful, dishonest, wicked ? Has he any special vices ?

PEDAGOGY.

What moral influences are most successful for guiding him ?
What is the effect of punishment ? Of severity ?
What is the effect of rewards ? Of praise ?
Do you require to take any special measures with regard to him in class or in the playground ?
What are the most successful methods for advancing his instruction ?

STATE OF HEALTH.

What do you know of his state of health ? Has he incontinence of urine ? Any motor affection ? Any defect of speech ? Fits ? Has he been examined by a doctor, and do you know the doctor's opinion ? Was any medicine prescribed ? What ?

Date..... *Signature*.....
Position.....

All the terms of this schedule are readily intelligible to the teachers. They have filled up a hundred samples in a very satisfactory manner, and we thus have in our possession a veritable mine of valuable information. It is to be hoped that the teachers in the special school may enjoy the same advantage. The plan has been found of value in other countries. The bulletins which are used in Rotterdam, for example, scarcely differ from ours except that they are more laconic. We have included in our questionnaire all that is likely to interest not only the inspector, but the doctor and the psychologist.

And now to sum up, here are the steps we advise to be taken in collecting the defectives:

First.—The inspector has the pupils of each age in the schools arranged according to the " standard " or " course " they are in.

Second.—By examining the tabulated results, the inspector picks out the backward, and demands particulars regarding the school attendance of those who have a retardation of two years (when they are under nine years of age), and of three years (when they have passed their ninth birthday). In the same circular the inspector asks the teachers to name any of their pupils who appear to be mentally ill-balanced—that is to say, who, according to the testimony of at least two teachers, are rebellious to discipline and an annoyance in the class. The particulars with regard to want of discipline should be stated in each case.

Third.—After examining the returns relating to school attendance and to the faults alleged against the children supposed to be wanting in balance, the inspector will make his first choice.

Fourth.—The direct examination of the child bears specially upon his state of instruction and degree of intelligence. The inspector comes to a positive decision with regard to each child, and asks the opinion of the doctor, as well as of the head of the special school, who assists.

Fifth.—The inspector has a schedule of particulars regarding the children finally accepted for the special school filled up by their teachers in the schools from which they came.

The medical examination will be considered in the next chapter.

Let us add, in conclusion, that all the decisions arrived at are to be regarded as provisional; the children are to be admitted to the class for defectives on trial, to be kept under observation.

CHAPTER IV

THE MEDICAL EXAMINATION OF DEFECTIVES

HITHERTO we have been studying the defective from the point of view of his school relations. This point of view is incomplete, and should not make us forget that there is another—the medical. It is quite certain that in the organisation and the practical working of the special schools the doctor has a rôle, and an important rôle, to fill. All foreign countries recognise this, and give him a large place. It is even regretted in some countries that doctors detach themselves too much from such questions, and are content to make a rapid and superficial examination of children on their entrance to school, instead of collaborating actively in the important work of the teacher.

After this declaration of principles, it may not be without interest to fix precisely the rôle which belongs to the doctor and the services which he can render. It seems to us, in fact, that there is often some confusion as to his attributes, and two opposite tendencies may be recognised. According to one, the more widespread, the defective are often, if not always, invalids, and belong to him by right. It would be an encroachment upon his privileges to concern oneself with them. The opposite opinion consists in not committing to him any particular authority in the matter. This is the case in Germany, where there are schoolmasters who carry things with a high hand in the special schools. Let us add that the doctors themselves have done nothing to bring about an entente. Speak of defectives before them,

and they say, "That is our business," and they are perfectly right; but having affirmed their right, they pay very little attention to the territory they defend.

It seems to us that the field is sufficiently great for everyone to glean, and the efforts of all will not be too great to clear it. There are some questions which escape the doctor, unless he is also an educationist and a psychologist. But there are also some, in our opinion, for which he has special competence, and where no one can take his place. To define his rôle is not to lessen it; on the contrary, it is to assure him an authoritative position. It is not his business to select the abnormal from the normal. But from the children picked out as abnormal he will differentiate certain types and prescribe certain measures with regard to their care and treatment.

The Doctor not to pick out the Defectives from amongst the Children in School.

There is a general misunderstanding with regard to the special knowledge and aptitude of the doctor. One tends to credit him with a kind of omnipotence and infallibility against which he protests in vain. He is made to judge questions which do not belong to his special province—namely, the medical, and upon which he expresses opinions which are neither more nor less valuable than those of any other intelligent person. Recently, at various congresses, we have seen doctors with the best intentions laying down educational programmes, comparing the educative value of science with that of letters, and expressing a variety of opinions, no doubt very sensible, but with which the medical art had nothing whatever to do. As regards the selection of defectives, one is influenced by the same prejudice. We have discussed this with many people, and especially with educationists, and when we have insisted on the difficulties of examination, they usually reply,

"That is the doctor's business." The prejudice we have noted is very tenacious, and will doubtless be difficult to overcome, for there are many people who have interests to maintain of a pecuniary nature. Let us consider this question from two points of view—the estimation of educational retardation, and the physical examination of defectives.

Estimation of the Degree of Mental Inferiority.—We have seen how easily, in spite of the commonly accepted opinion, experienced teachers and inspectors accomplish this part of their task. If a doctor were charged with it his embarrassment would be great. Just imagine a doctor introduced into a school of 300 children in order to pick out the defectives by strictly medical methods. No doubt every doctor, especially if he is an alienist, is called upon to estimate the intellectual level of children, and to sign certificates of idiocy, imbecility, and feeble-mindedness. But just consider how things are managed at the consultation. The parents bring the child. They know very well that he is "not like others." They bring him for that very reason, and consequently the doctor does not require to distinguish the child from a normal one. He only requires to sit and listen to the parents, who give him a crowd of particulars. When he questions and examines the child, it is only to verify what he has learned, and to add his own personal impression. As a general rule the case is a severe one; the deficiency is so evident that any sensible person would notice it. The task of the doctor is therefore narrowed. He has only to certify the mental deficiency of the patient, stating in technical terms the diagnosis which the parents have brought to him ready made. Even his estimation of the gravity of the case, apart from special investigations on his part, is not very different from that of ordinary people who readily distinguish between the idiot who cannot speak; the imbecile, who can make himself understood, though he cannot be educated; and the feeble-

minded, who can do some work, but is not able to provide for his wants, or to behave himself sensibly.

When the doctor thus certifies the intellectual level of the patient, does he try to do so with precision ? By no means, for it is not expected of him. The parents do not come to him in order to ask him, " Is my child backward in his mental development ?" Alas ! they see it only too well, and little it matters to them whether his backwardness amounts to six months or a year. But they do come to ask, " Why does this child not make the usual progress ? Is there not some medicine, doctor, which can help his development ?" When they come to the doctor, it is not even with the hope that some medico-pedagogical treatment will cure their child. They know very well that the devoted care which they have always bestowed upon him from his infancy is superior to anything which can be given to him at a dispensary for children; but their indomitable hope leads them to seek chimerical measures. In all this, let us repeat, the doctor does not require to estimate the degree of mental deficiency with any delicacy. But if he should try to do so, what methods would he use ?

Here is a child of nine years of age, who has been selected for a class for defectives because he cannot follow the usual lessons in the elementary school. You, however, doctor, put to him some of your usual questions. You ask the child his name, his age, the occupation and address of his parents; the date, day, month, year; some details about his life; you even ask him to read or count. The replies are given to you quietly and correctly. Are you going to refuse to admit him to the special school, and by what right ? You have the notes of one, of two, or of three teachers. He cannot follow; he is still with children of seven years of age, in spite of having been at school for three years. It is evident that he is not an idiot, nor an imbecile, nor even feeble-minded to any great extent. But you have been notified that he is behind other children

of his age. There is therefore something peculiar about him. It is not a medical question whether he ought to remain in the ordinary school. The doctor cannot go against the opinions which have been given to him, in order to verify whether the retardation is genuine. To do so, it would be necessary for him to make a comparison with the normal condition. Now this varies according to age. The doctor does not know exactly, to two or three years, the normal condition of the mental faculties; nor, after such and such a period of school attendance, the habitual level of instruction reached. That, however, in such special conditions, is the very problem which faces him. We do not hesitate to express the opinion that, in such circumstances, the doctor would be incapable of estimating the intellectual level of the child. He has no more experience in this matter than any other person. Let a doctor seek to pick out a feeble-minded child from a number of normal ones, and he will find how little he is prepared to make the selection.

Physical Examination of Defectives.—But it may be asked: "Is not mental debility associated with physical signs which the doctor alone is able to appreciate?" About this question three kinds of facts may be considered: those pertaining to anthropometry, the stigmata of degeneration, and physiognomy. Let us consider in order what help may be derived from these.

Height and Head Measurements.—Numerous papers have been published upon height and cephalometry. The object of some has been to compare the less intelligent school children with those who are better endowed. Other authors have taken as their subject the study of asylum or hospital cases. The absence or paucity of results of the earlier studies seems to be due to a cause which we have referred to elsewhere (p. 39). The mistake has been made of judging the intelligence of the children by sole reference to the opinion of the teachers, although account

should have been taken of the relationship between the age and the stage of instruction. The comparison between the height and head measurements of the hospital cases and those of school children is not subject to the same risk of error, and striking differences between the two have been noticed. But there is yet another factor which must be taken into account if the figures so obtained are to yield all they are capable of teaching. If one confines oneself to comparing the averages of the two sets of children, one finds them almost identical. We have shown that the only suitable method to use here is the method of arranging the figures in series. This proceeding has suggested to one of us a better method still, that of "frontiers." There is for each age a height limit below which the defectives become clearly more numerous. There are limits in the head diameters, upon each side of which are grouped the abnormally small and the hypertrophied heads, which are frequently associated with mental deficiency. We give here the table which one of us has published of the provisional frontiers for height and for the two cephalic diameters.

THE FRONTIERS OF ABNORMALITY (BOYS).

Age.	Height.	Antero-Posterior Diameter.	Transverse Diameter.	Sum of Diameters.
	Centimetres.	Millimetres.	Millimetres.	Millimetres.
6	100	164	134	298
7	105	166	135	
8	110	169	136	305
9	111	171	137	
10	120	172	138	310
11	124	173	139	
12	130	174	140	314
13	135	176	141	
14	140	178	142	320
15	142·5	179	143·5	
16	154	180	145	325
17	147·5	181	146	
18	150	182	147	329

What this table means is this: If we measure 100 children in an elementary school, we find only a small number (at most 10 per cent.) whose measurements are less than those indicated; if, on the other hand, we measure idiots and imbeciles, the proportion of those whose measurements are inferior is greater, amounting to over 25 per cent. Amongst 120 abnormal children we found not a single one who was below these frontiers in two measurements, whilst 10 per cent. of defectives were below. Certain measurements, therefore, are distinctly suggestive, although, no doubt, not absolutely diagnostic without reference to the subject examined.

The Stigmata of Degeneration.—Everyone has heard of the physical malformations which are called the stigmata of degeneration. Some of these are very apparent, such as a sixth finger on the hand, or a hare-lip, or those deformities of the head, which are called *plagiocephalus* (obliquely oval cranium), *scaphocephalus* (boat-shaped cranium), etc. Other stigmata are less apparent, such as abnormal shapes of the ear, irregular growth of hair, of the teeth, alterations in the eye, etc. Some doctors, not all, have made a study of these various stigmata. But school directors and teachers know nothing about them except what the present-day widespread popularisation of medical knowledge has permitted them to know. Evidently it is no part of their business to take up the study, although no State diploma will prevent their doing so if it is their good pleasure. There is no law against it. But they would expose themselves to grave risks of erroneous interpretations owing to their ignorance of the manner in which stigmata are produced, and the ignorance of doctors on this subject is still great. The determination of the stigmata, their enumeration, and their description, belong, therefore, at any rate by preference, to the doctor. God save us from wanting to dispossess him!

But what help could their study render us in the question whether a particular child ought or ought not to be ad-

mitted into a class for defectives? There is an opinion which is very widespread, especially amongst teachers and ordinary people, a souvenir of the doctrines of Gall, that the physical stigmata are signs of the original character, and that the possessor of a certain shape of head is certainly defective. "I have taken my son," a worthy mother said to us, "to consult Dr. P., because he was learning nothing in his class. He was sent away from every school I sent him to, and he is unbearable at home. The doctor felt all over his head. He evidently saw that there was something particular wrong with the boy." We do not smile at this good mother. Plenty of other intelligent people hold her opinions, if they are not so naïve in their language. They expect that the moment defective children are brought before them, they will find something peculiar, something ugly, in their physiognomy. And there are plenty of doctors, let us say frankly, who are equally naïve, and, more serious still, allow themselves to be influenced by unconscious suggestions. If, like our worthy mother, we present to the doctor a child as defective, the doctor will, as a general rule, have no difficulty in demonstrating that he must be so. How many of us are there without stigmata? None of us is built upon the model of the ideal man. It is always possible to discover some anatomical detail which will give support to a preconceived opinion. But the same doctor who, on seeing a defective child with adherent ear lobes, will say that that was just what he expected, will abruptly change his opinion if he discovers a whorl of frontal hair on a child who is presented to him as normal, and will refuse to attach to the fact any importance whatever. As a matter of fact, these questions have not yet been studied as they ought to be, by a comparison without *parti pris* between normal and abnormal children of the same age and in the same environment, and we do not yet know how stigmata should be interpreted. We can only suggest some provisional conclusions.

The first of these conclusions is that the presence or absence of a definite stigma has no exact significance for the individual who bears it; for on the one hand one meets with all kinds of malformations in average normal children, and on the other hand, some who are definitely abnormal are quite normal in their conformation. The stigma, therefore, has not the value of a definitely pathognomonic sign like the crepitating râle of pneumonia, or the transient unconsciousness of epilepsy; but if we compare a group of normal children with a group of abnormal, the total number of the stigmata will be much greater in the second group; and, moreover, the multiplicity of stigmata in a single individual constitutes a strong probability that that individual is abnormal. Here are some facts which support these two propositions:

Recently we made a rapid examination of the heads of fifty-eight school children, and noticed that eighteen of them had some stigma, especially an abnormal shape of the ear. We therefore find stigmata amongst children at the average school level. But of these fifty-eight school children only one had four abnormalities—malformed ears, strabismus, prognathism, and slight scaphocephaly. The others had a maximum of two. The first child alone is certainly defective.

In a class of nine defective children subjected to a similar examination, we found only one who had but one stigma, another had two, four had three, and three had five. Of the three last, one had a very high degree of retardation; another was mentally ill-balanced to no less a degree. Let us compare these two groups, the one of fifty-eight average children, the other of nine defectives, and group to group, the difference is very clear. The stigmata are usually more numerous when the children are mentally defective. The existence of stigmata is a presumption of deficiency, and this presumption is greater, the greater the number of stigmata.

If we consider which are the stigmata that are most commonly met with, we find that asymmetry of the face is almost constant, but we also find it sometimes in normal children. Malformations of the ear come next. We are often struck by the frequency of badly defective speech—three times in nine defectives, whilst we did not find a single example in the fifty-eight school children taken by chance.

Here, then, is a "group fact" which is of interest from a scientific point of view. But what use can be made of it for individual diagnosis? This is much more delicate, for even if one could state it as a general rule that defectives have more stigmata than the normal, this rule is subject to important exceptions.

One of our abnormal cases had only one stigma, another had two, and in both cases the anomalies were of a very ordinary kind—slight want of symmetry of the face and sticking out ears. Children with stigmata few in number, and little marked (though as a rule we note the presence of stigmata without measuring them), may therefore not be of normal intelligence. The same is true sometimes of children with no stigma at all.

We may therefore conclude that stigmata may be taken into account when we are making an examination, but they should never be regarded as of fundamental importance in diagnosis.

Physiognomy.—In addition to stigmata, we have to note another feature which is of more definite significance. Methodical studies made by means of a collection of sixty photographs of children, normal and abnormal, photographs taken by M. Bertillon in conditions comparable in all cases, have shown us that an intelligent teacher can scarcely go wrong in judging physiognomy. The photographs were beautifully taken, and the expression of the faces appeared extremely lifelike to anyone who was used to observing children. We asked various teachers to examine these portraits, and to express their opinion as to the mental

capacity revealed. Mistakes were made, as was to be expected; but the correct estimations were always in the majority, and some teachers exhibited a truly remarkable talent for observation; they were practically never deceived. Let us say in passing that our list included a number of doctors amongst the teachers. They were far from distinguishing themselves. Their percentage was not so good as that of the schoolmasters. This difference in competence, which perhaps may appear surprising, suggests the following anecdote: One day, at the meeting of a commission, we had thrown upon the cloth a collection of photographs of children, the very one which we had been using for our methodical experiments. Everyone looked at the portraits and expressed his opinion. By way of a joke we tackled a medical alienist who had a seat on the commission. He was mistaken in his opinion as often as his colleagues who were most ignorant of medicine.

It seems to us, and the facts mentioned support us, that stigmata are only one part of the complicated whole which constitutes a physiognomy. A physiognomy includes many other things, especially the expression,—lively or sluggish, strong or weak, intelligent or lacking in intelligence; there is the fineness or coarseness of the features, the beauty or ugliness of the countenance, the ordinary or unusual appearance of the face. All this forms an *ensemble* which the eye does not analyse, but judges *en bloc* by instinct, without considering the elements separately, and, above all, without being able to give reasons for its judgment. Will it be possible some day to analyse, to dissociate, and to describe all these very various elements? We do not know. In the meantime we think that every examiner, as a matter of fact, allows himself to be influenced by the general appearance of the subject, and that the impression so formed is not entirely without value.

Let us sum up regarding the physiognomy. There does

exist between the intellectual level of a subject and his physical development a real correlation, but, unfortunately, it is slight. With regard to the stigmata our knowledge of their significance is still very slight. We have no figures which allow us to place any definite value upon them either singly or in combination. There still remains the general appearance, whose significance is apparently indubitable, but which, at present, is too dependent upon individual estimate to be utilisable. Let us add that these relations between the mental and the physical appear to be of greater significance the lower the mental condition. Now, in a school it is the feeble-minded who are in the majority, and it is they who have to be recognised much more frequently than the idiot or the imbecile, and this lessens the importance of the physical examination. We may therefore conclude with this practical rule: a physical examination can never allow us to dispense with a direct examination of the intelligence. Anthropometry, stigmata, and physical appearance must take a second place as means for discovering in school the feeble-minded and the ill-balanced. Failing direct recourse to the teacher, these methods could, and ought, to be made use of. But in most cases, thanks to the assistance of the teacher, we have better means. In cases on the border-line they might help to incline the balance. Their principal use is not to assist in selecting children for special classes for defectives; their significance is quite different, as we shall see immediately.

Medical Examination of the Children Presented.

We must now define the active rôle of the doctor. In many foreign countries a scheme has been drawn up for the medical examination, which is often extremely comprehensive, almost interminable. We give an example of this kind, though questioning the appropriateness, from

our point of view, of certain questions. If one does not simplify the work, the practitioners will simplify it in their own way—by neglecting it. If you ask them to do too much, they will do nothing.

Scheme for Medical Examination

Heredity of the Child.—Note the name, the date, and the place of the birth of the father and the mother, and find out, by direct interrogation, whether the parents have a pathological heredity. Consider first the two great hereditary influences—alcoholism and insanity. Next inquire concerning nervous ailments, tuberculosis, etc. Make inquiries concerning the direct ascendents and their collaterals. Note the number of brothers and sisters, their illnesses, their mortality, and the position of the child in the family.

Previous History of the Child.—This is the second part of the medical examination. It includes many questions. Has the child had convulsions? At what age did it begin to cut its teeth? At what age did it begin to walk? When did it show habits of cleanliness? When did it speak? What illnesses had it in infancy? Has the child always appeared different from others, or did it only become so at some definite time, or, in other words, is the mental deficiency congenital or acquired?

Present Condition.—Under this heading are included the general appearance of the subject, his attitude, the form and size of his head, etc.

We have no objection on principle to medical investigations of this kind, and if a doctor desires to collect such information, he ought to be encouraged. We recall in passing that Dr. Ley, of Antwerp, who was for some time medical specialist to a school for defectives, has made a very complete study of the heredity and personal antecedents of hundreds of defective children. But before compelling doctors to fill up conscientiously a schedule containing all these questions, one should consider without prejudice what use the work is going to be when it is done.

Let us distinguish between pure science and what is of immediate practical utility. No doubt one ought to give

a warm welcome to everything which helps us to understand the child better; but the above observations upon his heredity do not bear upon the question of whether he is a defective, and throw only the dimmest light upon his character and the manner in which one should treat him. If he is to be counted abnormal, he must be either ill-balanced or of deficient intelligence. Even if he should have an alcoholic heredity, that would be of no importance if he were able to follow his class and to profit by the ordinary instruction. At most, the discovery of a pathological heredity might incline one in a doubtful case towards a diagnosis of mental deficiency; but yet one should be extremely cautious about permitting oneself to be influenced in this way, for we are ignorant to a most incredible degree concerning the heredity and antecedents of normal children, and as our ignorance in this respect is so complete, we are unable to say precisely what is really pathological in the heredity and the antecedents of those who are abnormal. Information of this kind, therefore, is not directly useful.

What, then, are the first problems to be solved? Let us consider just exactly where we are in the examination. Here are the children picked out by the teachers. The inspectors themselves have checked the selection and referred back some of those selected, but very few, if they have carefully directed the methods of choice from the beginning. The children presented are backward in their studies. Inquiries regarding their school attendance have shown that the retardation is not due to irregular attendance. The examination of their intelligence has confirmed this judgment.

It still remains to discover whether, amongst all these children who are unable to follow the ordinary school curriculum, there do not exist some who are not, properly speaking, mentally deficient, but who are suffering from some illness. May we not find amongst them some who

require medical treatment rather than special teaching—*e.g.*, cretins ? And, lastly, may there not be some children whose mental deficiency complicates some other disease, such as epilepsy ? These are problems which are essentially medical, and which it is necessary to solve before admitting a child to a special school. Let us consider them in order.

1. Is the Case one of Mental Deficiency, or of an Intercurrent Mental Affection ?—To tell the truth, there is not often any doubt. However, there are two circumstances in which doubt may arise. In the first place, an arrest in a child's mental development may be the expression of a state of depression which indicates a psychosis in the course of evolution, or it may be the first sign of decadence in one of those degenerates of whom Morel speaks, who seem to have "a limited mental existence." Such cases, which some authors describe under the name of "dementia precox," require a medical regimen.

In the second place, it is possible that the etiological factor is alcohol. Alcoholism in the parents is frequently the cause of mental deficiency. But the effects of drinking do not always stop there. The child itself may be made to drink, and consequently the doctor may sometimes find symptoms resulting from direct intoxication—nightmares, or tremor of the hands. Such intoxication may be responsible partly, if not entirely, for the want of progress at school, and also for the irritable temper which the child shows in class. It would be necessary in such cases to see the parents, and to advise a different hygiene for their child at any rate, if they themselves cannot be persuaded to give up their bad habits. In this way one may be able to avoid sending the child to a school for defectives. It is apparent that even if the child were sent to such a school, it would be necessary to put a stop to the administration of alcohol. The rarity of such cases makes their exposition of almost theoretical interest.

2. Would the Mental Deficiency respond to Medical Treatment?—Cannot the doctor prescribe something to cure the mental deficiency or want of balance? Let us give some consideration to this question. Medicines act either upon the symptoms of a disease, or upon the organic changes which produce them, or, lastly, upon the very causes of such organic changes. Quinine, for example, has a selective action on the parasites of malaria; mercury produces an undoubted effect upon syphilitic growths; treatment by cold baths keeps the temperature of typhoid fever below a certain level during the whole of the illness. Cannot analogous results be hoped for in mental deficiency? A brief résumé of what we know concerning the causes of mental deficiency and the anatomical lesions which accompany it will determine our answer.

The dominant etiological feature is that mental deficiency and want of balance depend upon hereditary conditions, or conditions acquired in the earliest stages of development. By hereditary conditions must be understood strictly those which result from alterations in the germ cells of the parents. An intoxication alone seems capable of exercising upon the latter a sufficiently general action to reach the germ cells, and by far the most frequent poison is alcohol. By acquired conditions must be understood the results of diseases of the fœtus or of infancy, and especially the cerebral complications of the infectious fevers—*e.g.*, meningitis in the course of an eruptive fever. In all such cases, with rare exceptions to be mentioned immediately, by the time the mental deficiency is discovered, its causes are no longer active, and consequently cannot be affected by medical intervention.

The statements we have just made with regard to the causes of mental deficiency lead to some practical conclusions. The ultimate evolution of the congenital cases differs from that of acquired cases, and this renders a study of the early history of the child important. If the develop-

ment of the child has been normal at first, and has then been abruptly interrupted, for example, by an attack of meningitis, of which we can obtain by inquiry a definite history, the prognosis is not good. For it is a well-recognised fact that cases of acquired mental deficiency are not likely to make a fresh start. If we were hesitating whether to send an imbecile child to an asylum or to put him in a class for mental defectives, a history like the above would lead us to give the preference to the asylum; but let us say once more, we do not find here an indication for treatment.

As to the changes which are found post-mortem, these are manifold and of an unalterable kind. They are as follows:

(1) The results of the rupture of a cerebral vessel—*e.g.*, from asphyxia at birth or a delivery by forceps. Blood has been poured out into the nervous tissue. The latter has been destroyed over a greater or less extent, and there is found in its place a cyst filled with sero-sanguineous fluid.

(2) The obstruction of an artery—*e.g.*, by septic thrombosis—has prevented the blood from reaching a part of the brain, with similar results to those mentioned.

(3) In other cases are found the more or less extensive changes produced by meningitis or meningo-encephalitis. The inflammation of its envelopes has interfered with the brain, and consequently with its functions.

(4) An increased secretion of cerebro-spinal fluid has led to a compression of the nervous system or a distension of its cavities, notably of the lateral ventricles of the cerebral hemispheres, and has led to a separation of the bones of the cranium, thus producing the large globular head of hydrocephalus.

(5) There may be found simply defects of development whose causes are known (microcephalus, or extreme smallness of the cranium relatively to the face; microgyria, or marked thinness of the convolutions).

(6) Lastly—and this is frequently the case in the worst degrees of deficiency—the post-mortem, and even microscopic examination of the organs may show no change at all.

Let us add that the nature of the lesions just mentioned does not seem to have any relationship to the condition of the mental faculties. An anatomico-pathological grouping of the cases and a grouping according to the mental condition, far from being parallel, are frequently decidedly different. On the other hand, the extent of the lesions is of more importance. Diffuse lesions affect the mind more than those which are circumscribed—that is to say, limited to a certain part of the brain—as if the mental functions required the co-operation of the entire cerebral cortex. One will often find, for example, sound judgment in the subject of a marked paralysis, whilst it is very rare to find that good intelligence co-exists with any degree of microcephalus.

Let us emphasise the last fact we mentioned, the absence of any lesion. Some authorities have maintained that all conditions of mental deficiency and want of balance found in children are connected with definite diseases of which they are the symptoms. The question is unsettled. For our own part we adopt the following provisional statement: Mental deficiency and want of balance are peculiar mental conditions which it is often impossible to connect with definite pathological changes.

Thus, we do not know of any medical treatment which is likely to act upon the preceding lesions when they are present, and we do not think it is even possible to act upon them.

An exception must, however, be made of conditions due to insufficient secretion of certain glands. The type of these is cretinism. Marked cases of this condition are easy to recognise. The very appearance of the children is sufficient for an experienced eye—the stunted growth; the

rough, wrinkled skin; the swollen eyelids half-concealing the eyes; the prominent belly; and the mental apathy. One also comes across abortive cases, where the above-mentioned characters are less marked; the sluggishness also is less. These latter cases are amenable to the same treatment as the former—namely, the ingestion of thyroid glands from the sheep.

This treatment stimulates growth and makes the child more lively; but what ultimately becomes of the cases so treated? The amelioration usually ceases whenever the treatment is dropped. But how far does this amelioration go? To what extent does the child profit by it? Lasègue has jocularly remarked that the average duration of an attack of typhoid fever (six weeks) represents the maximum time during which medical attention could be brought to bear upon a patient. One feels disposed to think he is right in face of the slight satisfaction one can obtain from the literature regarding a point of such importance.

Other cases of mental deficiency may be due to an alteration in the pituitary gland. It is for the doctor to find out whether there are any symptoms by which mental deficiency of such an origin can be recognised, and whether it is possible to prepare a suitable substance for replacing the absent secretion.

The number of cases amenable to treatment of this kind is, unfortunately, very limited.[1] We may even say that,

[1] For the sake of greater completeness, let us refer to a type of imbecile with very characteristic features—namely, the *Mongol*. A little round head, chubby cheeks, rosy as if painted with rouge, oblique eyes, a nose broad at the base and with a tip like a little ball, skin slightly yellow—the whole appearance of the child is such that one doubts his European origin, and thinks of a Chinese doll, with limbs of india-rubber, so great is the looseness of the joints. During his first year the Mongol is rather drowsy and quiet—too "old-fashioned," as the mothers say. In the second or third year he becomes lively. His countenance acquires a comic and jolly expression, and his imitative instincts become curiously developed, and as a general rule he is very sweet-tempered. They all resemble one another, and all "promise much and achieve little," for they never cease to be imbeciles.

as a general rule, we did not find amongst the school children we examined any cases of obesity or infantilism such as are sometimes described of a truly remarkable nature. Even children who were abnormally short looked their age. We have still, however, to mention one last influence—namely, poverty. Its part in the production of mental debility is scarcely defined. What are the exact effects upon intelligence of prolonged deficiency of nutrition? How can its action be isolated from that of other agents, such as alcoholism, which too frequently accompanies it? The complexity of such social studies sufficiently explains their present incompleteness. Let us recall the results we obtained from an inquiry of this kind; the children of parents in extreme poverty are retarded in their physical development more frequently than those whose parents are in easy circumstances. It is interesting to add that analogous inquiries with reference to intelligence have furnished similar results.

Apart from the preceding cases, the best that can be done is to treat the symptoms. The two principal agents at the disposal of the doctor are the bromides and hydrotherapy. Unfortunately, if the bromides are undoubtedly efficacious in certain cases of epilepsy, that is far from being the case in simple want of mental balance, in which cases they are at best useful adjuvants. As to hydrotherapy, and especially cold douches, their principal indication is in certain nervous affections, where their effect is to enable the subject to master the emotional reactions which are habitually exaggerated.

Lastly, the doctor can exert his moral influence to assist the educative work of the teacher in the special school. His less frequent intervention, the different motives of his advice, will often give him even more authority than the teacher. The suggestive effects of his intervention should be obtained, in our opinion, without resort to hypnotism.

3. Does the Mentally Defective suffer from any Definite Illness?—If the illness such as we have referred to affects those parts of the cerebral cortex which govern the muscles of a limb, one will find, in addition to the mental condition, paralysis with atrophy and contracture. But in addition to such very marked cases, there exist others in which sensory or motor affections, although slight, may hinder the progress of education.

It goes without saying that if a child does not profit from the school work, an examination of his sight and hearing should be made as a matter of course. Perhaps that may have been done already by the teacher himself by such methods as he is able to use. But this first examination is not sufficient. The doctor must correct, as far as possible, the want of acuity noticed. No doubt the defect may not explain the mental deficiency of the child, but one must take care that in the school for defectives a pronounced myopia or catarrh of the middle ear does not prove an obstacle to the efforts which are to be made to bring about development.

In the same way it must be considered whether the condition of the muscular system is such as to permit the manual work which one wants to teach the child, and whether there exists any paralysis or tremor which would prove an obstacle to work of this kind. One must consider whether any symptoms present are transitory, like chorea; or permanent, like infantile hemiplegia; and what kind of efforts may be made without risk to the health of the child. Such are the problems which the doctor has to solve.

In the last place, it is necessary to take into account the coexistence with the mental deficiency of other affections.

Epilepsy.—Epilepsy frequently coexists with mental deficiency. Now, epilepsy does not always reveal itself by severe fits with crying, falling down, loss of consciousness, convulsions, stiffness followed by jerking of the

limbs, foaming at the mouth, biting of the tongue, and involuntary passage of urine. It is revealed also by symptoms of a less striking nature, which have been described under the name of *petit mal*. Such are loss of consciousness, vertigo, or simply mental perturbations. Loss of consciousness occurs without the tremor of a muscle, the child suddenly turns pale, loses consciousness for a moment, and then continues whatever he was doing—for example, walking or writing. There is nothing more impressive to notice when the fit occurs as one is talking to the little patient. One sees, as it were, the passing of a veil. But nothing could be more fugitive, nothing could more easily escape the notice of anyone who was not a good observer. Often the parents know nothing about it. The attacks are so short, the consequences apparently so slight, that even if the parents have chanced to notice them, they do not always think of mentioning the fact. The teacher of defective children ought to be instructed in the characteristics of this affection. He is going to spend several hours daily with the children. He will have the best opportunities for noticing the occurrence of attacks, which may be rare, but which, when they occur, are very significant.

Although the symptoms are a little more marked, vertigo also is of brief duration. To the pallor and the loss of consciousness of the preceding condition there is added a little muscular relaxation. The child totters, supports himself by anything in his neighbourhood, slips down in his seat, or drops his pen. Sometimes there is a slight spasm of the muscles of the face, the mouth is drawn to one side by slight jerks, or performs some movements of mastication or deglutition. And that is all—no convulsions of the limbs, no passage of urine, scarcely an interruption to the work which is being done.

Whether the doctor discovers these symptoms by interrogation of the parents, or whether the teacher some time

afterwards describes them to him with sufficient detail to permit of a certain diagnosis, a double gain results. In the first place, there is an indication for treatment; and in the second, the possibility of supervision. As a matter of fact, it too frequently happens that these symptoms, little dramatic as they are, reveal the existence of epilepsy, which will ultimately result in progressive mental decadence.

And yet this is not all. A few days or a few hours before such symptoms occur, or immediately after them, or, lastly, according to some authorities, entirely independently of them, the patient may develop a peculiar condition of irritability, in which he will transgress against discipline, make insolent remarks, or even give way to violence. Such actions ought not to be suppressed by punishment, because they are of morbid origin.

All such symptoms possess this characteristic, that they leave no trace on the memory of the child. He himself knows nothing about them, or knows them only by what he has heard from other people. There can now be no need to insist with what care inquiries must be made, especially of the parents.

Are epileptics to be admitted into the special class ? On principle they are refused admission to the ordinary school. They are, however, to be found there. There are those whose attacks occur very rarely, or are so slight as to cause no disturbance. There are probably also unrecognised cases of epilepsy in which the symptoms occur during the night, or on awakening, but never in class. Only the severe forms are turned away. Probably the same state of affairs will recur in the classes for the abnormal—at any rate until the time when provision for epileptics is more extensive than it is at present. It will therefore be necessary to recognise these cases, to supervise them with special care during certain kinds of manual work, and, if possible, to treat the nervous symptoms suitably while the patients are receiving instruction.

Hysteria.—Although hysteria has not the same gravity, it is no less advisable that cases should be tracked out. This neurosis is being discussed to-day as never before. Without setting forth at length what we think should be included under this term, let us point out a characteristic of hysteria which is commonly recognised, and which is of such importance that it indicates the line of treatment to be followed. The two principal manifestations of the affection, hysterical fits and the recital of lying tales, require for their complete development the presence of a public, of a gallery. Inversely, their disappearance is assured by isolation or apparent inattention.

The discovery of such tendencies before entrance to the school will allow the doctor to forewarn the teacher, and point out to him the best way of dealing with such children.

There are still three affections about which we must say a few words—rickets, adenoid vegetations, and scrofula.

Rickets.—The chief characteristic of this condition is defective ossification. Instead of possessing their usual rigidity, the bones become curved, and multiple deformities result. The legs become bowed, and the knees cannot be brought into contact when the feet are placed together; the thorax becomes constricted or gibbous, etc. In addition to the nutritive disturbance, which appears to be at the root of all these disorders, there may be, according to some authors, an affection of the entire system, and especially of the nervous centres. Unfortunately, as rickets is a disease of the earliest years of life, one often finds oneself in the presence of the sequelæ which have been left, and which simply must be made the best of.

Adenoid Vegetations.—Everyone has now heard of cases of this kind where the appearance is so characteristic. The lips are always half open, the appearance is sleepy-looking, the respiration is difficult. If one looks at the throat, or if one introduces the finger into the child's mouth

in order to explore the pharynx behind the soft palate, one will see or feel the large tonsils or the fleshy masses which obstruct the posterior orifice of the nasal fossa. One would like to find in these vegetations the cause of the habitual torpor of the children, and of their want of progress. It is true that there is a connection between mental backwardness and adenoids. The removal of the swellings by a surgical operation will make more free the respiration, whose obstruction prevented sustained attention, and will also frequently cure the deafness, which was due to an obstruction of the Eustachian tubes. The operation may therefore result in a marked amelioration of the mental condition as well as of the general health. If the amelioration is sufficient, the child can be sent back to the ordinary school.

Scrofula, Tuberculosis.—A child with a lymphatic appearance, whose tissues are infiltrated with serum, and whose glands readily become enlarged, requires plenty of country air and a nutritious diet. If he is admitted to the special school, it will be advisable to attend to his health before subjecting him to any particular educational methods.

The doctor, then, will notice in passing the existence of such conditions as rickets, adenoids, and scrofula in the children who are submitted to him. Affections of the lungs and tuberculosis of the bones will also attract his attention. But such affections in abnormal children have no other significance than in the case of children of average intelligence. They furnish no special indication regarding the admission or non-admission of the child into a special class. Their severity alone determines the course to follow with respect to their treatment.

We shall, however, say a few words about another infirmity—incontinence of urine. If there is presented for a class for defectives a subject, eleven years of age, who cannot control himself in this respect, the course to follow is: submit the child to examination by a specialist, who will

decide the nature of the incontinence. If it is curable, give the condition the necessary attention, or give instructions at the school for training the child properly; but if there is an incurable weakness of the sphincters, supply the child with the same kind of apparatus as is used in such cases by ordinary people.

Here, then, are a number of important points upon which the doctor may be called to give his opinion. It is he alone who is able, by his special knowledge, to enlighten the other members of the jury. If the mental condition is doubtful and requires further observation, it is for him to point it out. One will thus avoid the mistake of placing in a class for defectives a lunatic, or a child poisoned by alcohol, who would not find there the kind of care required. If the bodily condition discovered complicates or aggravates the mental deficiency, as adenoid vegetations may do, he will prescribe the proper treatment. If he suspects the coexistence of some neurosis, he will give directions by which the condition may be recognised, and consequently treated. The doctor therefore has to recognise the physical and mental ailments by which the defective may be affected. He makes this diagnosis for two reasons. In the first place, in order that mental deficiency may not be confounded with conditions of illness of a different kind; and, secondly, in order to relieve or cure if possible co-existing affections which may aggravate the condition of the children and interfere with the work of the school.

We shall conclude here what we have to say about the rôle of the doctor, since in this volume we are specially concerned with the recognition and segregation of the children. To discuss the rôle of the doctor quite fully would take us too far.

The details we have given show that the part of the doctor with regard to defectives is quite different from that of

the teacher. It is not so much to determine the child's precise mental level as to diagnose the condition of his brain, and to discover, by analysis of all the symptoms, the original responsible agent. That, however, is the second part of the doctor's work, and is of scientific interest; whereas the first part, which consists in diagnosing the ailments which co-exist with the mental deficiency, is of immediate practical utility.

Let us note, in conclusion, the scientific trend of the present day. A large proportion of medical work is of scientific interest rather than of direct utility for the patient. A concrete example will explain our meaning. A severe shivering, a sudden elevation of the temperature, a dulness on one side of the chest, the presence in the same position of crepitant râles, a rusty, sticky expectoration—such is the syndrome by which a practitioner recognises an attack of acute pneumonia. He knows its duration; he knows the relief which will be produced by the application of poultices. To ideas such as these may be reduced all that is indispensable for the doctor to know in order to exercise his art. The post-mortem examination of the hepatised lung, its increase in density, the histological study of the engorged air cells and bronchioles, the researches upon the pneumococcus, its culture, its vitality—all this constitutes a search into etiology and pathogenesis, whose aim is quite different.

The same distinction may be made in the medical study of defective children. And from this point of view the results which at first seem of secondary importance reappear in the foreground. This is the case, for example, with the stigmata of degeneration. It would be unreasonable to attribute to them an individual value, and to utilise them for arranging children serially in the order of their mental deficiency; but in the work of synthesis they are decidedly significant, since their study leads one to consider them either as the effects of, and therefore as witnesses to, altera-

tions in the nervous system, or as the consequences of causes sufficiently powerful to have modified that system.

One would not deny all practical bearing to such investigations of pathogenesis. It is a mistake of Tolstoy to regard them as the pastime of refined dilettantes. When the biological study of defectives leads to this idea, that the mental weakness of the defectives, like the peculiarities in the character of the ill-balanced, is the result of degeneration—the result, for instance, of the alcoholisation of a people—it will quickly result in measures of social hygiene.

The point is, however, that this second part of the work cannot, in our opinion, be carried out under the same conditions as the first. One would like to believe that, in making observations upon heredity and stigmata, the doctors are collecting, in their daily work, materials for a great scientific work which will be produced by degrees. No doubt all their schedules may some day be extracted from the drawers in the office where they will sleep for a long time; but with what object will they be taken out, if not to compile statistics of doubtful value ? The truth is that scientific investigation cannot be carried on automatically and collectively. There is always a personal element which is independent of all administrative prescription. What use can be made of observations which are often merely a collection of paper ? If we are some day to understand the rôle of heredity, of alcoholism, of insanity, of poverty, in the production of defective children, it will be necessary for someone, who wants to do a really good piece of work, to set aside all these equivocal documents, and go straight to the facts, collecting his information at first hand and in a critical spirit. Scientific work can be done in no other way. When it is done otherwise it is worth nothing.

We therefore suggest the following schedule for the medical examination of defective children. The schedule includes two parts—one part optional, because it is only

of indirect interest; another part which is obligatory. None of the questions in this part should be left unanswered, and the doctor will also give the instructions which he thinks ought to be followed.

MEDICAL SCHEDULE.

Date of examination : Height :
Name and date of birth of child : Weight :

Part I. Obligatory.

(i.) Has the child any mental symptoms other than mental deficiency ? Signs of alcoholism, etc. ?
(ii.) Is there reason to think the child has any weakness, congenital or acquired ? Cretinism ?
(iii.) Are there any (*a*) Sensory defects—sight ?
hearing ?
(*b*) Motor defects—paralysis ?
tremor, etc. ?
(iv.) Is the child epileptic ? What symptoms are present—convulsions, vertigo, loss of consciousness? Their frequency, etc.?
(v.) Has the child adenoids ?
(vi.) Is the child hysterical ?
(vii.) Any other ailments ?
(viii.) What directions are to be given to the schoolmaster ?

Part II. Optional.

A. Cephalometry and stigmata of degeneration.
B. History: Birth.
Convulsions.
Age at commencement of dentition.
" " " control of bladder
" " " and bowel.
" " " walking.
" " " speech.
Infantile diseases.
C. Heredity.

Father—	Brothers and Sisters—
Name :	Number :
Date of birth :	Age :
Place of birth :	Mortality :
Illnesses { syphilis. alcoholism. insanity.	Health of survivors :
	Etc.

Mother : *Ibid.*

To sum up, we do not think that the doctor will often have to reject a child, but he will often furnish indications which will help to direct the efforts of the teacher. He will proclaim the opinion, at once so just and so humane, that the symptoms of mental deficiency and want of balance in abnormal children do not arise from laziness or naughtiness, but require no methods of treatment except such as are likely to relieve them. And this conviction which animates him he will impress little by little on the teacher. He will accustom the latter not to regard a defective child at fault like a normal, responsible child, whom he is sometimes tempted to punish in anger, but rather as a patient whose faults should be overcome by persevering patience.

CHAPTER V

THE EDUCATIONAL AND SOCIAL RETURN OF SCHOOLS AND CLASSES FOR DEFECTIVES

An Inquiry in the Hospitals.—Two years ago one of us betook himself to M. X., an important official in one of our ministries, in order to ask him to join a Ministerial Commission which was going to pay a visit to one of our asylum-schools. M. X. shrugged his shoulders, and replied energetically: "No, no, no! I have had enough of such visits. I will go neither to the Salpêtrière nor to Bicêtre. What would I see there? An idiot who allows his saliva to collect in his open mouth; another who has epileptic fits; a third who can say nothing but 'Ba, ba!' What would that prove? The only way in which one can find out whether a school for bad cases of mental deficiency is good for anything, is to find out the mental condition of those who leave. How many defective subjects are there who, after having been treated at the Salpêtrière or at Bicêtre, are able to gain their own livelihood? That is what one would like to know, and that is what no one ever tells us!"

The listener to these incisive and sensible remarks replied, after a moment's reflection: "I entirely agree with you. The information which you desire is of the greatest importance for judging the value of a school. I imagine that such information would be difficult to obtain. But one can try. I am willing to make the attempt."

A few days later the two authors of the present work

took the field. The long preliminary conversations which they had had together about this subject had convinced them that they would encounter opposition. But they decided to treat the question as one treats a scientific matter—with perseverance, with courage, and without *parti pris* of any kind.

Let us subdivide the question to make it more plain. We proposed to discover the value of a school. To make such an inquiry really complete, it would be necessary to consider the question from two points of view—the one educational, the other social.

The educational return consists in the degree of instruction which the institution succeeds in giving to its pupils, after so much time, and with so much expense. In the case of an institution for the sick, the return will take the medical form of a cure or improvement of health. In order to estimate such various returns, it would evidently be necessary to be in possession of various data: (1) A knowledge of the state of instruction or the state of health of the subjects on their admission to the school; (2) a knowledge of their state of instruction or of health on leaving, so that one would be able to estimate by comparison what they owe to the school; (3) a knowledge of the cost for each pupil, whether for instruction or for medical expenses.

The social return consists in the place taken by the pupils in society. This depends in part, it is clear, upon the educational return, but only in part. One could imagine a school, and there are some of the kind, which only cares about producing graduates, without thinking of what will become of them in life, even if they go to the dogs. Every class, every school, for defectives ought to aim at rendering its pupils socially useful. It is not a question of enriching their minds, but of giving them the means of working for their living. This is an important question. Upon this depends our complete and final judgment of the utility of special education.

And be it understood this is not a simple question. Nothing is simple in the sphere of sociological phenomena, and one cannot get hold of an atom of truth except by inquiries bristling with difficulties of all kinds—inquiries whose rules, moreover, are not yet known, but which will certainly be known some day. It is quite necessary.

In order to discover the social return of an institution, school, or hospital, there are many data to be brought together. Here are some of them. What is the number of those who are ultimately able to look after themselves? For how long a time are they able to do so? To what extent have they been assisted by what they acquired at school? And, lastly, what becomes of the failures?

But whatever the social or educational return may be, it would be most important to know what would have become of similar cases who had received no such instruction, or, rather, who had been instructed or treated by different methods.

A single example will show the importance of these reservations. Recently an alienist wanted to prove that all the idiots, without exception, who had been treated in his asylum had been improved. He published copious notes upon these children, which had been taken during several years by different people—the physician, resident doctor, attendant, teacher, etc. On reading these observations one learned that one child, who on admission was unable to walk, by-and-by began to do so. He had grown; he had also begun to speak, etc. In all this there was nothing surprising, and we imagine that, in spite of his optimism, the doctor, who is the author of these observations, would not pretend to credit an increase in size to his medico-pedagogical treatment. As to the rest of the development of the faculties we know nothing. It is possible that an idiot who has ceased to be dirty, or who has learned to dress himself, would have done so in any case without object-lessons. It would be necessary to

understand the natural development of idiocy in order to estimate exactly the service which had been rendered by the medico-pedagogical treatment. Otherwise sceptics will suspect that three-quarters of what is claimed to be the result of treatment is really due to nature.

After these preliminaries, let us now turn to our inquiry.

At the Salpêtrière.—Here we were received most kindly. The superintendent of the hospital introduced us to a most excellent woman, Mme. Meusy, who was at that time head-mistress of the school for defectives at the Salpêtrière. This is a little school with about 140 girl pupils. It is part of the clinique of Dr. Voisin. The school is divided into four classes, each of which is under a lady teacher. It is a modest school, and, we think, little known. Elementary education is given there, and, be it understood, the teachers make a point of object-lessons and the training of the senses. But this education has no original feature. It simply follows what is done elsewhere. There is a work-shop where the patients skilfully manufacture artificial flowers. Dr. Voisin has for a long time been asking for a laundry, for the sake of the patients who require physical exercise, but he has not been able to get it.

Mme. Meusy had prepared us to some extent for the work which she had done in the school by intelligent organisation. It was a pleasure to us to see with our own eyes the notes she had kept regarding each of her pupils. All the schedules were in perfect order, regularly filled up to the day. They contained all the medical information, as to diagnosis and treatment, which Mme. Meusy had been able to procure from the doctor by reiterated requests. They contained also full particulars as to the state of instruction of the child, her character, her aptitudes, and the amount of her school attendance. Such notes were repeated periodically, so that it was easy to find out approximately whether or not the child had progressed during her stay in the school. Finally, her history after discharge

was noted. It is only just that we should here express once more to Mme. Meusy how much we admired the care, the order, and the intelligence with which she had kept these individual histories. It is an example to be followed.

Mme. Meusy readily placed before us one after another all these documents, and allowed us to extract from them the notes which seemed of most value for our work. While one of us was taking the notes, she contributed much valuable information in a lively voice; for she knew her pupils admirably, she followed them after they left school, and often received visits from them. But, although she clearly understood the importance of our inquiry, she could not keep to herself a distressing thought, which was that a large number of these unfortunate girls had obtained no benefit from the instruction received at the school during a long series of years. The majority, on leaving school, had been transferred to asylums for adults. It saddened her to acknowledge such impotence officially. However, neither she nor her devoted staff of teachers was responsible, for if their educational success was restricted, that was due to the fact that the administration had for some time been sending her the epileptic defectives, while reserving for the Fondation Vallée the privilege of having the non-epileptic defectives. Now, everyone knows that when epilepsy, with repeated fits, is present, it produces a mental decadence against which the best teacher is powerless.

The information which we have collected about the work of the school of the Salpêtrière bears upon 117 children, who had left the school during the period of four years. Now, this is how these children are distributed, if they are classified according to their condition on leaving:

1. Children who had *improved*. Some of these had returned to their families; they lived at home, and were employed, more or less, and the directress states that they

had improved in their mental condition. These numbered eight. Others had become capable of following a calling, either in the asylum as attendants, or outside as seamstresses, ironers, laundresses, domestic servants, etc. These numbered twelve. (None was employed in making artificial flowers, for which there was a workshop in the school.) The total number who had improved, therefore, was twenty.

2. *Doubtful* cases—children who had returned to their families, but concerning whose mental state and employment precise information was lacking. These numbered twenty.

3. Those who had got *worse*. These are the cases who had been marked "transferred." They are to be found in the lunatic asylums, where they are destined to pass the rest of their existence. Of these there is a formidable number—namely, sixty.

4. Those who had *died*, of whom there were seventeen.

From all these calculations we obtained a figure to remember, and also an opinion.

The figure is that the school for defectives at the Salpêtrière returns to active life 12 per cent. of its pupils.

The opinion is what one might have known in advance. that in the majority of these cases the education given was a waste of effort, for none of the pupils who had acquired a calling had been affected by the worst degree of mental deficiency, idiocy, or imbecility. Moreover, none of these was epileptic as well as mentally defective. In other words, the two worst degrees of mental deficiency do not permit any hope that the child will be made capable of following any calling; and even a lesser degree of deficiency—that is to say, feeble-mindedness—is equally cut off from hope when the feeble-mindedness is complicated by epilepsy.

Before drawing from this first inquiry any practical conclusions, we should like to reach a comprehensive view of the question. We shall give our conclusions after we have synthetised all our results.

After the Salpêtrière, Bicêtre.

Bicêtre.—The reader would be wrong to imagine that in these visits to the hospitals we are forgetting the school cases of mental deficiency; we are at the heart of the question. Whether we are dealing with hospital cases or school cases, there are details of organisation which are the same for all, and there are similar mistakes which we must try to avoid.

The asylum-school of Bicêtre, which owes its origin, in 1892, to the General Council of the Seine, and its organisation to Dr. Bourneville, has a world-wide reputation. Dr. Bourneville has set himself to demonstrate, by every possible means, that idiots can be improved if they are treated methodically and progressively. It is thanks to his initiative that the medico-pedagogical treatment of idiocy, a treatment which has been much vaunted by the doctors, is now known everywhere. His clinique has constantly been cited as a model. This model has been imitated in France and more especially abroad. The asylums of Saint-Yon, of La Roche-sur-Yon, of Clermont, of Sainte-Gemme, and of Auxerre, have been inspired by the example of Bicêtre, and have followed its methods. The State supports 440 boys in the asylum-school of Bicêtre, and 230 girls at the Fondation Vallée.

We have no intention of describing here at length the organisation of these establishments. All who are interested may join in the Saturday morning visits, when Dr. Bourneville goes round the whole of his clinique. We shall content ourselves by saying that the children in the asylum-school of Bicêtre are divided into three groups:

1. The group of *invalids*—children who are idiotic, dirty, epileptic, demented. In this group are those who are regarded as incurable, and some who, although completely idiotic, are capable of some slight improvement. By means of a *swing* or *see-saw* their limbs are strengthened, by means of a *go-cart* they are taught to walk, and by means

of the *parallel bars* they are taught to keep themselves upright.

2. The *healthy* children of the *little school,* all of whom are able to walk alone. These undergo treatment for uncleanly habits. Special chairs are kept for the dirty, who are placed at stated times upon conveniences in order to regularise their functions. Then come *strengthening exercises,* which are gymnastics of a very simple kind; *toilet lessons* to teach them to wash themselves; *table lessons,* to teach them to feed themselves, with spoon, fork, and even knife; the *training of the senses ;* and, lastly, *training in speech.*

3. The third group includes children in the *big school.* These are less defective than the preceding. They are fit and healthy. But, on the other hand, there are found here a great many abnormal children (perverse and ill-balanced) who are not wanting in intelligence. The big school includes four classes, each under the charge of a professor. The education, especially in the last class, is carried pretty far, and many of the pupils possess their certificate of study.

For reasons upon which we will not insist, we were not so delighted with the hospital of Bicêtre as we had been with the Salpêtrière. We might have dispensed with this visit. The medical superintendent of the school for defectives at Bicêtre has taken the trouble for a long time to publish regularly every year a volume of several hundred pages, which contains the most diverse statistical information about everything that goes on. We have studied the volumes bearing upon four years only—the years 1899, 1901, 1902, and 1903. Moreover, we profess that we have some knowledge of the school at Bicêtre, having not only joined several times in the Saturday visits, but having on several occasions carried on there researches in cephalometry; and, in the last place, we have had the pleasure of following in their inspection two members of the ministerial com

mission, who had had the idea of finding out how the teachers in the big school were fulfilling their functions.

It will be remembered that we made a distinction between the educational and the social return. This distinction is not recognised by everyone, and many good people take into account only the social return. There are those who would judge the school of Bicêtre by one thing only—the number of patients who are made useful to society. This is a question of great interest, but it is wrong to think that it is the only one to be considered. It would be unjust to confine oneself to it. The injustice can be understood by supposing that one is considering an institution which receives idiots only. Would one judge such an institution by asking how many of its patients become capable of winning their livelihood? Certainly not. It is possible to be of real service to the patients without raising them to such a level. The cure of dirty habits, for example, is not a thing to be disdained. Not only does it result in an economy of linen and washing, but it makes the patient less disgusting, less difficult to take care of. Here we have material and moral improvement which, even for those who consider expense only, cannot be considered negligible, for in the end the result is pecuniary economy. But, having stated this principle, it would be necessary to find out what is the value, what is the duration, what is the frequency of such improvements. It would be necessary to know what is their cost, and to compare the cost with the results in order to find out where one was. This kind of stock-taking, both financial and medical, has no place in the publications of the Bicêtre, and cannot be replaced by isolated observations on the treatment and improvement of idiot children. There is here, therefore, a first lacuna. We note also with regret the absence of any inspection of the teachers in the schools, who are left to themselves without any supervision but that of the doctor. Now, the doctor is not

usually an educationist, and it is to be regretted that he does not himself recognise his incompetency in pedagogy, but that, on the contrary, his nature, often prone to take offence, will not submit to any collaboration in his work. Having said this, we are going to confine ourselves to the social return of the school of Bicêtre, since it is affirmed that such a return exists.

We would like to know exactly how many boys and girls have been able, after their discharge, to work at a trade and to maintain themselves. Upon this point of capital importance the publications of Bicêtre tell us nothing—absolutely nothing. It is, therefore, impossible to find out the real value of this institution, so richly endowed, where the visitor perambulates palatial buildings, is saluted by a fanfare, and admires museums of natural history which would be the envy of many a public educational establishment. The publications give a number of particulars as to the number of dancing lessons, the walks to the Jardin d'Acclimatation, and the cost of laundry, etc.; but we are left in entire ignorance as to what all this is good for, and what is the practical tangible benefit which society receives from it.

Everyone knows, however, that the director of the school for defectives at Bicêtre is an enlightened philanthropist, who has devoted himself with remarkable zeal and activity to procuring for his old pupils situations which they are capable of filling. He has understood, and was one of the first to do so, that the question of the education of defectives will never be settled until one has settled that of the social usefulness of these children.

We have even learned indirectly that he has made many endeavours to induce employers to engage his defectives as workmen; but it is likely that these suggestions have not met with the success they deserved, for the employers, threatened by the new law regarding accidents at work, hesitate to saddle themselves with workers who, being

liable to attacks of epilepsy, or affected by motor inability, would lay upon them a very heavy responsibility. On the other hand, the school education has had a good deal of success since it has happened, as we have already remarked, that several of the pupils obtained their certificates of study.[1] But the only publications which we have consulted say no more about these certificates of study than about the trades followed by the defectives after leaving school. This silence is very significant. In spite of oneself, one puts a bad interpretation upon it. One has an irresistible tendency to believe, not that all the effort at Bicêtre has been in vain, but that it has been disproportionate in relation to the result achieved.

We have no difficulty in admitting that idiots have been improved, but to what an extent this amelioration loses in importance if the majority of these idiots are destined to pass the rest of their life in an asylum, where they will be nourished in absolute idleness, and where, consequently, the heedless administration will gain nothing for what has been taught them at the price of such great efforts!

Let us try, however, to interpret the silence of the text. In four years 240 boys have left the school at Bicêtre. In studying the school of the Salpêtrière we distinguished three classes of children—the *improved*, the *stationary* or *doubtful*, and those who have got *worse*. We have consulted the statistical tables of Bicêtre, and we have not found a single one marked *worse*, although one-third of the entire contingent are epileptic. Now, this is very surprising, since we know that epilepsy with repeated fits inexorably results in mental decadence. It is an enigma, which we explain in the following manner: Those who are really decadent have been marked *stationary* by medical

[1] In trying to explain this success, one must, no doubt, take into account the comparatively advanced age of the children, the probable leniency of the examiners, and, above all, the fact that the ill-balanced subject is a moral rather than a mental defective.

or pedagogical optimism. If our interpretation is correct, it recoils forcibly upon the expression *improved*, which is applied frequently to those discharged. To the interpretation of this word *improved* we are, therefore, obliged to turn our attention.

What, then, must be understood by *improved* when this word is found in the publications of Bicêtre ? First of all we must subtract a certain number of subjects who have been marked *transferred*. We know what is meant by this little word *transferred* when it is applied to the children. It is lugubrious. It amounts to a sentence for life. A subject *transferred* is one who, his time at school come to an end, is removed to an asylum for the insane, where, in all probability, he will stay to the end of his useless existence. If we eliminate the transferred, and if we keep amongst the improved only those who, having been so designated, have returned to their families, we get a proportion of 58 in 290—that is, 20 per cent. of boys.

This proportion seems to us too large, on account of the optimism which these documents exhibit. It is to be noticed, however, that children are sometimes marked *very much improved*, or *notably improved*. If, for the sake of prudence, we consider as improved only those who are designated in this way, we have only eighteen, or 7 per cent.

This new proportion, if small in absolute value, still seems to us an exaggeration, because it is reached only by including a certain number of children affected with epilepsy. It must, therefore, be believed that their epilepsy has improved. But the amelioration or cure of epilepsy is not a matter of education; it cannot be considered as a success to be credited to active medico-pedagogical treatment. Let us therefore put the cured epileptics aside. There will then remain only seven who have undergone a notable amelioration and have returned to their families. What percentage is this ? The total contingent upon which we have been making our calculations numbered 290, but it is right to

exclude all the epileptics, for the reasons we have mentioned. This brings the number down to 216, and the number of children really improved, calculated upon 216, amounts, for the boys, to from 3 to 4 per cent.

By similar calculations, into the details of which we will not enter, we have shown that the improved amongst the girls are more numerous—namely, 20 per cent. But Vallée contains relatively far fewer epileptics than Bicêtre. We do not know, also, how many of them have become capable of working at a trade.

We therefore conclude with the following propositions:

1. *At the school of the Salpêtrière,* 20 *per cent. of defective girls improved, and* 12 *per cent. are able to work at a trade.*

2. *At the Fondation Vallée, also,* 20 *per cent. of defective girls have improved. No return has been furnished as to their future employment.*

3. *In the case of Bicêtre, the number of defective boys improved is from* 3 *to* 4 *per cent. It is not known how many of these defectives are employed after leaving school.*

Some Conclusions.—It seldom happens that one finishes an inquiry without experiencing some disappointment. One starts with great ambitions, intending to make everything plain, but on the way one is forced to lower one's flag. The truth escapes one. Sometimes it is the facts which conceal it from us, sometimes it is man who has an interest in concealing it. But the disappointment which has attended our inquiry would surpass the foresight of the most sceptical. On the other hand, if the school for defectives at the Salpêtrière has enabled us to collect valuable information, we owe this good fortune entirely to the intelligent initiative of a woman. It was the directress of the school who, apart from all intervention, medical or other, had had the idea of instituting these very complete schedules, which enabled us to discover the economic return of her school. The management deserved none of the

credit. As to the school of Bicêtre, we have studied it only through its annual publications, and we have managed with great difficulty to obtain only an infinitesimal amount of information of very doubtful value.

What lessons are we to draw from these examples as to the future organisation of our schools for defectives? We had hoped that the study of these institutions would have provided us with ready-made experience as to the measures to be taken for founding schools for defectives under good conditions. The contrary has happened. The example of these institutions has taught us one thing—the faults which we ought not to repeat.

Every impartial mind ought to be with us when we express the view that henceforth the activities of the schools and hospices should be made plain by precise information. For this it would be necessary to take the following measures:

1. That the definition of the grades of mental deficiency should not vary from one doctor to another, but that one should know what is meant by the word *idiot*, the word *imbecile*, and the word *feeble-minded*. A purely conventional but precise definition would be infinitely better than the present want of any; and we refer to the convention which we have suggested above.

2. That upon entrance and leaving, the mental condition and the state of instruction of the pupils should be precisely noted, so that by comparison of such notes, rather than by arbitrary estimates, one should be able to determine in what way the pupils have changed during their stay in school.

3. That on leaving the institution, the children, whether they return to ordinary life or are transferred to asylums for the insane, should be followed up, and that particulars regarding their condition should be transmitted to, and centralised in, the office of the school, so that the masters may be able to judge the ulterior destiny of these children

whom they have surrounded with so much solicitude during a period which often amounts to twelve or even fifteen years.

By such organisation one would at last know exactly, or at any rate approximately, what are the services rendered by such an institution. One would compare these services with the expenses, and one would see whether the receipts were sufficient to justify the expenditure, or whether, on the contrary, the money had been foolishly squandered, as we have reason to fear may be the case. We would also see upon what children educational effort should be directed, in order to obtain the maximum return. It would be possible to find out, for example, whether it is worth while continuing for five years, eight years, or more, to give lessons in reading to a child who, after two years, is still unable to spell. We will also consider very seriously whether a child who is unfortunately subject to repeated attacks of epilepsy, which no medical treatment has improved, and who is destined to descend progressively and inevitably through all stages of mental decadence, should be kept in his place in a class; and whether the teachers would not be doing better to leave the child at peace than to teach him laboriously the rules of arithmetic and grammar, which will certainly be forgotten soon afterwards in the cloud which will obscure the intelligence.

One day, when we were walking through a residential school, we were struck by the spectacle of a poor epileptic. This was a little girl of about fifteen years of age. She was wearing her school apron, and upon her head was the little osier cap which epileptics are made to wear, to avoid the danger of falls upon the head. It was lesson-time. Pale and thin, the little patient was sitting quietly in her place, listening to the lesson of her mistress, who was explaining the rule of the agreement of the participle. Did she understand ? We hope so, since she belonged to one of the higher classes—the second, if we remember rightly. In any case, she was making a great effort to follow the gram-

matical explanation, and her forehead was thrown into wrinkles. All at once she gave a slight sigh, slipped down in her seat, and fell. The attendant took her in her arms and carried her into a corner of the room. The lesson continued with general indifference. The children pay little attention to such accidents, because they are so used to them. Now one, now another, has her attack of epilepsy. After a few minutes our little scholar came to herself. She appeared quite dazed. The attendant spoke to her with kind indifference. "Come, now, that is better. It is nothing. It is all over." The child did not reply, but docilely allowed herself to be led to her seat. She took up her former position, appearing to listen vaguely; and on her pinched face, with its drawn features, the lesson in grammar continued to fall. The people, visitors and professors, who were present at that scene, and thought it quite natural, surely did not understand the heart-break of it. Some time afterwards we made inquiries about this pupil, being curious to know how she was, and what she was doing. We were told: "She is a poor little thing, who has forgotten a great deal. Formerly she was a bright child. Now she is going back every day. By-and-by she will no longer be able to read. This is nearly always the way with our epileptics!"

This sad story, which we have just recalled, we give as a striking illustration of our statistical calculations regarding the ultimate fate of these institution cases. Be it remembered, we had reached this very important conclusion: that epileptics, whether feeble-minded, or imbecile, or idiotic, never become capable of working at a trade. This somewhat vague conclusion it would be of great interest to examine more closely. Our little epileptic, who is gradually falling back, is an example. She has already reached the height of her development; she is fifteen years of age, and she is beginning to decline. We foresee the time when she will no longer know how to read. Is there,

then, any use in wearying the poor thing by teaching her an abstract grammar rule ?

Let us turn now to our school cases. Our conclusions may be divined. We expressly demand that the utility of the schools shall be rigorously established, and that the teachers and inspectors shall be bound to take exact notes of the mental condition and the state of instruction of the pupils on entrance and on leaving. In this way one will act like any good shopkeeper, who considers it one of his chief duties to keep accounts of what he is doing. His system of book-keeping shows his position in a way which is indispensable if he is not to lose his money. He knows at what price he buys, at what price and under what conditions he sells, and whether, in consequence, his profits are sufficient to encourage him to continue to deal in such and such articles.

In the same way, in a well-managed school for defectives, it is necessary to know the exact details concerning the condition of the pupils on entrance and on leaving, in order that one may be able to judge the services rendered by the school; in order that one may be able to find out whether the educational methods employed are good, bad, or indifferent; whether they are better than those of another school, where different methods are followed, and so on. Such control is equally necessary in order to find out whether a particular category of children gives greater degrees of success than another; whether certain degrees of mental deficiency are capable of improvement only to an infinitesimal extent. Such things cannot be known in advance, and should not be decided lightly in credence of an *a priori* opinion, but should be determined by accurate scientific methods, in the interest of the schools, in the interest of the pupils, and also in the interest of the tax-payers, who bear the cost. It will not do to content oneself with admiring *in abstracto* the goodness of the methods and the progress of the pupils, but it

must ever be remembered that the aim of the schools should be to fit the defectives to take a useful place in society. The school should not aim at turning out brilliant pupils, stars in competition, but individuals capable of looking after themselves and gaining their own livelihood. This should be the constant pre-occupation of the teachers. They should not shut themselves up within the four walls of their school, saying, "The life outside is no concern of ours." It is their imperative duty to consider the school life as a preparation for life outside. They ought, therefore, to pay attention to the needs of the immediate school environment, in order to know what are the industries which require workers, to take account of which of them are accessible to defectives, and to direct their education accordingly. Domestic service in the country, for example, which requires but little initiative, would seem to be an excellent refuge for feeble-minded girls with good instincts. Agricultural labour supplies an excellent outlet for the boys, for in the country life is less complicated, and adaptation is more easy, than in the towns. There is a certain, practical, even easy way of finding out whether the teacher has been trying to keep in contact with real life, and whether his school for defectives is well managed. It is to find out what becomes of the defectives on leaving school, and what percentage he has been able to place in situations with a suitable salary.

Such measures of control are so logical that they only require to be formulated to obtain the immediate assent of all sensible minds. Yet one may ask whether, as a matter of fact, in the schools managed by the State, the inspectors occupy themselves sufficiently with this practical side of education, and do not even make the mistake of judging the education by itself, according to a conventional, literary, or scientific ideal. We are not speaking of public schools, colleges, and lycées. These establishments are attended by normal children, and it may be

admitted that it is not, strictly speaking, the business of the State to prepare these for social life. As a matter of fact, that is not our own opinion, but that does not matter. What is certain is that the duty of the State becomes more precise and more pressing when it is a question of assuring the lot of the defectives. Has it always been kept in mind that their education should put them in the way of an occupation, and that one should teach them nothing useless, so as not to make them lose their time? We do not think so. We hope that the schools for the blind take care to know whether the Braille which they teach their pupils is a method of reading and writing which will be useful to them in life; whether the manual arts, such as caning chairs, the making of brushes and mattresses, are the best means which they can teach to the non-musicians whereby to gain their bread. We equally hope that in the schools for the deaf and dumb, which are teaching their pupils by the oral method—with what effort, what expense, and what devotion one may imagine—they have inquired what percentage of their pupils attained the ability to communicate verbally with people other than their teachers, and also what is the percentage of pupils who, ten years after leaving school, still use that method and find it advantageous. All these questions should be asked, and conscientious minds should try to find an answer to them by impartial inquiry, in order to find out whether the methods are useful, and whether the school is directing its energies well. What is being done about this with respect to the schools for defectives?

We must do this justice to the legislation at present projected with regard to defectives, that it is not indifferent with regard to this question of control. The Ministerial Commission, in which one of us took part, heard many demands for guarantees of this kind. Its mistrust was awakened, and it made a number of suggestions which have been included in the Bill.

Thus, an elementary school inspector is trusted with the duty of taking account of the educational progress of each child. A little book must be kept recording full particulars of each individual case. The principle of supervision by a Care Committee after leaving school has been adopted. All this is excellent. The law cannot enter into minute details. Administrative rules must be drawn up to provide against the two causes of error, prejudice and negligence.

Let us consider this question from our own point of view, and distinguish clearly between the educational and the social return.

The Educational Return of the Special Schools and Classes.—In the first place, in order to gauge the advantages of special education, it is necessary to find out what becomes of defectives when they are left in the ordinary schools. It is quite clear that special education should be condemned and suppressed if it does not do more than the ordinary schools. We have seen that, in the latter, the defective is a dead weight, and the ill-balanced is a nuisance. Nevertheless, one must not jump to the conclusion that these children are in no wise modified by the school influences, and do not profit in any degree by the instruction. We have already pointed out some very touching facts: a little defective girl has learned to read, thanks to the persevering help of one of her normal companions. This proves, at least, that association with normal children may be good for something, but let us leave such anecdotes and attempt to reach a comprehensive view of the situation.

We have been able to collect in the primary schools of Paris, thanks to the kind assistance of M. Belot, particulars which are very valuable, though restricted in amount. These particulars we have examined in every possible way, and we always reach the same conclusion : *the defective makes very slow progress in the ordinary schools.*

Let us consider, for example, *en bloc*, forty-five defectives

of whom we possess records, and see to what extent they are behind at different ages. We get the following table:

Age.	Retardation.	
7	2 years	about 2 years.
8	2 ,,	
9	1½ ,,	
10	3 ,,	,, 3 ,,
11	3½ ,,	
12	3 ,,	
13	3½ ,,	
14	6 ,,	,, 5 ,,
15	5 ,,	

Thus, the amount of retardation increases with the years. It is at first two years, then three, then five. But this augmentation in the amount of retardation, which is the first fact to strike the attention, ought not to conceal from us that there is real progress in the mental condition and in the studies; in fact, we may remark that if a defective child, in passing from the age of eight to eleven, has an augmentation of retardation of one year with respect to his companions, this proves that in the same time he has progressed two years with respect to himself. It is like an omnibus which goes more and more slowly, yet advances all the same. To be more precise, let us say that, since the defectives reach, as an upper limit, the intermediate course, and that in the proportion of two-thirds, one may conclude that they make nearly half the progress of the normal children. Be it understood, this is only roughly true, and many reservations must be made with regard to details. But the indication which these documents afford is, nevertheless, very instructive, for it shows us that the majority, two-thirds at least, of the defectives appear regularly to duplicate each class, or to take two years to pass a stage which the normal child passes in one. It is important to remember this, for the teachers do not always give the facts their true value. They have a tendency to compare the slow progress of the defective with the more rapid progress

of the normal, and to conclude from this comparison that the defective remains stationary. This is a pure illusion, which may be compared to what one experiences when looking out of the window of a train in motion. One sees another train going in the same direction but more slowly, and imagines that the second train is not moving. Let us retain, therefore, provisionally, the following important idea: *Only half the defectives in an ordinary school reach with difficulty the intermediate course, first year, passing through the different stages in double the normal time.* No doubt one would find many examples of slower progress still, three or four times the normal. On the other hand, the teacher sometimes points out a defective who has improved very rapidly, as if his intellect awoke from a long sleep. Such cases exist, but they are very rare, and they are open to the suspicion that an error in diagnosis has been made, and that the child who has improved so greatly was wrongly considered defective.

With regard to the ill-balanced, the success of the ordinary school is much greater. A recent inquiry taught us that in the course of two years half the children noted as ill-balanced were regarded by the teachers as improved. This figure speaks for itself.

From this we may conclude in a general way that it is essential that the special schools and classes should bring more than half of their defective pupils to the level of the intermediate course, and improve more than half of the ill-balanced, if they are to render public services superior to those of the ordinary schools.

This must be the aim. How are we to know whether it is attained or not ? By supervision exercised in the most serious manner, by well-kept individual records, in which are noted only facts which can be controlled.

We remember, a dozen years ago, having turned over the records of young defectives in an asylum-school which had the reputation of perfect organisation, a reputation other-

wise deserved, for everything that was shown to the public on visiting days was perfect. But a distinction must be drawn between what one sees and what one does not see. The records were kept with surprising negligence. They were dirty in appearance, torn, disordered, falling to bits. On reading them one only met with vague estimations, loosely expressed, about children who, as was repeated to satiety, "would make progress if they would work better." The less we say the better about contradictory diagnosis, such as one we noticed on a certificate of discharge: "Complete idiocy—very much improved"; or the too optimistic prognosis, really very naïve, if the writer has not had the bad taste to be ironical: "Vicious child—would make an excellent housemaid." If documents could be kept in this way, it is quite clear that those who so kept them felt pretty sure that nobody would ever read them.

We demand that the notes which show the educational progress of the pupils should be written under the constant fear of control, in order that they may be guaranteed against negligence and interested optimism. The manner of control is very simple, and may be summed up in three paragraphs.

1. The estimation of the progress of the children should be made by the professors themselves, since they know each child well. The professor will always keep in mind that his notes will be checked by the inspector. With regard to instruction, notes will be kept with regard to reading, writing, arithmetic, spelling, according to the methods which we have indicated, and such remarks as "good," "very good," "passable," each signifying absolutely nothing, will be avoided. With regard to the manual work, it goes without saying that the record would have to be made in a somewhat different way.

2. The inspector will examine a certain number of cases chosen haphazard. He must carry out this control with an open mind and without prejudice.

3. He will make use of methods of control of a strictly impersonal nature.

Social Return.—We are surprised to find that abroad there have been published very few particulars concerning the social return of the schools, although they have been in existence for a long time, some of them for forty years. Statistics are rare, without commentaries, and some of them are apparently prejudiced. In order to find out what they are worth, we think it would be necessary to live in the country, and to observe carefully for oneself the work of the schools. The official documents do not teach very much, and one may suspect that every public service which is not supervised in the most intelligent manner, and incited by competition, will slip into routine and empiricism. We demand an inquiry on the two following points: How many defectives are provided with a trade when they leave the special schools ? How many defectives are provided with a trade when they do not leave the special schools ?

Such an inquiry, we may be certain, has never been seriously undertaken. Here are some statistics. Mme. Fuster, after a stay in Germany, where she visited some *Hilfschule* and *Hilfsclasse* (literally, "help-schools" and "help-classes") made a communication to the Société de l'Enfant, from which it appears that in the case of 90 classes for defectives in Berlin, 70 to 75 per cent. of the defective pupils who were there became able to carry on a trade; 25 to 30 per cent. died in the course of study, or returned to their homes, or were sent to medical institutions for idiots.

According to a more recent inquiry, made under the auspices of M. de Gizycki at Berlin, and published in a book by Paul Dubois, 22 per cent. of the children were sent home or to asylums; 11 per cent. were apprenticed; 62 per cent. worked at occupations which required no knowledge and yielded little pay (labourers, crossing-sweepers, ragmen). If we add together these two last groups, we reach a pro-

portion of 73 per cent. of defectives who have been made, or who have become, more or less useful.

We shall quote a last document, to which we attach more importance than to the preceding, for we have full confidence in the author. Dr. Decroly has kindly arranged at our request a few figures relating to the occupational classification of the girls discharged from a special class in Brussels. He states that the class was opened only in 1903, that education in Belgium is not compulsory, that many of the pupils leave the class too soon—all circumstances which explain the smallness of the success. He firmly believes in the educational value of special instruction, provided one does not expect miracles. He has a good critical mind. We cannot publish here the whole table. We shall summarise it thus:

Of three idiots, practically nothing is known; of eight imbeciles, one is employed at home, one unemployed (?), and one is messenger to a shoemaker. One can scarcely expect any real return in the case of imbeciles and idiots, and the merit of Dr. Decroly's statistics lies in the fact of distinguishing between such children and the feeble-minded. Let us speak more fully of the latter. They are thirty in number. Concerning nine there are no particulars. Two have entered a Catholic school, and nothing more is known about them. If we subtract these eleven, there remain nineteen. Some of these are "kept at home," or "occupied at home"; of these there are five. We do not know exactly what they are doing. There are others who "work," but it is not stated whether this is outside, or whether the work deserves to be taken into account. Four belong to this category. There remain the apprentices (tailors, cigarette-makers, sewers, etc.), of whom there are nine. Perhaps the last figure is the only one which deserves to be taken into account. Finally, then, out of nineteen feeble-minded subjects, regarding whom particulars have been supplied, one half, or 50 per cent.,

have been apprenticed; or more than half, 75 per cent., if we count the defectives who "work." We are not, therefore, very far from the figures collected by Mme. Fuster for the special classes of Berlin, nor from those published by Gizycki.

We do not think enough of the ordinary school, and of the service it renders to the defectives; or, rather, we are too ready to assert that it does nothing for them. Yet, all the defectives who leave it do not turn out badly. There are journalists who try to attract the attention of public bodies by declaring that defectives, left to themselves, inevitably fall into mendicancy and crime. What do they know about it? Absolutely nothing, since no serious inquiry has ever been carried out. Even we, for several years, allowed ourselves to be influenced by such suggestions, until the day when one of these journalists went rather too far. We refer to an alienist who published in a morning paper a series of articles on the defectives. After having estimated their total number at 40,000, he called them "the madmen of to-morrow," truly an excellent title for a sensational article. But, little as one might think it, of all that was written nothing was really proved. Those who think that the defectives are destined to become lunatics are just as much in a dream as those who declare they will become criminals. The fact is that we are in complete ignorance, because one has always recoiled from an inquiry which promised to be as long as it would be troublesome. And it is a disgrace, let us say frankly, that no State has ever undertaken it.

Through the intervention of an inspector, M. Belot, we have inquired of twenty heads of schools what has become of the defectives whom they notified to us two years ago. We have made these inquiries with regard to sixty-six children only. Poor figures, indeed, and we would not give them, but that a little is better than nothing. These sixty-six children may be classified thus: Thirty-five are

defective, twenty-six ill-balanced, and three both defective and ill-balanced. Retardation is quite plain in the unstable, amounting to from one to two years; it is very marked in the case of the defectives (one alone has a retardation of two years, the others have a retardation of three, four, six, and even seven years). We give these figures only that it may not be imagined that we are dealing with cases of slight feeble-mindedness with a retardation of one or two years. It is necessary to understand these details in order to form a correct idea of the value of the figures.

The particulars regarding the ultimate destiny of these sixty-six children are as follows:

1. *No Return in the Case of Fourteen Children.*—Some left the district without giving an address. Some even left school with insults from the parents directed against the teachers.

2. *Children still at School.*—These number twenty-two. We have already spoken about this little group, and have remarked that some of them have improved.

3. *Children sent Home or placed in Asylums.*—There are three who have been sent to asylums. We know one of them, an imbecile, but he had bad instincts, and who knows but that he might have been made useful? With regard to the others, who have been sent home, we have only very vague particulars, and the interpretation of their condition is quite arbitrary. Some of them seem to be useful. Some girls help at home. Some boys assist their fathers at their work, but are said to be wanting in balance or to require constant supervision. We have thought it well to include them in this third category, which stands for the social waste. They number ten. We repeat that the limits of this group are extremely ill-defined. With a little optimism one might have passed three-quarters into the following group; with a little more strictness, on the other hand, the present group would have been larger. We emphasise the difficulty of limiting the frontier impartially.

It would be a good thing to make use of a criterion, good or bad, but exact. One will, no doubt, be found, but in the meantime we have none.

4. *Children who have become Useful.*—These are they who have become capable of following some calling. It is evident that one should take account of the nature of the calling followed; many are misery in disguise. A little time should also be allowed, for a child may not find definite occupation immediately on leaving school. In fact, the only particular we have regarding this last group of children is, that they have entered on an apprenticeship. Girls are apprenticed to dressmakers or laundresses. Boys are apprenticed as hairdressers, tinsmiths, gilders, printers, carpenters, etc. These children number seventeen. These results have impressed us rather favourably. We did not expect that the majority of defectives from the ordinary school would enter an apprenticeship; but, in fact, the majority did so. If we abstract the two first groups, those about whom the particulars are wanting, and those who have not yet left school, there remain twenty-seven children, of whom seventeen have been apprenticed, or 76 per cent.

From these statements the following conclusion is reached—namely, that, contrary to an opinion which attempts are being made to spread abroad, the ordinary school does render real service to the defective child. We have already seen, *à propos* of the educational return, that the ordinary school carries a proportion of the defectives as far as the intermediate course. All these facts are mutually confirmatory.

Is it possible to go farther ? We have just seen that the ordinary school permits the occupational classing of 76 per cent. of the defectives. Now, this proportion is, by an unexpected agreement, identical with that obtained in the classes of Berlin and Brussels, whence an opponent of special instruction would hasten to argue that such in-

struction is useless, or that, at least, it could not prove its usefulness except on the condition of insuring occupational classing superior to 76 per cent. We do not think, after mature reflection, that this proposition would be justified. All our figures show is that the majority of defectives who pass through the ordinary school had not entirely lost their time, since they reached the stage of entering upon an apprenticeship. But it will not do to take account only of the proportion of children classed as workers; it would be necessary also to take account of the duration of such classing, and especially of its quality. A defective enters upon an apprenticeship. That is good, but how long does he retain it? Will he be discharged as incapable at the end of a few months? If he is kept, will he remain in the lowest employments—for example, unskilled labour? In connection with all trades, there are minor occupations in which defectives stagnate. Our figures do not take account of these differences, which are of considerable interest, nor do they give any fuller ideas with regard to the utilisation of the defectives. And it would be necessary for the statistical method to be carried out with greater perfection to enable us to measure the services rendered by special instruction. It is probable that the special school would render greater services than the ordinary school, because it has greater advantages: teachers experienced in the training of defectives, a curriculum better fitted to the aptitudes of the latter, and, most important of all, the possibility of individual instruction.

Let us stop here. In the meantime this is all that we can say with regard to the organisation and control of special education. If we were to attempt to go farther we could do so only on *a priori* grounds. The time has come for experiment. The new classes which are being formed in Bordeaux, Paris, and elsewhere, must be carefully watched. We shall grope, we shall make attempts, cer-

tainly we shall commit mistakes, which will not matter very much if only we have the mind to recognise them and the courage to put them right. The essential thing is for all the world to understand that empiricism has had its day, and that methods of scientific precision must be introduced into all educational work, to carry everywhere good sense and light.

APPENDIX

[N.B.—Throughout the Appendix Roman numerals refer to ages—*e.g.*, IV. 2 = second test for children of four years.]

PART of the interest of this work on defective children consists in the fact that in it we find the origin of those ideas and investigations which culminated in the formation of the Binet-Simon Scale of Intelligence, now so widely known throughout Europe and America.

The ideal that Binet set before himself was the formation of a scale which should measure intelligence in something the same way as the foot-rule measures height. The first difficulty was the unit. If we regard intelligence as the power to cope with a situation, we see that this power in a general way increases with the experience of the child, or, we may say, with his age. A child of nine should have more intelligence than one of eight, a child of eight than a child of seven, and so on. We may suppose, then, that there is a normal intelligence for each age just as there is a normal height for each age, although in the first case, as in the second, many children fall below and many rise above the standard. It is clearly by no means so easy to establish a norm for intelligence as for height, nevertheless, the method should be the same; that is, we should begin by finding out what the intelligence of children of different ages actually is, and from these results we should derive averages which might be used as norms.

In the course of his work with defectives, Binet, as we have

seen, had gathered a number of questions which he had found useful as tests of intelligence. He now, in conjunction with Dr. Simon, proceeded to extend the number of these tests and to assign each to its appropriate age. The method he adopted was this: He tried each test on a great number of normal children of the same age. If a large majority answered satisfactorily, he set the test down as suitable for that age; if a majority failed, he moved it to a more advanced age, and tested it again on older children. When we consider his scale then, we must remember that the arrangement is no arbitrary one, but has been derived from actual experiment.

In 1908, after having been tried on over two hundred Parisian school children, the tests were published in the form of a scale, giving a measure of intelligence graded from three to thirteen years of age. By this scale it was held a child's mental age, which, of course, was often not the same as his chronological age, could be determined.

In 1911 there was published a revised scale in which, owing to the results of further experiment and criticism, a considerable number of alterations in the grading of the tests was made. This revised form of the scale is given below. For convenience in use the *exact* words to be said to the child are placed first, the particular directions for each test being given afterwards. General directions regarding the tests and the method of marking will be found at the end of the scale.

Tests of Intelligence.

Three Years.

1. "Show me your eyes." "Show me your nose." "Show me your mouth."

Count the child correct if he indicates in any way that he understands.

2. "I am going to say two numbers. Say them after me—3, 7."—"Again, 6, 4."—"Again, 0, 5."

The examiner must say the figures slowly; an interval of half a second should be allowed between the two. The child passes if he is successful once out of the three trials.

3. "Here is a picture; tell me what you see."

The child passes at this level if he simply enumerates objects seen in the pictures (Figs. 1, 2, 3).

4. "What is your name?"

For a pass the surname must be given, but if the child says his Christian name only, the examiner may press him by asking "What else?"

5. "Say this sentence after me—'I am cold and hungry.'"

If the child is timid, he may be tried first with shorter sentences. He is not allowed to pass unless his enunciation is perfect. A sentence containing six syllables should be remembered at this level.

Four Years.

1. "Are you a little boy or a little girl?"

If necessary, this question may be divided: "Are you a little boy?" "Are you a little girl?"

2. "What is this?"—"And this?"—"And this?"

The examiner shows the child successively a key, a penny, and a knife.

3. "I am going to say three numbers. I want you to repeat them. Listen. 2, 7, 5."—"Again, 9, 0, 4."—"Again, 3, 8, 1."

One success suffices.

4. "You see these lines. Tell me which is longer."

See Fig. 7.

No hesitation or uncertainty is satisfactory.

Five Years.

1. "You see these boxes. Tell me which is heavier."

The examiner places two boxes precisely the same in appearance, but weighing respectively 3 grammes and 12 grammes, before the child. He repeats the test with similar boxes, weighing respectively 6 and 15 grammes, and then the first pair is again presented. The boxes should be arranged so that the heavier one is alternately at the right and at the left side. Very young children nearly always indicate one of the boxes by chance without testing them. In this case the examiner is allowed to say, "You must take the boxes in your hand and weigh them."

2. "Copy this picture for me."

The examiner shows the child a card on which is drawn a square, the side of which measures an inch and a half. The child is given pen and ink, an unfamiliar instrument to him at this age. He passes if his square can be recognised as a square.

3. "Listen to this, and repeat it after me: 'My name is Charlie. Oh! the naughty dog!'"

Memory of a sentence containing ten syllables is required.

4. "You see these pennies. Now count them with your finger."

Four pennies are placed before the child. They are juxtaposed, but not superposed. In order to pass, he must count them, touching each with his forefinger as he says its number. Some little children begin to count before they touch the first penny; thus they may reach five or six or even more.

5. "Put these pieces together so as to make them look like this."

The examiner has two oblong cards—postcards do very well—one of which is cut in two pieces along the diagonal. Before giving the direction to the child, he places the intact

card on the table, and, nearer the child, the two pieces of the other card arranged so that the two hypotenuses form a right angle.[1]

Six Years.

1. "Is it morning or afternoon now?"

As many little children tend simply to repeat the examiner's last words, it is better to reverse the terms "morning" and "afternoon" when the examination takes place in the afternoon.

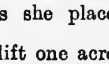
2. "What is a fork?"—"What is a table?"—"A chair?"—"A horse?"—"A mamma?"

Three levels of intelligence may be distinguished in the responses. The lowest is that of silence, or repetition of the term, or designation by gesture. The second, which should be attained at the age of six, is that of definition by use, as: "A fork is for eating with." The third level is attained by the ninth year; the child at this level attempts to describe the object or to say what it is made of. The type of the majority of the definitions determines one's judgment of the level attained.

3. "Copy this picture for me."

The examiner shows the child a card on which is drawn a diamond, of which the side measures an inch and a half, and the acute angles 60 degrees. The drawing must be done with pen and ink.

4. "Count these pennies."

[1] The directions for this test, given in 1908, are to arrange the two triangles so that the *hypotenuses are as far distant as possible from one another*. In the 1911 article the directions are as above. It seems to the writer that both directions are ambiguous. In certain experiments in which she followed the 1908 directions she placed the triangles thus  , so that the children had to lift one across the other to effect a solution. A very small percentage of five-year-old children succeeded. If the triangles are placed thus  the task would probably be easier.

Thirteen pennies are placed on the table in a group (not in a line) touching one another, but not superposed.

5. "Which is the prettier of these two faces?"—"And of these?"—"And of these?"

See Fig. 4.

Three correct responses required.

Seven Years.

1. "Show me your right hand."—"Show me your left ear."

2. "Here is a picture. Tell me what you see."

Description of picture required (Figs. 1, 2, 3.)

3. "Do you see this key? Go and put it on that chair. Then close the door. Then take the box which is lying on the chair near the door and bring it to me. First put the key on the chair, then close the door, then bring me the box."

No help or suggestion by word or look must be given during the execution of this task.

4. "How much money is there here altogether?"

Three pennies and three halfpennies are placed on the table before the child.

5. "What is this colour?"—"And this?"—"And this?"—"And this?"

The examiner shows the child successively the four colours—red, yellow, blue, and green.

Eight Years.

1. "You know a butterfly?"—"And you know a fly?"—"Are they like one another?"—"Well, in what way are they not alike?"

The same questions are asked about wood and glass, and paper and cardboard. Two comparisons at least must be given correctly.

2. "You can count, can't you?"—"Well, will you count for me backwards from twenty to nothing? Begin 20, 19. . . ."

One error is allowed, but the task must be finished in twenty seconds.

3. "What is missing in this picture?" The child must not be allowed to see the figure in the diagram until he has answered the questions regarding the heads. Otherwise, when shown a head, he may say, being influenced by suggestion, "It has no body." See Fig. 5.

The same question is put for each of the four pictures.

4. "Can you tell me what day it is?"—"And will you tell me the date also?"

The year must be given; three or four days' latitude is allowed in the day of the month.

5. "I am going to say five numbers. Listen and repeat them after me. 5, 8, 2, 9, 1."—"Again, 3, 7, 5, 2, 0."—"Again, 1, 3, 7, 2, 9."

One success suffices.

Nine Years.

1. "Would you like to play shop? You be shopkeeper. I will buy from you this box. It costs twopence." Here the examiner hands the child a shilling. "Now, will you give me change out of this money here?"

In order to give the change the child is provided with one of each of our current coins—sovereign, half-sovereign, crown, half-crown, florin, shilling, sixpence, threepence, penny, halfpenny—and in addition five halfpence and six pennies.

Note.—Binet gives the child a franc for an article valued at 20 sous, and the child has to select his change from the following coins: 8 coins of the value 0 fr. 05, 4 of the value 0 fr. 10, and 1 of each of the others—viz., 0 fr. 25, 0 fr. 50, 1 fr., 2 fr., 5 fr., 10 fr., 20 fr.

2. "What is a fork?"—"What is a table?"—"A chair?"—"A horse?"—"A mamma?"

For a pass three at least of the definitions must be given in a form superior to the " use " type.

3. " What is the name of this coin ?"—" And of this ?"—" And of this ?"

The examiner in this way goes through in irregular order all our current pieces of money. Coins like one another should not be shown in immediate succession.

4. " Will you tell me the names of the months in order ?"

One omission or one inversion is allowed to pass.

5. " What would you do if you missed a train ?"—" What would you do if one of your playmates should hit you without meaning to do so ?"—" What would you do if you broke something belonging to someone else ?"

For a pass two at least of these questions must be answered sensibly.

Ten Years.

1. " You see these little boxes. They are not all the same weight. Some are heavy and some are light. Place the heaviest one here, and at its side the one which is a little less heavy, then the one still a little less, and finally the lightest of all."

The boxes in question weigh respectively 6, 9, 12, 15, and 18 grammes, and all look the same. They are placed in a pile before the child, and as the examiner gives the directions he indicates with his finger the place he appoints for each box. Three trials should be given, the boxes being mixed after each trial. In order to pass the child must be correct at least twice. The time should not exceed three minutes. The material for the test can be easily made from matchboxes.

2. " Now I am going to show you two drawings. You may look at them for ten seconds, which is a very short time. Then I will ask you to draw them from memory."

For the drawings see Fig. 6. The child is counted correct

if he reproduces the whole of one drawing and half the other.

3. " I am going to read you some sentences, each of which contains something foolish. Listen attentively and tell me each time what is foolish."

The examiner reads the sentences impressively, but without any special emphasis on the part the child should comment on. Each time when he finishes he changes his tone, and demands, " What is foolish in that ?"

Sentences.—(1) An unfortunate bicycle rider fell on his head and was killed instantly; he was taken to a hospital, and they fear he will not recover.

(2) I have three brothers, Paul, Ernest, and myself.

(3) The body of an unfortunate young girl, cut into eighteen pieces, was found yesterday on the fortifications. It is thought that she killed herself.

() There was a railway accident yesterday, but it was not a bad one; the number of dead is only forty-eight.

(5) Someone said: If I should ever grow desperate and kill myself, I will not choose Friday, because Friday is an unlucky day, and will bring me unhappiness.

Three satisfactory answers are required.

4. " What would you do if you were delayed in going to school ?"—" What would you do before taking part in an important affair ?"—" Why is a bad action done when one is angry more excusable than the same action done when one is not angry ?"—" What would you do if you were asked your opinion of someone whom you did not know well ?"—" Why should one judge a person by his acts rather than by his words ?"

Three sensible answers must be given.

5. " I am going to read you three words, and I want you to make a sentence and use in it the three words. The words are Paris, fortune, stream."

The expression " make a sentence " must not be further explained, but the instructions may be repeated. The child is given a pencil and paper, and, if necessary, should be

urged to write something. For a pass the sentence should be well co-ordinated. At this stage it may contain two distinct ideas, but not three; at the higher level it must contain only one idea (see XII. 2). One minute is the time allowed for writing.

Twelve Years.

1. "Which is the longer of these two lines?"—"And of those?"—"And of those?"—"And of those?"—"And of those?"—"And of those?"

This test is aimed at the suggestibility of the child. For the material see Figs. 8-13. The first three pairs of lines differ in length, the longer being at the right hand; the last three pairs are equal. It is sufficient if the child correctly judges two of the last three pairs to be equal.

2. "I am going to read you three words. I want you to make a sentence and use in it the three words. The words are Paris, fortune, stream."

For directions see XI. 5.

3. "I am going to allow you three minutes, and I want you to say as many words as you can think of. Some children have said more than two hundred. Let us see how many you can do. Ready? Start."

In order to pass the child must say over sixty words.

4. "What is Charity?"—"What is Justice?"—"What is Kindness?"

Two correct responses are required.

5. "Put these words in their proper order and find the sentence which they make."

Three cards are successively presented to the child, on each of which is very clearly written or printed one of the following sets of words arranged in three lines.

(1) For — an — the — at — hour — early — we — country — started.

(2) To — asked — exercise — my — I — teacher — correct — my.

(3) A — defends — dog — good — his — master — bravely.

One minute is allowed for each sentence, and two correct answers are required.

Fifteen Years.

1. "I am going to say seven numbers to you, and I want you to repeat them after me. Now, 5, 2, 7, 9, 1, 6, 0."—"Again, 6, 4, 1, 3, 9, 7, 5."—"Again, 8, 0, 4, 2, 7, 3, 6."

One success suffices.

2. "Do you know the meaning of the word 'rhyme'? Two words are said to rhyme when they have similar endings, such as hour and flower, or candy and dandy. Do you understand? Now, find all the words which rhyme with day."

The child is required to find three rhymes in one minute.

3. "I am going to say some sentences to you, and I want you to repeat them exactly after me. Ready? 'The other day I saw on the street a pretty yellow dog. Little Maurice has stained his nice new apron.'"

The examiner is advised to have ready a series of sentences formed of words easy to understand. He should begin with one somewhat shorter than that suggested, which consists of twenty-six syllables—the length required by Binet at this age.

4. "Here is a picture. Tell me what you see."

At this level interpretation of the picture is required. Mere description of the activities represented is not sufficient.

5. "Listen to what I am going to read to you: A woman was walking through a park in Chicago. Suddenly she stopped, dreadfully frightened. She ran to the nearest policeman and told him she had seen hanging to the limb of a tree"—after a pause—"a what?"

"Again: My neighbour has just received some singular

visitors: one after another a doctor, a lawyer, and a priest called. What is happening at my neighbour's ?"

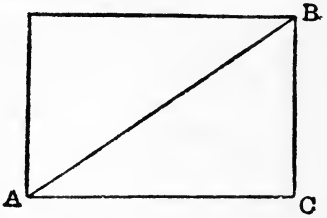
Both problems must be solved satisfactorily.

Adult.

1. " Here is a paper folded in four. Suppose that here" (pointing to a small triangle that has been drawn in the middle of the edge which presents a single fold) " I cut out this little triangle. Now, if I unfold the paper, how would it look ? Draw the paper as it would appear if unfolded and show how and where it would be cut."

The paper is square to begin with, and is folded twice so as to show a square one quarter of the original size. The required drawing will show two diamonds drawn in line with each other, and each in the centre of one half of a square.

2. " Look at this card. Suppose I lift this lower part and place this edge (tracing the edge *A C* with the finger) on this edge (the diagonal of the upper piece). Suppose also that this point (*C*) is placed just on this point (*B*). Now I will take away the piece, and do you draw the whole figure as it will appear when the proposed change is made. Begin by drawing the upper part."



A right angle must be represented at *B*, and the edge *A C* be shown shorter than the edge *A B*.

3. " What is the difference between laziness and idleness ?"—" What is the difference between event and advent ?"—" What is the difference between evolution and revolution ?"

Two correct answers required.

4. " There are three principal differences between a King and a President of a Republic. What are they ?"

Required answer: Royalty is hereditary, the tenure of office is for life, and its powers are very great; the President is elected, his tenure of office is for a limited time, and his powers are less extensive.

5. " Listen to what I am going to read to you. When I have finished I shall ask you to give me the sense of the passage: ' Many opinions have been given on the value of life. Some call it good, others call it bad. It would be more just to say that it is mediocre, for on the one hand our happiness is never so great as we would have it, and on the other hand our misfortunes are never so great as others would have them. It is this mediocrity of life which makes it just, or rather which prevents it from being radically unjust.' "

Directions to Examiners.—In the use of the Binet scale there are various pitfalls that await the beginner. In the first place he is almost certain to array himself on the side of the child and to declare in some instances that the test is not a fair one—the child could have passed had he understood what was wanted. One frequently sees this attitude towards the puzzle test. (V. 5.) For example, the examiner is dissatisfied when the child simply moves the pieces of card about in a meaningless way, and he tries to explain more clearly what is wanted. I have seen one examiner go so far as to show the child the solution, and then give him a pass when he repeated it. The examiner must always remember that a child who has reached the required level of intelligence will himself see what is wanted. This comprehension is indeed the very thing we are testing for.

Secondly, the examiner is apt to show by his manner when he is dissatisfied with a child's answer. In some cases this may lead him to correct himself—*e.g.*, VII. 1. The examiner must bear constantly in mind that *all answers are equally pleasing to him ;* he is not there to instruct the child. but to test him. When meaningless or absurd responses

are given, as they frequently are, the examiner must accept them cheerfully, even in some cases with praise, and record a failure. The record, of course, must never be visible to the child.

Again, the examiner must not suppose that the scale can be applied mechanically. Both experience and judgment are necessary before the results can be correctly gauged. In certain tests—*e.g.*, the absurdities—a child's manner tells as much as his words. The children on whom I have tried this test nearly always laughed when they really grasped the point. Before he lays much stress on his results an examiner should have tested at least twenty children.

There is another factor which prevents any mechanical use of the scale leading to satisfactory results, and that is the variability of the child's responsiveness. With an unsympathetic examiner, or with an unfortunate start, he will do himself less than justice. It is the business of the examiner to keep the child in that state of mental exhilaration which enables him to do his best. Words of encouragement and praise should in some cases be freely used, but, of course, care must always be taken to avoid, whether in word, tone, gesture, or facial expression, the slightest suggestion of the correct solution. The happy state of mind must be secured at the very beginning, and for this purpose the choice of the first test is very important. I call to mind a bright child of eight who was confronted first with a simple puzzle test. For some reason, probably over-anxiety to do well, she did not see the solution, and being too intelligent not to perceive her own failure, she burst into tears. Such unfortunate accidents are, however, rare. The children usually enjoy the interview.

To secure a good start one must begin with a test which the child will regard as easy and pleasant. One soon knows almost at sight of the child what it is best to try first. One usually begins with tests for an age at least a year younger than that of the little subject, and works upward.

The examiner should be alone with the child except for the presence of someone whose business it is to make notes. In such tests as the description of a picture, the definition tests, the questions of everyday life, the child's full answers should be written down. The examiner should, however, record his own judgment as to whether the child has passed or failed *at once*, as there are various factors which tend to make an immediate judgment both more certain and more accurate than a delayed one.

So far as the actual testing is concerned, the examiner should confine himself to the words given in the text. He will find himself tempted sometimes "to draw the child out." For instance, in the picture test, when the child has given him a brief enumeration of objects and then stopped, he will find himself saying, "But what is this man doing?" The child can probably tell; but he must not on this account be accorded a pass on the descriptive level; he has already shown that his level is that of simple enumeration.

Some of the tests (definitions, comparisons, suggestion) bring out a tendency to automatism which is present in many children. Thus, a child having replied correctly that a butterfly is bigger than a fly, may go on to state that wood is bigger than glass, and paper than cardboard; or having found that "It is a fork" is well received as a definition of that implement, he may give similar replies to the other queries in the definition test. This automatism should not be checked: it should be recorded. The more intelligent children begin to exhibit a certain dissatisfaction with their own answers, however readily they are accepted.

It is not always easy to follow the working of the childish mind, and it is not usually advisable to press for further explanation. Such a course is apt to puzzle the child, and render the conditions less favourable. If you are not certain that he should be allowed to pass, you may be practically certain that he should not. Sometimes one gets interesting glimpses into the subject's mentality. A little boy once

told me he had never seen a butterfly. Nevertheless, I asked the comparison question, and he gave what is a very usual answer: "A butterfly is bigger than a fly." "How do you know," I said, "if you have never seen a butterfly?" "It's a bigger word," he replied. Another time a little girl, who also declared she had never seen a butterfly, gave another answer which is also very common: "A butterfly is yellow, and a fly is black." The source of this knowledge was not discovered; but one of my students told me later that a child whom she questioned about a butterfly said: "I have seen one; it was blue, but it *ought* to have been yellow." On being asked why, she responded: "Butter is yellow." The test, of course, is not for the knowledge of the things, but for the power of making a comparison. Occasionally one has to mark a child as doubtful. Thus, in defining abstract terms (XII. 4) Binet records that out of forty-five nine-year-old children, four passed, thirty-six failed, and five were doubtful. This test, however, gives an unusually large percentage of doubtfuls.

Method of Marking.—The examiner should have a large sheet of paper or a note-book with the names of the tests written in column at the left-hand side. Opposite each in a second column he should enter a sign indicating his judgment. Binet recommends the use of the following signs: + ! excellent, + pass, + ? almost a pass, ? doubtful, O silence, − ? almost a failure, − a failure, − ! a bad failure. Later this record should be supplemented from the notes taken by the secretary, also by information regarding the child's personal history, and by comments on his behaviour during the examination. The mental age assigned to him is determined in this way: one finds the age-level at which he passes all the tests, and adds a year for every five tests that he passes above that level. Thus, if a child of seven passes all the tests for seven years, three of those for eight, and two of those for nine, he has a mental age of eight years. Binet allows the use of fractions, one-fifth of a year for

every test passed, but he admits that this gives an appearance of a degree of exactitude which is probably not attained. Should a child's mental age show a retardation of three years as compared with his chronological age, and should there be no evident explanation of this, such as ill-health, neglect of school attendance, etc., he is reckoned as deficient mentally.

Binet's scale has been criticised from various points of view. Generally speaking, it seems to be found too easy at the lower end and too difficult at the higher end. It seems certain that some of the tests have not yet found their proper level, or, indeed, that the proper level may vary from country to country, from school to school, and from one social rank to another. Thus, the writer has found that practically all the five-year-old children present in a certain school during the past two or three years are able to pass the colour test assigned by Binet to seven years of age. These children, however, probably belong to a higher social class than the five-year-olds tested by Binet. An examiner very quickly learns which of the tests beyond his age it is advisable to put to the particular child he is dealing with, and owing to the method of marking it does not matter much if one or two tests are misplaced with reference to a particular group of children. The important thing is that there is a general consensus of opinion on the part of those who have tried the scale as to its value as a mental probe and register of mental attainment. Revisions and elaborations of it have already been published,[1]

[1] See *Journal of Educational Psychology*, 1912: "A Tentative Revision and Extension of the Binet-Simon Measuring Scale of Intelligence," by Terman and Child. For an excellent brief review of the experimental work which has been done with the tests, see the same volume, pp. 101-110. The 1911 scale, with detailed instructions for the application of each test, appeared in the *Bulletin de la Société Libre pour l'Étude Psychologique de l'Enfant*, Nos. 70 and 71, April, 1911. This article has been translated by Clara Harrison Town (*Chicago Medical Press*). See also Meumann, *Vorlesungen Z. Einführung in die experimentelle Pädagogik*, Leipzig, 1913.

but in view of its simplicity and brevity, and the valuable analytical work of which it has proved itself capable, the 1911 form will probably remain a standard for at least some years to come.

For the complete series of tests the examiner will require the following material in addition to the diagrams:

Three suitable pictures.

Key, penny, knife. IV. 2.

Weights. V. 1 and X. 1.

Drawing of square. V. 2.

Drawing of diamond. VI. 3.

Rectangular card and divided rectangle. V. 5 and Adult, 2.

Colours. VII. 5.

Cards with mixed sentences. XII. 5.

Square of paper. Adult, 1.

DIAGRAMS

For the picture tests Binet used the following:

Fig. 1. Man and boy pulling a barrow with furniture.

Fig. 2. A poor old man and a young woman sitting on a seat outside on a wintry day.

Fig. 3. A prisoner standing on his bed to look out of the window of his cell.

The student should choose pictures which contain familiar figures and objects, and which "tell a story" capable of sympathetic interpretation. They should not be too childish.

The following pictures, all in the Tate Gallery, may be suggested:

The Doctor, by Luke Fildes.
The Blind Beggar, by J. L. Dyckmans.
The Wedding, by Stanhope A. Forbes.
A Hopeless Dawn, by Frank Bramley.
The Man with the Scythe, by H. H. La Thangue.

Mark the pictures chosen Figs. 1, 2, and 3.

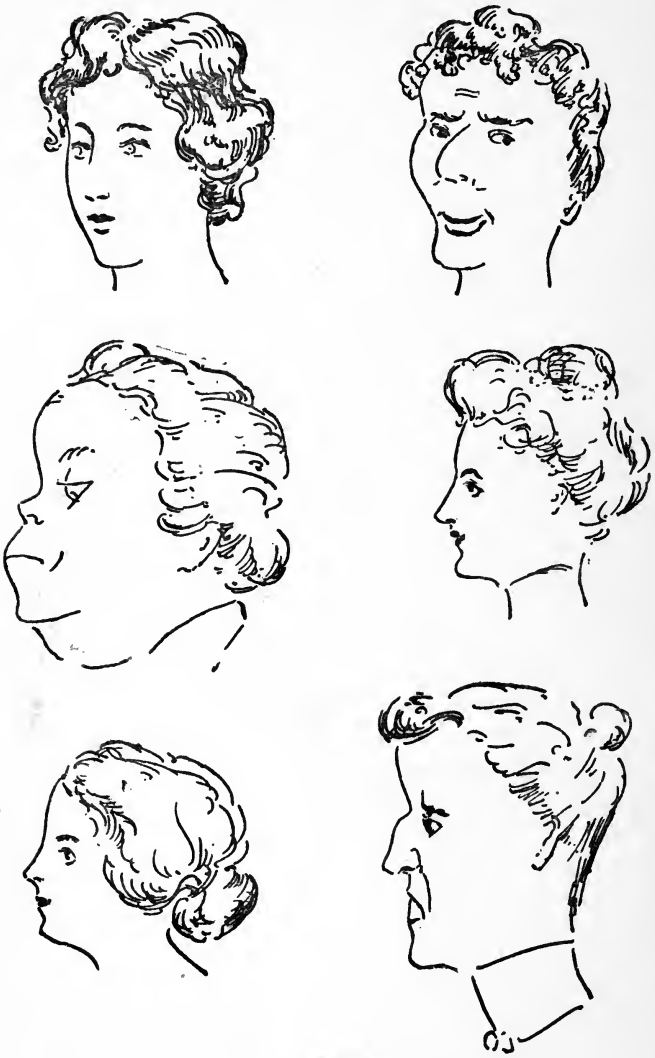


FIG. 4.

FIG. 5.

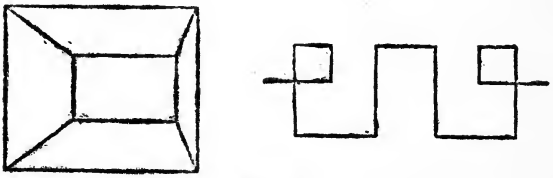


Fig. 6.

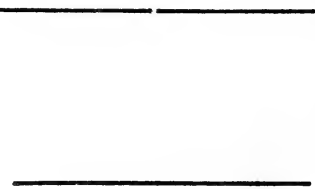


Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

FIG. 11.

Fig. 12.

Fig. 13.

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