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WHAT CONSTITUTES FEEBLE-MINDEDNESS?

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The object of this discussion is to consider the main rent definitions of feeble-mindedness, and criteria that have been used as a means of diagnosis, with the view of calling attention to the multiple and discordant standards that are now commonly followed in deciding on the classification of borderline and doubtful cases. These will all be considered from the standpoint of practical applicability in the diagnosis and classification of the individual case. To serve this object it will be *a propos* first of all to show the present increasing need of practical criteria, aside from the need of harmonizing contradictory ones.

A. The Growing Need of Some Practical Criteria.

We have many laws concerning the feeble-minded; about commitment into special institutions, about permanent and limited retention in institutions, sex and age discriminations with reference to commitment and retention, about responsibility in crime, asexualization, marriage rights, property rights, etc. The recent rapidly growing interest in the feeble-minded is increasing these laws at a great rate. In no country, however, to my knowledge, does the law attempt to define what constitutes feeble-mindedness. It is assumed that this is left to the judgment of competent persons. In some instances the qualifications of such persons have been in some measure defined. This, indeed, is all that is usually necessary to meet the requirements of the average case. But there is a constant tendency to include higher and higher grade cases in the category of the feeble-minded, which is particularly strong at the present time. As this is being done the number of cases that comes up for consideration and which requires close judgment increases all out of proportion to the increase in the general intelligence that is added to the upper grade of feeble-mindedness. The common view on this question seems to be

aneous, even with those who have more than a merely casual knowledge of the subject. It is based on the theoretical consideration only, which regards the distribution curve for different grades of intelligence as bell-shaped. That is, as we pass from the lowest to the highest grade of intelligence, larger and larger numbers of individuals belong to each successive higher grade until the grade of intelligence represented by the average individual is reached. Grades of intelligence above the average have a decreasing number of individuals with increasing distance above the average, so that the distribution curve on the number of individuals belonging to each grade is bell-shaped. How closely this assumption corresponds with the exact facts can be tested only by the grading of all individuals of a large, representative community. This has never been done. The English survey, however, of certain districts in England, Wales, and Scotland, with a total population of 3,873,151 gives us sufficient data to revise this view about the bell-shaped character of the distribution curve. From this data Tredgold estimates the relative number of cases belonging to each grade, for the country as a whole, to be as follows:

Idiots	Imbeciles	Morons
6	18	76
or, approximately 1	3	12

Assuming that these three grades together constitute one per cent., for example, of the general population, gives 1,584 normals for every 16 feeble-minded. The general form of the distribution curve would depend, further, on into how many grades we re-divide the normals. Since the curve is supposedly symmetrical, there must be three grades above the average, corresponding to the three grades of feeble-minded below the average.

Regarding the exact average as a mathematical point to which theoretically none belong, gives a minimum of five grades into which the normals must be divided, with the whole curve being as follows.

Idiot	Imbecile	Moron	Just below average	Just above average	Very bright	Precocious	Very precocious
1	3	12	784	784	12	3	1
or .0625	.1875	.75	49	49	.75	.1875	.0625

This shows that when the range of intelligence normal is divided into as many as five grades 49 per cent of all the individuals in the general population belong to a grade of intelligence between the moron and the average intelligent. The distribution curve would be more like the outline of a very small bell with a very long, heavy handle, instead of a bell-shaped. It indicates that the borderline cases, the cases in which there may be doubt as to whether they should be classified as normal or feeble-minded, may be a great many more numerous than all the present grades of feeble-minded taken together. This must be all the more the case since it is certain that the relative number of morons is much larger than is indicated by the English statistics. With rough methods the higher grades escape detection while the lower grades do not. As we draw the lines more closely, therefore, with the present tendency, it becomes increasingly more important from a numerical standpoint alone to have precise criteria of feeble-mindedness. It is not true, as is often held, that the doubtful case occurs so infrequently as to make the problem of refined methods of determining unimportant. The doubtful case occurs more frequently the more closely we attempt to draw the line, unless our methods of diagnosis improve at the same time. But progress in the improvement of our methods of diagnosis does not necessarily keep pace with the desire to attempt to classify cases that are doubtful definitely as feeble-minded or normal. The sudden appearance of more mental tests has improved our methods of diagnosis but the increased interest in feeble-mindedness in the schools, reformatories, juvenile courts, and everywhere is crowding out improved methods of diagnosis for still greater accuracy. Perhaps more just now than has ever been the case before we are more in need of precise criteria of feeble-mindedness from the practical standpoint, than we have ever been before.

B. Practical Applicability of Current Definitions and Classifications

Definitions are so numerous and various that it would be futile to attempt to discuss them individually with reference to their accuracy and practical applicability in dealing with

fe-minded. Let us call attention to two essentials of a practical definition, and then consider the different types and phases of definitions or criteria in regard to these essentials. A practical definition must be, first, scientifically correct, and second, applicable in the diagnosis and classification of the individual case. There are a great many definitions that are entirely correct so far as they go, but are entirely inapplicable in dealing with individual living cases. There are about as many that are applicable enough, but are inaccurate and inadequate in their designations.

1. The use of physical symptoms as a means of diagnosis must at once be eliminated as inaccurate. They are easily observed, but are no accurate criteria of feeble-mindedness, much less means of making close distinctions between grades not removed from each other, for which purpose they are entirely out of the question. To be sure, there are a number that have been shown to occur more frequently with the feeble-minded than with the normal, but this alone does not make them valid criteria for diagnosis for individual cases. It is a remarkable fact that so many elaborate clinical blanks still give no space to various traits that may be classified under this heading. In numerous instances the data called for can have no diagnostic value whatsoever because definite knowledge of the relation between mental defect and the physical trait is entirely lacking.

2. Much the same may be said of the consideration of the signs of mental deficiency as a means of diagnosis, bearing in mind the distinction between a physical trait as a symptom, a sign, and physical trait as a cause. Factors that are generally recognized as causes of feeble-mindedness occur too frequently with normals. On the other hand, causes that have been present in the feeble-minded can too often not be detected in individual cases. A definition of feeble-mindedness based on causes would therefore be both inaccurate and inapplicable in practice. At the same time, few would agree that hereditary causes should be left out of consideration in determining the classification of a doubtful or borderline case as

feeble-minded or normal. When they are taken into account, however, let us remember that it can not be for the sake of deciding the grade of mental deficiency. It can only be a matter of precaution and expediency, with eugenic motives only. If a case is so nearly feeble-minded or normal that all sources of information leave doubt there are justifiable grounds for letting hereditary considerations decide how he shall be classified and treated. The objection to this procedure lies in extending consideration to cases that, from other sources of evidence, are not doubtful cases, but are distinctly of normal mental development.

3. Incurability has come to be accepted almost universally as one of the essential features of feeble-mindedness. When the diagnosis has been based primarily on the results of mental tests, which in themselves give no clue as to curability or incurability, the reservation is made that incurability may be an additional characteristic to constitute feeble-mindedness. There are good reasons for limiting the term feeble-mindedness to the incurable class. First, the vast majority of mentally retarded are undoubtedly incurable. To instill the popular mind with the idea that feeble-mindedness is curable, even with the reservation that it is only very rarely so, would lead to much misdirected effort in behalf of entirely incurable cases, unless some means were found of counteracting this natural tendency. This belief is still widely held among the general public. Second, there is undoubtedly some real distinction made between curable and incurable mental retardation from the standpoint of the causes that produce it. Third, as feeble-mindedness has not always been considered incurable, it is now a quite well established tradition with the public to so regard it. The term is well fixed in this popular mind. Fourth, the classification of a curable case as feeble-mindedness, with the corresponding treatment, such as commitment to a special institution, would under present conditions stigmatize the individual and family, and might lead to other injustices. On the other hand, the definition of feeble-mindedness as incurable

¹ See especially Huey, "Backward and Feeble-Minded Children," 1912; and Holmes, "Conservation of the Child," Phila., 1912.

the difficulties in practice, when borderline cases are under consideration. The determination of the present grade of intelligence of a given case may be relatively easily and accurately made. The determination whether a given case is curable, or may be brought up to normal, may be quite impossible. Let us suppose a case nine years old, with a mental age of six. According to common practice the grade of intelligence in such a case is rightly classed as that of feeble-mindedness. But the actual condition of the case in question might be of such a nature as to account for much of the mental retardation, which might be largely or wholly remedial. How much may we attribute to a bad nutrition, enlarged tonsils, adenoids, poor condition of the teeth, and a great many other such factors? In the present state of our knowledge the obvious answer is that we cannot tell. We are yet very far removed from being able to say in the individual case just how much mental improvement will follow removal of any of the physical defects or conditions which are in a general way regarded as responsible for mental retardation. This subject is full of contradictory opinions, based on no very tangible facts. It is entirely possible for the case in the illustration just given to be curable. It is possible that such a case might catch up a year or more in mental development as a result of treatment, which would put him in the class of the intellectually normal. To make incurability an essential feature, therefore, renders it impossible to classify such cases as normal or feeble-minded until after treatment, and some time is allowed for the effects to appear. The time necessary to allow is also undetermined. In the meantime, since his present mental condition is that of feeble-mindedness, the case needs the time being needs the care and treatment adapted to feeble-mindedness. If this care and treatment is given, as it should be, the distinction between curable and incurable vanishes except in name. Let the case in the illustration be a juvenile court case with strong delinquent and criminal tendencies; the practical difficulties will then be obvious. The important question becomes that of which set of difficulties can be the most easily overcome, and how this can

be done. There is need of doing this before we define feeble-mindedness either as curable or incurable.

4. Recent definitions tend strongly towards making success in life, or ability to make an independent living, a factor for defining feeble-mindedness. The most widely quoted definition adopted is one suggested by the Royal College of Physicians of London, and reads: The feeble-minded person "is one who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence." This was adopted by the Royal Commission appointed by the English government in 1904 to investigate the conditions of feeble-mindedness in the British Isles. The American Association for the Study of the Feeble-Minded appointed a committee on classification which tentatively adopted a definition essentially the same, which reads: "The term feeble-minded is used generically to include all degrees of mental defect due to arrested or imperfect mental development, as a result of which the person so affected is incapable of competing on equal terms with his normal fellows or managing himself or his affairs with ordinary prudence."² Other definitions from this sociological standpoint, and which may be recognized as more or less modifications, merely, of the above, have appeared. Notably among such may be cited those of Tredgold and Witmer. Says Tredgold: "We may define feeble-mindedness (the term he uses for feeble-mindedness) as a state of mental defect from birth, or from an early age, due to incomplete cerebral development, in consequence of which the person is unable to perform his duties as a member of society in the position of life to which he is born."³ In his 1914 edition this is revised to read: Feeble-mindedness is "a state of mental potentiality, or arrest of cerebral development, in consequence of which the person affected is incapable at maturity of adjusting himself to his environment or the requirements of the community as to maintain existence independently of others."

² *Journal of Psycho-Asthenics*, 1910, P. 61.

³ "Mental Deficiency." New York, 1908. P. 2.

port."⁴ Witmer does not attempt a full definition in a single sentence or two, but his idea may be gathered from the following: "The defectives are those who have so many and severe mental defects that they are unable to overcome the defects as a result of expert training, and must therefore in adult age arrested in mental and moral development, inferiorly incapable of earning even a modest livelihood, and so by a menace oftentimes to themselves and their families, always to society, either by virtue of their own behavior or retained capacity to reproduce their kind. * * * We define the feeble-minded child as a result of social considerations. He is the child who for his own good and for the good of society should be segregated for life."⁵

Let us attempt to judge these definitions again from the sociological standpoint of scientific accuracy and practical applicability. First, the modifications offered by Tredgold, and Witmer. Tredgold adds an important phase in the last part of his definition, "in the station of life to which he is born," a phrase recognized also by others, especially Binet and Simon. Tredgold acknowledges that a person might be rightly classified as normal in one kind of social environment, and as feeble-minded in another. A person might, for example, be able to perform his duties as a member of society in a simple rural environment, but not in the much more complex urban environment. Or, he might be normal if he attempted to follow only a low standard of living, but feeble-minded if he attempted to follow a higher standard of living. The justification for this additional phase in the definition, however, stands or falls with the justification for defining feeble-mindedness from the sociological standpoint in the first place, for it only points out a further consequence or implication of such a definition. This will be considered further hereafter. The additional phrase, "due to incomplete cerebral development," while it may not depart from scientific accuracy, makes the definition inapplicable in the classification of actual living cases. We are entirely unable to demonstrate

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Children with Mental Defect Distinguished from Mentally Defective Children. The Psychological Clinic., Dec., 1913.

the cerebral development in the living case, with the exception of an insignificantly small number of instances. If this had been done but few cases could be classified at all.

Witmer's criteria present possibly two phases that would raise difficulties in the practical application to individual cases. The first is stated in, "that they are unable to overcome their defects as a result of expert training." This is on a par with making incurability an essential phase of feeble-mindedness. To determine whether a case can overcome the defects through expert training by first giving him this expert training would require too much time for the purposes demanded of a practical definition applicable in diagnosis. The second is stated in "their retained capacity to reproduce their kind," if by reference is made to the fact that the children of feeble-minded are liable also to be feeble-minded. The impracticability of including the consideration of causes as a phase of the definition is noted above.

Let us turn to the more general phase of these definitions that are based on success in life, or ability to make an independent living. There are three terms in the one given by the Royal College of Physicians of London concerning which difficulties might and undoubtedly would arise in attempting to apply it in practice. These are, "favorable circumstances," "equal terms," and "ordinary prudence." The most experienced judges would surely often disagree as to whether the circumstances under which a given case had attempted to earn a living had been favorable or not, or whether the terms under which he had been competing with normals had been the same as for normals, and most of all, as to whether his conduct had shown ordinary prudence. These are all relative terms, subject to the varying interpretations of different judges. How varying the interpretations on such matters may be is readily seen when we see how frequently and flagrantly experts disagree on the totality of cases in courts. The social test is difficult to apply. Aside from this, such a definition can not lay claim to scientific accuracy, so far as it attempts to define grade of intelligence only. This much is conceded by the definition itself, and

states that an individual might be classified as normal in one environment, and as feeble-minded in another. A scientifically accurate definition does not change standards in the way this does. Moreover, success in life, or ability to make an independent living, is not an accurate criterion of intelligence in any case. In a broad, general way it undoubtedly holds true, but if we are considering everything as we must in practice, from the standpoint of individual cases. We know from general observation that even under essentially the same environmental conditions some fail to make an independent living partly because of lack of intelligence, while others with no higher intelligence succeed. Our most successful business men are not all among the most intelligent, and surely a great many of our most intelligent men do not rank correspondingly high as business successes. We know further from recent results of mental testing that there is a certain number of cases, by no means small, which fails in the social test, but measures intellectually considerably above the grade of feeble-mindedness as determined by the same mental tests, though not equal perhaps to that of an average normal person. On the other hand, there is an equal number of cases which as measured by the scientific standard of mental tests, are feeble-minded, yet do not fail in the social test. There is an extensive over-lapping. A given degree of intelligence will in one case pass the social test though it fails the intelligence test, while in another case it will fail in the social test.

The social test may be considered from still another point—that of individual rights. If a person can and does make an independent living without interfering with the rights of others the state should have no grounds for classifying and treating him as feeble-minded, even though his mentality as measured by some accurate scientific method clearly proved him to be feeble-minded on the basis of this latter standard alone. The objection seems valid, but applies only to any case for the present being, and does not consider future possibilities. A person who passes the social test, but otherwise feeble-minded, is always potentially one who may at any time interfere with the rights

of others, because of his mentality. He is the potential delinquent or criminal. He is also the potential parent of feeble-minded children who will most likely fail in the social test, as well as interfere with the rights of others in other ways. On the other hand, if a case fails in the social test, but is found from other sources not to be mentally retarded sufficiently to be classifiable as feeble-minded, there may be a justification for classifying him thus nevertheless, because of his failure in the social test. The defective delinquent is the typical illustration of this class. As long as the state makes no special provision for this class, and since these cases must be made state charges, they are equally well placed or misplaced in the institution for feeble-minded and the reformatory.

The status of the social test appears then, in a word, as follows. It is difficult to apply, and it is a matter of each judge's own interpretation as to whether a case has passed or failed in the social test. As a criterion of grade of intelligence it is scientifically inaccurate. An otherwise feeble-minded person passing the social test, may still be rightly classified as feeble-minded. A person with a mental retardation less than that of feeble-mindedness, but failing in the social test, may for practical purposes also be classified as feeble-minded. Finally, the social test is, from the nature of the case, applicable only to adults.

5. The recognition that there are variations in mental traits other than intelligence as technically defined which, when combined with only a slightly deficient or even normal intelligence may cause the individual to fail in the social test, leads to the view that feeble-mindedness as a mental defect can never always be defined in terms of lack of intelligence alone. This view is expressed most fully by Huey, whom we may quote at length. "Feeble-mindedness, like insanity, involves much more than the intelligence; and its correct diagnosis often requires the expert consideration of various clinical phases. Feeble-mindedness blends, along most of its upper margin, with the populous and turbulent zone of the psycho-neurotic."

(with beginning adolescence) the problem of life is not further growth of intelligence so much as the use of what has been grown, to serve and to give direction to the feelings. Now normality of will, of self-assertion and self-criticism, of moral sense and attitude, and of the emotional control that must be tested for. And here in the rich but precarious field of psychopathologies are found the next higher rungs of the retardation ladder, naturally with the function of sex playing a prominent part. * * * We have then the higher grade feeble-minded of the type (1) whose chief defect is in the intelligence, shading over into their higher degrees to the pupils who in Dr. Pringle's terminology are normal, 'not tainted but dull.' We have them (2) of the type when the chief defect is in the will, shading over into the cases which may develop the bizarre features of dementia praecox. (3) We have them (3) of the type when the thought fails to take account of the concrete tests of actuality, shading over into the cases which may develop the bizarre features of dementia praecox. (4) We have the type which in the higher grades clearly shows its kinships with mania, melancholia, and circular insanity. We also have to trace a type (5) that tends to give us our criminals and moral degenerates." On first thought the suggestions here made raise difficulties in the way of finding a brief and precise definition of feeble-mindedness. A critical study, however, will clear up at least some of the troubles. Our attention is first called to the need of defining further still more of the terms of our terminology. Since there is practically an absolute agreement on including the term feeble-mindedness to cases who have failed to develop mentally in a normal degree, or are developing at a slower rate than normal, we may accept this as an essential definition. It follows that we must either use the term "development of intelligence" as synonymous with "mental development" or show that the development of the intelligence always runs exactly parallel with the development of the mind as a whole. If we are to define feeble-mindedness in terms of intelligence, we must also define the development of the intelligence. Pringle, *Subnormality and the Mental Examination of Retarded Children*. Journ. of Psychopathology, 1910. Pp. 33 and 38.

ligence. If we do the former, as I think we must in the present connection, it will become clear that most of the types Huey defines as types of high-grade feeble-minded are not of feeble-mindedness, because they do not represent an arrest of normal mental development. They represent a highly varied, very complex, and as yet little understood intermediate group, shading into the different forms of insanity, as Huey notes, yet for the most part, if not entirely, without marked sensory disturbance, delusions or emotional anomalies, on the one hand, and little or no lack of intelligence or mental activity on the other hand. They are frequently further complicated with abnormal habits of thought and action acquired through unfavorable environmental influences. They readily fail the social test for feeble-mindedness and because of the absence of definite symptoms of insanity are often classed as feeble-minded. In the opinion of the present writer they should not be so classed, because they require a different kind of care and treatment, and have a different kind of capacity for usefulness. Their existence, however, makes the social test of feeble-mindedness still more difficult of application.

6. Ever since the Binet-Simon tests have come into general use feeble-mindedness has been defined by some in terms of mental age. Assuming that the mental ages obtained by these tests are always exactly correct, it seems at first a simple matter to determine the mental age that must be ascribed to the feeble-minded and thereby define the term on the basis of mental age. The committee on classification appointed by the American Association for the Study of the Feeble-Minded, already referred to, attributed mental ages of 8 to 12 to morons, mental ages of 3 to 7 imbeciles, and of 0 to 2 to idiots. But these designations, although the report does not specify, obviously were intended to apply only to adults, as, indeed, they can. For average normal children do not reach this upper limit of twelve years in mental age until they are twelve years of age biologically, while at birth all would have a mental age of 0 years. In dealing with children instead of adults the difference between age and mental age was taken as a measure

of intelligence, and feeble-mindedness was defined in terms of the number of years difference, or mental retardation. It seems not to have been at once fully recognized that no one number of years of mental retardation can be taken to constitute feeble-mindedness, independent of the chronological age.

This seems to be true even of Binet and Simon as late as 1907 when they published the first revision of their tests. For they still discuss the gravity of a mental retardation of one or two years, without taking the chronological age into account. Even in their 1911 revision they note that a child must be regarded as mentally arrested if the mental retardation does not exceed two years. In their "Les Enfants anormaux," published in 1907, however, they state that a pedagogical retardation of two years may indicate feeble-mindedness in children under nine years chronologically, while it takes three years to be the same in children over nine. Kramer⁸ observed in 1911 that the same grade of intelligence in children is represented by an increasing amount of difference between age and mental age as the chronological age increases. Chotzen⁹ after examining a number of feeble-minded children with the tests comes to this conclusion, and notes further that "Children from 8 to 10 years may be retarded one year, and children 11 to 12 years may be retarded two years, without being feeble-minded; on the other hand, children of these ages with a retardation of two or three years have certainly no longer a normal intelligence." This also is the conclusion of Bobertag¹⁰ after examining his results with the tests. He says more definitely than Chotzen:

"From these facts alone it may be concluded that up to the age of nine years a mental retardation of two years is necessary to constitute feeble-mindedness, while for older children the retardation must equal three years." Goddard and others have followed similar rules, each thereby making his own exact definition of feeble-mindedness. Elsewhere the present writer

⁸ Die Intelligenzprüfung bei kriminellen und psychopathischen Kindern. Über den zweiten Verhandlungstag des I Kongress fuer Jugendbildung in Wien, 11, 1911.

⁹ Die Intelligenzprüfung Methode von Binet-Simon bei schwachsinnigen Kindern. Zeitsch. f. angew. Psychol., 1912.

¹⁰ Über Intelligenzprüfungen (nach der Methode von Binet und Simon), Zeitsch. f. angew. Psychol., 1912.

has noted that the amount of mental development during a year can not be taken as an accurate unit for measuring intelligence. It should be noted in passing that in all these instances such questions as to curability, heredity, physical symptoms, etc., are left entirely out of consideration in defining feeble-mindedness.

The grounds for postulating an increasing number of years of difference between the age and mental age to constitute feeble-mindedness as the chronological age of the child increases lie, first, in the supposed fact that the normal rate of mental development decreases with chronological age. A young child grows mentally much more during a year than does an older child then obviously one year of mental retardation means the more the younger the child, and the number of years of retardation necessary to constitute feeble-mindedness must increase with age. To show that the rate of normal mental development decreases with age Bobertag quotes several observations, as well as some results with the Binet tests showing that the percentage of children that pass the tests increases much more from the ages of six to seven than it does from the ages of eleven to twelve. The latter fact has been fully verified by the present writer¹² in similar tests. But as was there pointed out, its significance in regard to the question of a decreasing rate of mental development with increasing age might not be as great as appears on the surface.

The second reason for postulating an increasing number of years of difference between age and mental age to constitute feeble-mindedness as the chronological age of the child increases lies in the supposition that feeble-mindedness is essentially a retarded rate of development, and that therefore the older the feeble-minded child of a given grade of intelligence the more years of mental growth he will have fallen behind the normal. This was noted by the present writer.¹³

¹¹ See "The Binet and Simon Tests of Intelligence in Grading Public School Children," this Journal, 1912; "A Revision of the Binet-Simon System of Measuring the Intelligence of Children," this Journal, Monograph Supplement, No. 1, 1913; "Degree of Mental Deficiency in Children as Expressed by the Relation of Chronological to Mental Age," this Journal, 1913; and, "Some Results of Examining Public School Children with a Revision of the Binet-Simon Tests of Intelligence by Untrained Examiners," this Journal, 1914.

¹² "Some Results of Examining a Thousand School Children, etc., etc., 1914."

¹³ See, "Degree of Mental Deficiency," etc., and "Some Results of Examining a Thousand School Children," etc., just quoted.

puts out the view of feeble-mindedness as a retarded rate of mental development, but does not discuss its connection with the question.

A third consideration lies in the possibility that the mental development of the feeble-minded stops entirely at an earlier age than with normals. This view is given by Chotzen, Stern,¹⁴ and Goddard.¹⁵

The bearing this has on a definition of feeble-mindedness is the question as to in what manner the difference between chronological and mental age postulated to constitute feeble-mindedness increases along the whole course of mental development. On the face of it, it would seem to require a finer adjustment than has been made so far. To make the age of nine an abrupt turning point, requiring two years' mental retardation to constitute feeble-mindedness below this age, and three years above this age, is arbitrary and surely inaccurate for both the much younger and much older children, without considering the question as to when intellectual development stops entirely. If it stops entirely at about the age of fifteen it would obviously make all much older children appear as feeble-minded to require a difference between age and mental age of three years as constituting feeble-mindedness.

This difficulty has been recognized and has led Stern, Binet, and the present writer to propose what Stern has called the "Intelligence Quotient" as a measure of intelligence. It is the figure or per cent. obtained by dividing the mental age by the chronological age. Feeble-mindedness may be defined by fixing limits in intelligence quotient to be attributed to it. In connection Stern shows that for the children of the Hilfschule examined by Chotzen the average intelligence quotients distributed as follows:

Not feeble-minded	Questionably feeble-minded	Morons	Imbecile
.92	.84	.76	.71
.88	.81	.77	.67
.80	.80	.74	.63

These children had been previously diagnosed by the schools as belonging in these four classes. This shows an intelligence quotient as above the references above.

"The Improvability of Feeble-Minded," *this Journal*, 1913.

quotient of less than .80 for definitely feeble-minded, the more Bobertag considers the same fact, and suggests similar intelligence quotients for the different grades of intelligence, doubts whether the intelligence quotient is accurate for all ages. For 350 consecutive examinations with my revision of the Binet-Simon tests at the Minnesota School for Feeble-Minded I found the following distribution in number of cases belonging to the different intelligence quotients:

I. Q.	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90
No.	19	36	29	41	55	64	56	33	8

In obtaining these figures it was assumed that development of intelligence stops at the age of fifteen, so that the mean age was never divided by more than fifteen for the age. It shows an intelligence quotient of over .80 for seventeen, or 4.9 per cent. of the cases. Among this 4.9 per cent. were very young children, aged a few months to five years, had been born in the institution or were temporarily admitted with their feeble-minded mothers. Other observations verify the fact that these were undoubtedly normal. Three cases, eighteen years had failed in the social test, and belonged to the defective delinquent class, or possibly to such classes as described by Huey. Eight others, aged six to eighteen years, were partly wrongly diagnosed before admission, as shown by other records before and after leaving the institution again, possibly showed general improvement after admission. A further study of each individual case with an intelligence quotient of over .80 left none that could with certainty be classified as feeble-minded. I have elsewhere¹⁶ suggested that cases with an intelligence quotient of less than .75 may be regarded as feeble-minded, while those with an intelligence quotient of over .80 may be regarded as normal, leaving a doubtful group from .75 to .80.

Some objections have been raised to using the intelligence quotient as a means of defining feeble-mindedness and the grades of intelligence. Stern and Bobertag note that it is not correct for all ages it implies that the feeble-minded keep

¹⁶ The Mental Examination of Reformatory Cases. Am. Journ. of Crim. V, No. 5, Jan., 1915.

developing intellectually as long as normals do. But Stern holds that this total cessation of intellectual development occurs the earlier the lower the grade of intelligence, so that at the idiot grade the intelligence quotient could have but little meaning. If this view were correct it would mean that the intelligence quotient would decrease abruptly for feeble-minded as at the age when intellectual development ceased, and would to this extent no longer be regarded as a true index of intelligence, since this age would vary with the grade of intelligence in the first place. But the view is only an assumption, and, however plausible it may seem on first consideration, has no established facts to support it.¹⁷ In the meantime, we must not without evidence assume that the opposite is true, and that the intelligence quotient is a correct index of intelligence, for as this is concerned.

Bobertag and the present writer have pointed out a second objection. This is connected with the view, which in itself is undoubtedly in the main correct, that the rate of mental development of normals decreases with age, and that with the feeble-minded this rate of development is at all ages behind the normal rate. This being granted, Bobertag concludes that "a rate that would increase with age not only absolutely but also relatively"; the intelligence quotient would decrease with age. This conclusion, however, does not necessarily follow. It follows only if still another assumption is granted, an assumption which I also made in discussing this point before.¹⁸ The intelligence quotient will decrease with age in the case of feeble-minded children if the amount of mental development during each year is determined by the chronological age rather than by the mental age. If it is determined by the mental age the intelligence quotient may remain constant. To make this clear, let us suppose a case with a mental age of four at the chronological age of eight, indicating at this point a rate of development just half that of the average normal. What will deter-

Re-examination after intervals of one to three years of cases in the Minnesota School for Feeble-Minded now in progress at present rather indicate that these cases continue to develop, some even beyond the age of fifteen. An analysis of these results will be reported later.

¹⁸See "Degree of Mental Deficiency in Children," etc., this Journal, 1913, P.

mine the amount of development during the next two years. Will he develop half of what the average normal child would develop from eight to ten, or will it be half of what the average child would develop from four to six? If the former case the intelligence quotient will decrease, on the basis of the assumption, which is granted, that the rate of development of normals and feeble-minded decreases with age. If the latter case this need not be true. To show that the intelligence quotient does as a matter of fact decrease with age Bobertag quotes some results derived from Chotzen's table, which shows an average intelligence quotient of .79 at the age of eight; .70 at nine; .67 at ten; and .67 at eleven to twelve, for the children of the Hilfsschule. The same may be seen in figures quoted by Stern, and given above. This evidence, however, is misleading, since this decrease in intelligence quotient holds true for normally developing children as well as it does of the feeble-minded. It is due to the fact, established by all investigators, that the tests measure slightly too high for the lower ages and error decreasing towards the higher ages where the tests measure too low. Bobertag's results for normal children give figures from which the following intelligence quotients are derived: 1.05 at the age of eight; 1.00 at nine; .98 at ten; and .96 at eleven to twelve.¹⁹ Intelligence quotients derived from results of others testing normals show a similar decrease for these ages. On the other hand, I have shown that the average mental age of the inmates of the Minnesota School for Feeble-Minded increases with chronological age in a manner very closely parallel to the mental ages computed on the basis of the assumption that the intelligence quotient remains constant. These results are as follows:²⁰

Age	6-8	9-11	12-14	15-17
Av. M. A.	2.8	4.1	4.9	5.5
Computed M. A.	2.6	3.7	4.8	5.5

Here the average mental age of all cases with chronological ages from six to eight was 2.8, etc. The computed mental ages are derived by assuming that the rate of mental development

¹⁹ See article quoted above, P. 508.

²⁰ See "Degree of Mental Deficiency," etc., P. 141.

about for such an "average" case would be 5.5-15.0 of the normal rate, i. e., 5.5-15.0 of the average of six to seven years, etc.

Assuming any given intelligence quotient as the dividing between feeble-mindedness and the normal, and considering different ages and mental ages that will all give this intelligence quotient will show how inadequate any practice must make an abrupt turning point at the age of nine, regarding two years of mental retardation below this age to constitute feeble-mindedness, and three years above this age. The same ages and mental ages all give an intelligence quotient

4	8	12	16
3	6	9	12
1	2	3	4

where the mental retardations range from one to four years, when the ages of four to sixteen, for one and the same grade intelligence, as given by the intelligence quotient. Moreover, all the objections against the intelligence quotient as a measure of intelligence must hold true equally against the amount of mental retardation measured directly in terms of years.

The intelligence quotient must, therefore, be regarded as the most accurate index of intelligence of any that are based on mental tests. It does not follow from this, however, that Binet-Simon tests in their original form are adequate always for drawing the fine distinctions in grades of intelligence in practice we are often called upon to do. For, granting on the whole an intelligence quotient of .75 or less, for example, indicates feeble-mindedness, and one of .80 or over, indicates normal intelligence. the variability in the results obtained with these tests is still so large that a barely normal case might sometimes appear as barely feeble-minded, and vice versa. For the same mental ages the same examiner on two immediately successive examinations of the same case sometimes varies by three or four points in the mental ages found in the two examinations although as large a variation as this occurs only occasionally. But this is enough to change the classification from defi-

nitely feeble-minded to definitely normal. An increase in mental age of four-fifths of a year for the second examination could change the intelligence quotient from .75 to .80. The applicability of the intelligence quotient in practice is determined by the practicability of giving the mental test which it is based. At present mental tests can not always be given where the individual still needs to be judged as to the grade of intelligence. Less accurate methods must in such cases suffice.

C. Summary and Conclusions.

The so-called physical symptoms have so far appeared to be inaccurate as a means of diagnosis to merit consideration for any purpose.

Causes of feeble-mindedness can not be used as a means of diagnosing grade of mental deficiency, but in doubtful or borderline cases hereditary causes known to be present may justly be a eugenic motive for classifying a case in question as feeble-minded rather than as normal if a classification to be made.

To make incurability an essential feature of feeble-mindedness leads to difficulties in diagnosis, and to other objections. To disregard this feature may under present conditions lead to serious objections. It is an open question as to what set of difficulties are the more easily overcome.

The social test, or the ability to make an independent and honest living, is difficult of application, and is scientifically not as accurate as a means of determining grade of intelligence. For practical purposes and as a matter of expediency, failure to pass the social test by a borderline case may be taken as ground for classifying a case with the feeble-minded rather than with the normal.

The rules followed of arbitrarily choosing different numbers of years of mental retardation at different ages as indicating feeble-mindedness can only be approximately accurate and is not the best method of grading intelligence on the basis of mental tests.

The intelligence quotient, or mental age divided by chronological age,

The most reliable criterion of grade of intelligence. An intelligence quotient of .75 or less is always indicative of feeble-mindedness, provided the mental age as determined in the place is correct. Cases with intelligence quotients immediately above this constitute the borderline and doubtful cases, concerning whom other considerations than those of intelligence may and must be taken into account in order to make classification.

The number of cases belonging to this borderline class is much larger than any similarly limited grade below this. For this group of borderline cases, for which there at present exist multiple standards of diagnosis, there is great need of improvement of methods, of agreement on what may be regarded as criteria of feeble-mindedness, and especially of arriving at a fair evaluation of these, in order that undue stress may not be placed on any one.

Multiple standards of diagnosis are commonly employed not only for really borderline cases but are frequently applied to the diagnosis of other cases irrespective of grade of intelligence. This is done on the basis of the idea that a diagnosis will be the more reliable the more extensive and the more thorough the inquiry, and the wider the consideration of all possible factors. This idea is not only entirely erroneous, but the practice is all the more unfortunate because the procedure has the outward semblance of great thoroughness and accuracy, deluding both the examiner and the layman. Great thoroughness of inquiry into factors that in the first place are not criteria of grade of intelligence can only mislead instead of lead to the accuracy of a diagnosis. A consideration of a variety of factors all of which may have some relation to grade of intelligence, though that be small, is valuable, but this may lead to error instead of to greater accuracy, when their relative importance is wrongly evaluated in relation to other factors which have a much closer relation to grade of intelligence. One of the present chief difficulties in following multiple standards of diagnosis lies in this fact. We have at present no method of combining the results from a variety of sources of inquiry, such

as is called for by most clinical blanks, so that each factor count for what it should. It is highly desirable that such method be devised.

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NEWS AND NOTES

The State of Minnesota is to try out the plan of state support to special classes for deaf, blind, speech defective and mentally sub-normal children, in any special, independent, or common school district in the state. Under the authority of Chapter 194 of the Laws of 1915, application may be made by any such district to the State Superintendent of Education for permission to establish a school for one or more of the above classes, if there are not less than five (5) children of any such class between the ages of four (4) and sixteen (16) [as to deaf children ten (10) to sixteen (16)] in actual attendance, the State Superintendent may grant permission to establish such school. For every child taught in any such school for the deaf, blind, or mentally deficient, holding a nine-months session, the State Treasurer shall pay to the district \$100 on July 1st succeeding. For each defective speech pupil, the law specifically provides for a pro rata payment of the same amount, when the term of instruction in the case of any pupil is less