Physical Factors in Mental Retardation

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FIVE HUNDRED AND THIRTY-FIVE NORTH DEARBORN STREET
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PHYSICAL FACTORS IN MENTAL RETARDATION*

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During the year 1918-1919, at the clinic for mental and nervous diseases, fourteen children were diagnosed mentally deficient and eighteen mentally retarded. A review of the statistics clearly emphasizes the importance of distinguishing between these two conditions. It was obvious from a study of the histories of the eighteen children that the question of acquired mental retardation was, unfortunately, scarcely ever the first consideration. The child who is "backward," who is "two or three years below the grade" of children corresponding to his actual age, or who has "not been promoted," who is "slow," "apathetic," "indifferent," "plodding," "mopey" or what not, is very likely to be convicted of feeblemindedness before he has been even superficially tried in a court of medical inquiry. Once regarded as mentally deficient, the next logical step is an institution, and therefore the problem of the retarded child is often visualized and at least potentially disposed of before a physical examination has been made. It was evident, too, from our cases that the important matter of such a child's future must not be decided by a psychometric measurement alone, however scientific and exact it may be. A mental test is only of relative value and should never be the primary factor on which judgment is based. If we had depended solely on such a restricted psychologic point of view, it would have been necessary to regard each one of our eighteen patients as definitely feebleminded and to have taken steps to have them placed in custodial institutions. Following the plan of making first a thor-

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ough physical examination and then intensively investigating every clue uncovered, we were able to determine that in eighteen, or 56 per cent., of all our cases, congenital mental deficiency did not exist at all, and in fifteen, or 84 per cent., of the retarded group, there were significant underlying physical factors on which the mental retardation depended. In other words, according to our experience there is more than an even chance that unless a careful search is made for possible physical causes, the diagnosis of true mental deficiency may be an error and the child may be mistakenly admitted to an institution for defectives. In our list there were six instances of congenital syphilis, including one with anemia and ozena; one case of chronic suppurative tonsillitis and valvular heart disease; one of rickets; one of angular gyrus lesion; one of hypopituitarism; and five children who, although they had no definite organic disease, were nevertheless markedly undernourished and underdeveloped as a result of economic and environmental conditions.

**TYPICAL PROBLEMS**

It is not within the scope of this paper to discuss exhaustively the histories of all these patients. Most of them present instances which may be duplicated in any large clinic. However, in no case was the condition obvious, and the basic factor would have been easily overlooked if it had not been carefully searched for. In this connection it is interesting to note that three of the syphilitic children came to the clinic with elaborate psychologic reports, which, however, disregarded the physical side of the problem. The child with ozena, a boy of 10, was shy, timid and almost seclusive. The fact that he was shunned by his fellow schoolchildren, on account of the nasal condition, shut him off from many of the usual avenues of learning and had much to do with his supposed "feeblemindedness." In a measure the same thing held true for a girl of 11 who had chronic tonsillitis and valvular heart disease, and was considerably below her proper grade. Not being able to enter into the play and games of the other girls, she soon found herself more or less alone, and reacted by gradually falling behind in her classroom work. Our observation of the entire group from the therapeutic standpoint leads us to believe that eleven
will eventually regain a normal level, and that most of
the others will show marked improvement.

Two of the cases are unusual enough to merit more
detailed description. They illustrate the urgent neces­sity of applying every advance and refinement of
modern medicine to the study of this group of patients.

Case 1.—Hypopituitary disease.—A. C., a girl, aged 12 years,
was brought to the clinic because she was "backward," "troublesome" and constantly being returned as "undesirable,"
by the various families with whom the aid society attempted
to place her. The consensus was that the child was forgetful,
sluggish in her movements, gluttonous, indifferent and sleepy.
She was so hopelessly outclassed at school that it seemed
useless to continue to send her. The girl was 61 inches in
height and weighed 165 pounds. On superficial observation
the skeletal overgrowth seemed generalized, but careful
anthropologic measurements brought out a decided relative
increase in the length of the long bones. There was a patho­
logic amount of adipose tissue, particularly in the axillae,
breasts, over the abdomen and in the gluteal region. The
temperature was continuously subnormal. The psychometric
measurement (Binet-Terman) gave a mental age of 7.5 years,
being a retardation of 4.5 years. The sugar tolerance was
extremely high: for sucrose, 400 gm. and for glucose, 325 gm.
Sugar could not be made to appear in the urine unless
pituitary extract was injected subcutaneously after the glu­
cose ingestion. Thyroid extract promptly produced mild
toxic symptoms. Doses of pituitary gland, varying from 30
to 300 grains daily, were given, and the effect noted and
paralleled with the blood sugar curves. Finally, the char­
acter of these curves changed to one which might be expected
in a normal individual, and, following glucose ingestion,
sugar appeared for the first time in the urine. Here was
an index of reestablished carbohydrate metabolism. We
assumed therefore, that we had determined the correct dosage
of pituitary extract, namely, 10 grains three times daily, which
will be continued indefinitely.

At present the child is much brighter and takes an almost
normal interest in life. She is no longer forgetful, gluttonous
or sluggish. She is with a private family and attends school
regularly, making at least the average amount of progress.
The outlook today is decidedly more hopeful than it was six
months ago, when an institution for mental defectives seemed
to be the only solution.

Case 2.—Ale sia.—W. O., a girl, aged 15, was brought to the
clinic because she was slow, indifferent, sullen, and had "no
intelligence." Her mother was discouraged about the future,
and requested that the child be sent to an institution. Physi­
cally there was anemia, and in one eye extreme hyperopia.
The patient was unresponsive, but finally cooperated to the extent of answering a few questions and performing some simple tests. It was at once noticed that while she had little difficulty in regard to general and current information, she was apparently unable to read or write more than a dozen single syllable words. A comprehensive neurologic examination revealed almost complete word blindness and agraphia. There was considerable difficulty in recognizing the letters of the alphabet, and B, D, M and N, and X and Z were often misread. There was neither hemianopsia, astereognosis nor sensory changes.

At this point a history of the previous condition was requested. It had not been submitted at the first interview because the mother's principal object in having the patient brought to the clinic was to determine the degree of mental deficiency and to decide whether or not she could be committed to an institution. I will now quote from the very illuminating report of the social service workers. "W. was apparently normal before having typhoid fever. She was inclined to learn too fast in school, and never had any trouble with her work. The attack of typhoid fever occurred in March, 1913, and was very severe. She was delirious much of the time. As far as I am able to gather, W. could not tell one letter from another after she had typhoid, and could not read or write at all. She knew they were letters, but could not tell one from another. She could not recognize even simple words, written or printed, or write from dictation. Last October (1919) she began to distinguish letters and could copy a few. 'Mother' was the first word she could write."

We felt justified in making a diagnosis of alexia. Possibly, from the description, the "typhoid fever" was in reality a meningitis and probably there had been an occlusion of the blood supply to the angular gyrus.

In subsequent interviews with this patient we were able to overcome much of her unwillingness to cooperate. We found that she had almost entirely withdrawn from the companionship of other children, because she feared that they would comment on her educational shortcomings. In a large measure her sullenness and apathy were the rather natural result of a combined shame and defense reaction in an adolescent girl, who found herself, through no fault of her own, cut off from the normal social intercourse which means so much at this time of life.

To have depended on an intelligence measurement alone in this case would have been utterly futile. Answers to questions involving a knowledge of reading and writing classed the patient as an idiot; on the other hand, some of the average adult tests not requiring these faculties were well within the scope of her mental powers.
This child has been under treatment for less than three months. The social service worker who has undertaken her reeducation reports considerable progress. She writes: "W. has been trying to read the cook book, and with a little help made out one whole recipe. She can read sentences in the first reader quite well and can spell quite a few words." The vocabulary has been greatly augmented and now the patient is able to write a short letter. We are planning a course at the Y. W. C. A. which should serve the double purpose of supplying her educational deficiencies and of establishing social contacts. There is still a lack of confidence, and her initiative and ambition need to be further stimulated. With this end in view we are seeking suitable employment for her. It seems reasonable to believe that this girl may be made a useful member of society instead of spending her life in an institution for mental defectives.

THE DIAGNOSTIC CLINIC IDEA APPLIED TO MENTAL RETARDATION

It is interesting to estimate the amount of medical effort required for the study and diagnoses of our eighteen mentally retarded children. In each case there was a neurologic, psychiatric and psychometric examination. Extensive consultation was necessary, and the internist, surgeon, laryngologist, otologist, rhinologist, ophthalmologist, gynecologist and surgical dentist were called into service. The clinical laboratory was asked to examine the urine, the sputum, the blood as a routine and for the Wassermann reaction, and the spinal fluid. There were roentgenograms of the head, teeth and other parts of the body. The biochemist studied the metabolism through chemical analyses of the blood, particularly with reference to carbohydrate tolerance as affected by the administration of endocrine substances. Basal metabolism was determined. At times it was deemed necessary to extend special medical and laboratory consultation and social service surveys to the families of the patients. Often results of intensive work along some of these lines were negative, and the sole contribution to diagnosis was the elimination of a more or less remote possibility. One must expect to wash much gravel before "pay dirt" is struck.

FEASIBILITY AND ADVANTAGES

I have briefly sketched the diagnostic clinic idea as applied to mental retardation. The idea is so simple
and so logical that it is surprising it has had such a
limited application. There are several questions which
may be fairly asked by physicians, trustees of hospitals,
legislators and the lay public, who must foster and
encourage the plan if it is ever to be put into general
operation. In the first place, is it feasible? The ques­
tion of the location of such a clinic would have to be
determined by practical considerations, existing facili­
ties, ease of access and distribution of population.
Probably the most direct method would be the estab­
ishment of a diagnostic center in one of the institu­
tions for mental defectives. Proximity to a large city
would insure an adequate consulting staff. The labora­
tory facilities would have to be sharply reorganized.
The intramural personnel should include, at a mini­
mum, a scientific director, a pathologist with an assis­
tant, a biochemist and a roentgenologist. To such a
scientific center the mentally retarded child would be
sent for intensive study. The ultimate object would
be to make a competent diagnosis and to decide whether
there was actual congenital deficiency which would call
for institutional care; or, if the condition was capable
of correction, the patient would be returned to the
community after contact had been made with an
agency which would supervise the details of treatment.
Such agencies already exist, and it would only be neces­
sary to broaden their scope. A further function of
such a diagnostic clinic would be the examination of
children referred to the various institutions for admis­
sion, and a survey of those already being cared for.
This would constitute a most valuable and productive
form of research.
What would be the cost? The initial outlay would
be considerable. A suitable building would have to
be erected. However, if this was planned in conjunc­
tion with a much needed new institution, the cost could
be kept within reasonable limits. If the work was
carried on at one, or at most two points, duplication in
the matter of staffing, equipment and maintenance
could be avoided. The entire expense would compare
favorably with the amount involved in certain projects
now being considered by various state legislatures.
Finally, is it really worth while? Entirely aside
from altruistic considerations, it seems highly impor­
tant for purely material reasons to reconstruct as many
of these children as possible. If mental retardation is preventable and correctable, as it often appears to be, then it is entirely reasonable to assume that the wastage involved in a failure to recognize conditions which can be corrected must in the end be returned as a tremendous economic and social liability. There remains the question of our duty in this matter. The individual who is suffering from a physical ailment, such as typhoid fever, pneumonia, tuberculosis or appendicitis, be he ever so indigent and dependent, has at once the advantage of every resource of scientific and modern medical and surgical research. The spread of the psychopathic hospital idea will eventually insure the same advantage to the mentally sick. Is the child, who through no fault of its own is mentally handicapped in the struggle for existence by the effect of some physical disease, to be denied a chance merely because such disease may be obscure and consequently difficult and expensive to discover?

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