A SERIES OF STUDIES OF NERVOUS AFFECTIONS IN RELATION TO THE ADJUSTMENTS OF THE EYES.

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THIRD STUDY.

A CASE OF IMBECILITY.

In the minds of people generally and, to some extent, in the minds even of members of the medical profession, feeble minded persons, backward children, imbeciles, are regarded as unfortunates to whom Nature has either been illiberal in its supply of cerebral material or to whom it has supplied such material in a degenerate form.

Again, the feeble minded individual is too often confounded with the idiot or with the subject of dementia. It is somewhat unfortunate that the line between imbecility and idiocy is not, in our literature, very clearly drawn, but, as a matter of fact, the idiot as well as the dement should be placed, each in a class clearly defined from the imbecile.

The idiot, as a rule, presents important indications of defective physical development of the nervous centres, either in the form of arrested cranial development, of malformation of some of the parts of the encephalon, of increased size of the cranium with abnormally developed contents, or of some other form of degeneration or of disease of the nervous centres. The dement is one in whom the intellectual functions of the brain, once normal, are injured or destroyed.

In the case of the imbecile, properly classified, while the encephalon may be of normal size and form, perhaps normally developed, the mind has been unable to coordinate or to assimilate the impressions received from the senses.

In considering these different states, therefore, we should take into account not simply the degree of mental incapacity but the physical development and
pathological basis of the defect when such basis exists.

For indicating the state of backwardness of imbeciles and idiots it is a present custom to compare the backward individual to the average infant of a certain age. Thus, a backward person of sixteen may be compared intellectually to an infant of three years of age. Were the incapacity of imbeciles about the same in all directions such parallels would be more useful and definite than they can be while the mental development of imbeciles or even of idiots are so often bizarre. For example, the idiot, Blind Tom, could appreciate the value and beauty of harmony and could execute upon the keys of the piano with the technique of a master. It would be difficult to compare such an individual with a normal child of any age.

It is my purpose in this paper to study, from a concrete example, the mental condition of children who, so far as can be seen, have normally developed bodies, with crania of favorable form and of average development. This class constitutes a very large and, I believe, a very hopeful proportion of our mental defectives.

That there is very frequent and intimate connection between the adjustments of the eyes of this class of persons and the backward mental state experience demonstrates beyond a doubt. In my essay for the Royal Academy of Medicine of Belgium, 1883, I called attention to this relation and to the great benefits which might arise from appropriate treatment directed to the conditions of the eyes. In the American edition of that work reproduction from photographs showed remarkable changes which had occurred both in imbecility and dementia from such treatment. That I was at that time able to see these relations in a more limited range than further experience has shown and that the treatment then pursued would now be considered as primitive and imperfect is true, yet the general thought, which so far as I know had never before been advanced, was correct.

That the imbecile may have a well developed cranium and that the physical elements of mental activity may be present while the functions of the mind are confused or undeveloped may be seen by exam-
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ining the pupils in schools for such unfortunates. To illustrate, I introduce a reproduction from a photogravure, not of one of my own cases, but preferably taken from one of several illustrations in the interesting and instructive article on imbecility by Professors Binet and Simon in L'Année psychologique.

Fig. 1.—Portrait of an imbecile, copied from L'Année psychologique, 1909.

authors who can not be suspected of any bias toward the view which I am advocating. The portrait, Fig. 1, is that of an imbecile, aged sixteen. The picture does not indicate deformity of body or of cranial development, nor do the authors mention any such deformity, unless, indeed, the name assigned to the patient is intended to indicate a defect.

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The girl can tell her name, point to her nose, but she cannot compare weights, copy a square, or count four sous. She has, according to the learned authors, the intellectual level of four years.

Applying ourselves to the study of this face, while we see no evidences of cranial deformity we do see the most striking evidences of unfavorable adjustments of the eyes. The compressed left brow and the elevated right one indicate as plainly as need be an extreme positive declination of the left eye with a lesser degree or possibly even a negative declination of the right eye. The lines below the left eye, the drawing of the mouth, the contour of the lower part of the face, all go to confirm this diagnosis. In the seven portraits found in the article referred to, every one shows clearly that, whether causative of the mental defect or not, false, and emphatically false, adjustments of the eyes are clearly the most conspicuous features of the face to one accustomed to observe the conditions of the eyes properly.

The relations which I wish to illustrate may well be studied in the history of the following case, a case not unlike many others in general features and in results of examination and treatment.

A CASE OF IMBECILITY.

Margaret, aged fifteen, was brought to me by Doctor Richard H. Conway Gibbons, October 12, 1908. The girl was one of the class of decidedly backward children, and her mental incapacity appeared about equal in all directions. She was apparently in good health and physically well developed. She was one of twins, her sister being normal in mental and physical development, the two sisters being about equal in the latter respect. Margaret did not learn to talk until she was a year and a half old and could not walk until she was three. As an infant she was usually well, passing through the ordinary contagious diseases of children without difficulty. Her mother thought that she did not observe any deficiency of mental development till the girl was about three or four years old.

When the children were sent to public school the teacher informed the mother that Margaret could not learn, that she did not see well, and did not comprehend what she did see. The eyes were examined, glasses were prescribed, and the child sent to a private school. Here again the teachers found her unable to learn and she was removed from school. After a year under private tutoring she was again sent to school with no better success than before. In the meantime she had learned to read indifferently under the instruction of the private tutor. At the time of my examination (at the age of fifteen) she could repeat parts of the multiplication table, but if asked 'how many are
three times two?" she could not tell. She had just re-
turned from Vienna and Paris to which places the parents 
had taken her in the hope of finding a way to improve her 
condition. She knew that she had been in Paris, but had 
no conception of the relation of Paris to France. In fact 
she would not concede that she had ever heard of France. 
In some respects, however, her memory appeared moder­
ately clear but she could not comprehend the relation of 
facts.

The measurements of the head were:

From the glabella to occipital protuberance, 15.50 centi-
metres; greatest interparietal distance, 13.50 centimetres; 
height from external meatus to vertex, 13.00 centimetres; 
angle of glabella, point below nasal spine and point of 
chin, +4°.

These measurements show a well developed head for a 
girl of her age.

Examinations of her eyes showed hypermetropia, for 
which she was using appropriate glasses. Of the condi-
tions of adjustment in other respects it was difficult to 
learn.

On some days, for a few minutes, I could obtain answers 
to my questions which appeared consistent, but a moment 
later all would be confusion and contradiction. On some 
days no intelligent answers could be obtained, as the girl 
appeared to be in a state of stupor.

However, on all days when the mind seemed to be some-
what clear great pains were taken not only to get tests re-
specting the adjustments of the eyes but to help her to 
understand form and direction. I furnished her with a 
quantity of modeling wax and tried to teach her to form 
marblelike balls, cubes, and pyramids. The experiment 
did not succeed. A "picture puzzle" of very simple design 
with only five pieces was given her. She was shown how 
to put the five pieces together and form the picture. The 
puzzle was taken home and on the following day she 
brung it with her, highly elated because she had put the 
 pieces together, but when she attempted to repeat the pro­ 
cess in my consulting room she could not do it.

I also attempted to teach her to draw simple lines. After 
trying a good many times to copy a straight vertical line an inch long she produced this:

I wished to use the knowledge of the position of a 
straight line, vertical or leaning in examining by the clino-
scope, and this result was discouraging. So also I wished 
to know about the relative positions of two images of a 
candle in using the phorometer, and to aid in the exami-
nation I would take two drawings. (Fig. 2.) When I 
inquired of her which of the two was the highest on the 
paper she would point, sometimes to one, then to the other.

It is noted in my records, on the ninth day, that although 
I had made diligent and patient attempts daily for the nine 
days to obtain the usual tests by the phorometer, by the
clinoscope, and by the tropometer it could not be said that I had obtained one even moderately satisfactory test.

In the meantime her mother assured me that Margaret was fond of pictures (paintings) and that while visiting the great galleries abroad she had shown much interest in certain paintings. Thinking that this fact, if it should be a fact, might prove to be an opening through which some instruction might reach the clouded mind I took her one day to the Metropolitan Museum of Art, not permitting her attendant to accompany her as I wished to have the whole attention of the child.

Leading her through the long galleries, stopping from time to time before some picture which I thought might appeal to the girl, I found no response which would lead me to the conclusion to which the mother had arrived. Yet there was perhaps an exception as we halted before a small picture of cattle, trees, a stream, and a fine sunset. The girl looked for a few minutes and in reply to my remarks about the cattle, the trees, and the stream, she said: “Isn’t it a pretty light?”

Passing further we came to a picture by Bouguereau called Brother and Sister. It suited my purpose better to call it Mother and Child. It appeared suited to appeal to the girl’s imagination, if she possessed such a faculty, and we seated ourselves in front of the canvas. In order that the reader may better follow the test I was about to make I have made a pen sketch from the painting which is here reproduced.

“How, Margaret,” I said, “I am going to tell you all the things which I see in the picture, then you may tell it all to me.”

In simplest language I spoke of the young woman and her child, mentioning her dress, the pose, the bare feet, the pleased look of the child with his apples and the satisfied look of the mother with the child. Each detail was pointed out clearly and emphasized. Then I said: “Now, Margaret, you may tell me all about the picture.”

And this is what she said while I wrote her words in my note book. “Well—that is a picture.” Yes, a picture of what? “Now that is a picture of trees.” Yes, there are trees but what else? “This lady is sitting there.” Yes. “And she is contented with her baby.” Yes, but tell me more. “There are straps on this lady’s shoulder.” But what else? “The lady has bare feet.” Yes, go on. “The baby has an apple.” Yes, how many apples? “The baby has an apple on this side.” Yes? “He has an apple on that side.” Yes, how many? “He has two apples.” That is true but tell me more about the picture. “Well, it’s kind of dark, kind of shady down on this side, down on this side at her feet.” But what else? “That’s all that I can see.”

Returning, we passed the small landscape with the cattle and trees and stream. I paused and the child looked at it
for a moment, then said: "Didn't we see it before?" Yes, "Isn't it a pretty light?" Here was the key which opened the child's mind to me. The figures had afforded her scant interest but the color of the sky, the "pretty light" was attractive.

A day when I could have obtained so reasonable an account of any thing as is shown above was rare. On No-

Fig. 3.—Brother and Sister (Bouguereau).

vember 16th, after more than a month of daily observation I did not feel sure that I had a single record of a test of the eye adjustments which was, by itself, worthy of confidence. However, by careful observation of the face and by summing up the probabilities of all the records I determined, with the approval of the parents and of Dr. Gibbons, to proceed with an operation on one of the eyes.

My diagnosis of the case was: There is very high grade declination of each eye. Ob-
jects seen are never still, never twice alike, always in confusion. The things of which she hears and the things which she feels are different from the whirling, unsteady things which she sees. Her senses are thus confused and, as she can not depend on them, the mind is also confused. If the confusion of senses were relieved the mind would work more true.

To the best of my judgment the girl had a positive declination of from 4° to 6° in the right eye and from 6° to 8° or more in the left.

At this time her weight was ninety-nine pounds. The operation was done for declination on the left eye, November 16th.

To my great satisfaction, from this time on my tests were not only worthy of record but they were quite uniform from day to day. The girl's mind appeared to be much more clear and she did not fall into states of profound dementia as she had done before.

With a view of testing again the mental state I took her a second time to the Museum of Art on the twenty-first of November, a month after the first visit and only five days after the operation. I had abstained from any mention of our first visit, and her friends did not know what she had seen. It is possible that she may have thought of the picture which we had discussed but I doubt that she had to any considerable extent. Passing through the galleries, we came to the picture which had occupied us before. The girl looked at it for a moment and turning to me inquiringly said: "Didn't we see that one before?" I replied that we had seen it before and she was told that I wished her to tell me all about the picture with no assistance from me.

She proceeded as follows: "Now, that is a picture of a woman sitting down there. She is a poor woman. She is sitting with her legs crossed, like that (suiting a motion to the words) and she has a baby on her lap." I will not weary the reader by the further description which the girl gave but it was good in detail, with a fair comprehension of the different elements. It was given with only an occasional prompting such as "Well," "go on," etc. As I was writing, the girl looked in my face and inquired where the woman lived. Then she said: "Well, the woman, can't she get up?" An attempt to explain the difference between a real woman and the picture followed and this was succeeded by the question: "Well, how long has she been sitting there?" Another attempt to show the nature of a picture and then the remark from the girl: "Well, I don't see how they can make the dress and her feet like that if she can't get up."

The poor child, was this the first time that she had ever observed perspective? Probably. It was a new sense, there was no experience behind it. If the foot and the dress stood out from the canvas why could the woman not get up?

I was able to do a second operation, this time on the right eye, on the twenty-second of December and from that time forward improvement in the mental state went on
rapidly. Three months after the first operation her weight was 118 pounds, a gain of nineteen pounds from November 16th to February 23rd.

Feeling that the girl should have instruction, but being unwilling that she should receive it mainly through the eyes, I advised the parents to secure an attendant who could converse with her in French, thus employing the ear as the medium of instruction. The progress made was satisfactory but there was an absence of a background, such as every normal child possesses, for the new things which she was learning, and instructors who can help such a child to such a needed background are rare.

Other operations for declinations followed the first two, which, naturally, could only approach to a rough adjustment.

The last record made was November 18, 1909, when there was, declination, right 0°, left +2°. This was soon after an operation and may not have shown, probably did not show, the whole defect remaining. During the eleven months after the first operation the progress of intellectual advance was not only rapid but steady. In general appearance and demeanor the child became so nearly normal as not to attract strangers to her defect.

Her parents determined to take her abroad and to place her at school where she might, by mingling with other pupils speaking another language than her own, learn that language. I had doubt of the wisdom of placing her at school, for the absence of the background of which I have spoken would place the girl at a serious disadvantage and perhaps lead to discouragement. Moreover, the demand which would probably be made upon the eyes might prove unfortunate, and again, few teachers are qualified to conduct the education of one who has, almost at a leap, passed from infancy to girlhood. I learned that the progress made at school was favorable for some months but I have had no news from her of late.  

It may be said, “Such a result was very satisfactory, but it does not establish a rule for other cases.”

To such a statement I would reply that it does establish a rule for the examination of other cases. This child had been examined in respect to her refraction and was using appropriate glasses. The examination had not been carried far enough.

The oculist who tests the refraction and then tries a few, not illuminating, experiments with a little glass rod before one eye of his patient and supposes that he has examined the adjustments of the eyes has not even entered into the subject of such an examination. In this case, a month of painstaking

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1Since writing this article I have received a letter from the girl’s mother confirming what I have said concerning the advance made at school, also confirming my reasons for doubting the expediency of placing her there. After several months of good progress the girl became so nervous that it was necessary to remove her from the school. Since leaving it she has recovered from her nervousness.
examinations with the phorometer, the tropometer, the clinoscope, and other instruments, accompanied by patient attempts to instruct the patient, resulted in only the most moderate success, but such moderate success, when combined with observations upon the facial expression and bodily pose, observations based upon those of many hundreds of other cases, enabled a diagnosis to be made which proved to be correct.

I have no statistics to offer, but if the observations which enabled me to see correctly the conditions underlying this case are of any value, I would say that an extremely large proportion of the cases of imbecility belong to the class to which this child also belonged.

Should the man arise who, with an institution at his command, could, with scientific skill and philosophical patience, examine and treat these defectives on a larger scale, he would soon revolutionize the views of the medical profession in regard to a great class of most unfortunate persons for whom to-day medical science offers no hope and no encouragement, except such as is found in the schools for the incurably feeble minded, a poor substitute indeed for a sane mind in a sane body, the boon which science should and could afford.

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