fœtus they are larger in proportion to the body weight than in adult life. They also appear to lack the blood pressure, raising secretion during fœtal life. Of the thymus and its functions and secretions but little is known, but fr m the fact that it consists of lymphoid tissues analogous to the spleen, it is possible that it does not form any secretion, but is an accessory to the circulation; its persistence into adult life has been noted by Ohnmacher in epilepsy and is the rule in Basedow's disease. In twenty-eight mentally weak children examined by Bournèville the thymus was absent in twenty-five.

Whatever may be the function of these glands during fœtal life it is evident from the absence of their post-natal secretions that it must be different from that function in the child.

Roger and Garnier have examined the glands of many children of syphilitic and tuberculous parents, and have found pathalogical changes which presumably would affect their functionation. In the writer's book, "The Thyroid and the Parathyroid" (Williams and Wilkins, Baltimore), the changes in the thyroid are given in detail.

Incomplete and hypothetical as this paper necessarily is, it is hoped that other workers in the field of the etiology and pathology of mental insufficiency will contribute their experience and those—and there are many of them—who are of opinion that nothing is to be done for this unfortunate class but to feed, clothe and employ them, will be stimulated to work at the problems under discussion and do their utmost to bring happiness to a helpless class as well as to relieve the state of an apparently ever-increasing burden.

HOW THREE BOYS LEARNED TO TELL TIME

MAUDE STEWART, TEACHER, MINNESOTA SCHOOL FOR FEEBLE-MINDED, FARIBAULT, MINN.

I BEGAN time work with Raymond H. October 1st. He knew the common numerals at sight but not the Roman numerals. He could count to sixty by ones and also by fives. His first lessons were in telling the difference in top and bottom of clock. It took him one *week* to tell which was top and which was bottom at a glance, and to always hold clock face right side up. He had a clock lesson every day during the month of October. Of course it was short; sometimes five minutes, and sometimes ten. He learned that the clock had two hands like himself, but that unlike his own, one was shorter than the other. Then he was ready for the *fact* that the short hand told the hours and the long hand the minutes. He was soon able to tell any even hours either on the clock face or clock.

One day his lesson was to draw circles and mark off half circles, and quarters. Another day he cut circles, halves and quarters. He drew day after day all sorts of articles and cut in halves and quarters. We talked about pies and cakes and literally cut cookies in halves and quarters playing they were clock faces.

Following this drill Raymond cut a circle and marked off half and put numbers twelve and six at half way mark. He also drew the quarter line and put number three and number nine at quarter mark. "After" was written besides three, and "before" beside nine. Then the common numerals were changed to Roman numerals, and it took another week of hard work for him to recognize at a glance the first twelve Roman numerals. We took up the clock face again. The words after and before were erased, and by November fourteenth Raymond could tell the hours. Much drill then followed in telling five. ten. fifteen, twenty and twenty-five minutes before and after any hour.

Some days the teacher set the hands and Raymond told the time. Other days the time was announced by the teacher and Raymond set the hands. Care was always taken to turn the hour hand a complete revolution every time. Twenty and twenty-five minutes before and after were hardest for Raymond to master. By the tenth of December he knew five, ten, fifteen, twenty and twenty-five minutes before, and after any hour. That day he was allowed to wear the teacher's watch. He counted the minute marks on the clock, and learned in that way that sixty minutes make one hour. By January first he could tell time to a minute without hesitancy, on clock face, clock or watch. He does not stop to count every minute but knows five, ten, fifteen, etc., and adds or subtracts one. two. three and four to and from them.

Ignatius S. also began his clock lessons the first of October. He knew the common numerals but not the Roman numerals. Could count to sixty by ones, but not by fives. Similar drill work was used in teaching Ignatius the hours, half hours, quarter hours; only it took more of it and had to be repeated oftener. By January first, Ignatius had learned to tell the hours, half hours and the quarter hours. His next lesson was to count by fives to sixty and to write by fives to sixty. Another day he learned and wrote

5 rnin. after=I; 20 min. after =IV;
10 " " =11; 25 ' ' =V;
1/4 or 15 " " =111; 1/2 or 30 " " =VI.

Later he made a half circle with the Roman numerals and recited, "My clock says five minutes after something, when the big hand points to I," and so on to all the numbers. Then he took up the clock face and fixed the hands himself at five, ten, fifteen, twenty, twenty-five and thirty minutes after, as I called the minutes. By January twenty-seventh he had gone over the same work for minutes *before,* that I have described so minutely for minutes *aft»r* any hour. He needed a great deal of drill to tell whether the clock said twenty-five minutes before or twentyfive minutes after any hour. But at last, by February fourth, he could tell time without any trouble.

Alfred S. has proven the most apt pupil. He learned to tell time in one month. He proves the rule, that these defective children learn to read much more readily than they learn arithmetic, by being the exception. Perhaps that is one reason for his taking up time so quickly. He began work April second. We talked about faces ours and the clock's—talked about hands—

ours and the clock's—ours the same size—clock's different length. He, 1 knew common numerals, but not Roman. By April fifteenth he could tell hours, half hours and quarter hours. The same methods were used as described in the other cases. The third of May Alfred could tell time on any clock or watch without a mistake. Others in Class "A" have learned to tell ime during the year, but these three cases illustrate method used and length of time required.

JOURNAL OF PSYCHO-ASTHENICS.

VOL. VIII DECEMBER, 1903-MARCH, 1904 No. 2-3

ORIGINAL ARTICLES.

MENTALLY DEFECTIVE CHILDREN IN THE PUBLIC SCHOOLS.

WALTER E. FERNALD, M. D.,

SUPERINTENDENT MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED.

PUBLIC school classes for mentally defective children were opened as early as 1867 in several German cities. In Prussia since 1880 these special classes have been obligatory in cities of twenty thousand or more inhabitants. Norway, Sweden, Denmark, France and Switzerland have made similar provision.

In England a class for defective children was established in London in 1891 in accordance with the suggestion in the report of the Royal Commission of the Blind, Dumb, Deaf, etc. Afterwards other classes were opened in Leicester, Bradford, Birmingham, Bristol, Nottingham, etc. General interest in this subject was awakened by the remarkably able reports of Dr. Francis Warner in 1889 and 1894 concerning the mental and physical condition of one hundred thousand school children, which showed among other things that at least one per cent of these children were so deficient mentally as to need special instruction.

The report to Parliament in 1898 of the "Committee on Defective and Epileptic Children" discussed the question in great detail and recommended certain definite legislation, which finally crystallized into the Parliamentary Elementary Education Act of 1899 which provides power to determine what children are defective; provides for an extra grant of money for the maintenance of special classes or schools for defective children; provides for compelling feeble-minded children to attend these special classes and generally provides for the management of these schools by the local school boards.

A few quotations from the admirable 1898 report will illustrate the sharp distinction made in England as to the use of the term "imbecile" and "feeble-minded."