

The Mentally Retarded Child

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THE MENTALLY RETARDED CHILD

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A GUIDE FOR PARENTS

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*Dedicated
to the memory
of our son*

Julian David,

*physician, research worker,
friend of children*

*His untimely passing
shall not be in vain*

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—A.L.

Introduction

Parents of retarded children have long needed a handbook wherein to find guidance for their peculiar problem. Out of his long and wide experience, Dr. Levinson now meets the need with information in terms that the lay reader can understand, and with wise advice. He is putting into daily practice the ideas and methods he advocates in the clinic of the Dr. Julian D. Levinson Research Foundation, in Chicago, which was established in memory of his son. Such clinics are lacking, and sorely needed, in many cities throughout the country. As Dr. Levinson points out, too little is known about mental retardation, its causes or its possible cure. It is well for parents to realize this, for in their own need they may and should find the impetus to make their sorrow contribute to the cause itself. To retire from the situation, practically or emotionally, to regard their child as an isolated case, is a childish act in itself. When accident brings parents into the arena of disaster, where many others are to be found, the impulse to shut one's self away, to give up, to ignore the facts, must be strongly and sensibly resisted. Experience must be put to general use.

For it is the tradition of an intelligent and modern civilization to accept facts as they exist, to learn what

they mean, and then to search for solutions. Primitive and degenerate civilizations eliminate the weak, the different, the dependent, but advanced civilizations have always cared for the weaker members as a matter of course. Indeed, the test of a civilization is to be found in such attitudes. Religions of every people teach the same principles of mutual support and co-operation, and it is interesting to know that those civilizations which have cherished most tenderly the young and the aged are those which have continued to live, long after their more spartan contemporaries have ceased to exist.

It is a matter of necessity, therefore, that we should undertake the research and study necessary for understanding the many forms of mental retardation and the prevalence of the problem. So little has been done as yet, that all parents who are drawn into this vast family of the afflicted should feel it their duty and privilege to contribute what they can of time and money to those who are best fitted to carry on the actual work of research.

In so doing, the parents themselves will find their greatest comfort. If sorrow has any meaning, it is that its causes may be removed so that others need not suffer a like fate. This is the impulse of the normal and humane mind. It is perversion to wish or even to allow others to undergo a fate which can be prevented, if we who know it will devote ourselves to the means of prevention.

If I have anything, therefore, to add to this helpful book, it is to urge upon all the parents who, read it that they let the little child who now crushes their hearts with grief lead them into new determination, that despair may be changed to energy, in the hope that

other children yet to be born may enter life without the handicaps from which perhaps their own child can never be freed.

This, indeed, is the history and the secret of human progress.

PEARL S. BUCK

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Foreword

Parents of mentally retarded children are pathetically anxious to get information and guidance. In many years of contact with them in clinic, hospital, and private practice, I have been deluged with questions from frantic mothers and fathers:

"Why did this happen to us?"

"Was it our fault?"

"Is it hereditary?"

"Is there anything we could have done to prevent it?"

"Will other children we may have be afflicted the same way?"

I have seen them often: poor, distracted, helpless parents, seeking counsel, guidance, encouragement. I have known many of them who spent day after day in the library, wading through dozens of medical books and articles, but they have always returned with the same story:

"We don't know what to do. The more we read, the more confused we get. Where can we find information that will help us? We want to know more about the subject. We don't want to live in darkness."

It is with these parents in mind that I have undertaken the writing of this volume. I have tried to cover the various phases of mental retardation. I have en-

deavored to transmit to the parents of a retarded child, in as simple a form as possible, some of the medical facts I feel they should know. I have attempted to tell them what they can do for their child and for themselves; how they can help the physician and the psychologist reach a diagnosis and outline a program for their child. I also want to acquaint them with some misconceptions that make life miserable for the parents. Above all, I want to stress the fact that not every case of mental retardation is hopeless, that in certain types of retardation something can be done both medically and educationally. At the risk of criticism, I dare say that something can and should be done for every retarded child, not with the hope of effecting a cure, but with the thought of improving the child medically, nutritionally, and educationally.

If I can light up some of the dark corners of the lives of parents of retarded children by giving them information or counsel that will help them bring their children out of the shadow, I shall be grateful indeed. If, in addition, I can give them courage and moral strength to carry their heavy burden, I shall feel more than amply repaid.

Since this little volume is intended not as a textbook but as a guide to parents, it has been necessary to repeat some of the subject matter in various chapters. For instance, certain topics, like mongolism, cretinism, lead poisoning, are discussed under the headings of cause, diagnosis, treatment, and management. This overlapping of material is unavoidable in a book dealing with technical information presented in popular language. The occasional repetition was also intended as a help to

the reader so that he would not have to refer to previous chapters on the subject under discussion.

Although the book is intended mainly for parents, I hope it will be found useful by professional people—psychologists, social workers, teachers, and physicians. I trust that it will also prove of interest to the general reading public, for mental retardation should be the concern of more than the individual parent affected.

Mental retardation is a sociological problem of national magnitude.

THE MENTALLY RETARDED CHILD

CHAPTER 1 The Parents of the Mentally Retarded Child

To make this book truly a guide for parents, we must start with the parents themselves, particularly with their attitudes and adjustments. To help the parents of a retarded child cope with their problem, and to assist them in keeping up their own morale, is the purpose of this chapter and the one following.

The tragedy of mental retardation strikes the parents much harder than it does the child. In fact, the more retarded the child, the less he realizes his condition. More often than not, he is blissfully unaware of the cloud under which he is living or the suffering he has innocently inflicted on his family.

Parents go through many reactions in the rearing of a retarded child and in their struggle with their misfortune. Confusion, shock, guilt, bitterness, envy—parents have felt them all at one time or another as they have grappled with their problem.

Confusion

Although parents often suspect that something is wrong with their child and even have tangible proof of the fact, many of them are afraid to face the truth. Like people in the early stages of cancer, they fear reality, and because of their fear they put off seeing the doctor

as long as they can. Instead of meeting the situation they go through a lot of wishful thinking:

"It can't be! I'm sure he'll outgrow it. He's just a little slow, that's all."

They are in a state of indecision, bewilderment, confusion.

Shock

A time comes, however, when parents can no longer blind themselves. Then they decide to see a physician. They consult the physician because they feel that something is radically wrong with their child's mental make-up. Yet, when they hear the verdict from the doctor, they are terribly shocked. Although the doctor's diagnosis merely confirms a suspicion they themselves have had for a long time, they just "can't take it."

I can understand the ordeal parents go through when they are told their child is mentally retarded, for I find it an ordeal also, just to have to break the tragic news to them. No matter how tactfully, no matter how gently I try to explain the situation to them, I know it is worse than a death knell to many parents. Some never recover from the shock; others go about dazed for weeks and months, unable to make peace with their tragic situation or resign themselves to it.

Refusal to Accept Verdict

The reactions of parents following the shock depends upon their physical and mental make-up and their general outlook on life.

Parents of mentally retarded children, like all individuals, differ in temperament. Some are so tense that one cannot even discuss their problem with them. Some

seem calm outwardly, but seethe inside and are so pent up that they often collapse after their first visit to the doctor.

Some parents at first refuse to accept the statement of the doctor that their child is below par mentally. They even try to convince the doctor that there is nothing wrong with their child, that he is just not understood. There was a child brought to me who was obviously retarded, but his parents argued with me and tried to convince me that he was bright. I finally asked them why they brought the child to see me if nothing was wrong with him. Only then did they admit that they thought "there might be a little something" the matter with him. These are the parents who suffer the most.

The following excerpt from a letter written by a mother is so characteristic of the attitude of some parents of retarded children that I shall quote from it verbatim.

All the doctors told us that our little girl is a Mongoloid and that she will never grow mentally but we just can't believe they are right. To us she looks like our other two children when they were babies. She does have a look about her eyes, though, that kind of worries us, they're slanty like. And sometimes we even think she may be blind, because she doesn't respond or smile like most babies her age. There *is something* we feel, but we pray that the doctors are wrong.

Over and over again, I have encountered that paradoxical reaction among parents. On the one hand, there is the refusal to accept the doctor's verdict and, on the other, there is the realization that something is wrong with the child.

I have known parents who became so infuriated at the physician who told them their child was mentally retarded that they never overcame their animosity toward him. I recall a mother, who, on being told by the psychologist that her child's mental rating was very low, snapped back at her with, "What can you expect when you ask him the wrong questions?"

Shame

The most frequent complex parents of mentally retarded children develop is one of shame. They are ashamed to face their neighbors, their relatives, their friends. It is the shame complex that makes some parents hide their child behind closed doors. They do not realize that you cannot hide your troubles, that in trying to do so you only arouse suspicion. The next thing you know a whispering campaign gets started and all the gossips' tongues begin to wag. In other words, you encourage the very thing you wish to avoid.

Guilt Complex

Many parents of mentally retarded children suffer from a guilt complex that really has no foundation. They dig up all the skeletons in their family closet in their anxiety to find the source of their trouble. Epilepsy three generations back, a granduncle who was in an asylum, a cousin who married her first cousin, a nephew who had syphilis—they try to hang their present misfortune on anything and everything.

Parents frequently blame each other for their affliction and disagree on what should be done for the child. "My husband thinks I'm crazy running from doctor to doctor, that it's a hopeless case from the beginning. But

I'll never give up hope and I'll continue to try in spite of all opposition." The tragedy that should bring parents closer often ends in quarrels, separation, and even in divorce and the breaking up of families.

The guilt complex is often accompanied by a sense of inferiority, of inadequacy, of failure. This results in withdrawal from society. The mother, who may have been a very sociable person previously, shuts herself up with her trouble. She becomes a recluse, refusing to see or to be seen by friends and neighbors.

Bitterness and Envy

The outstanding reaction on the part of many parents is one of bitterness, resentment, and envy.

"Why did it have to happen to us?"

"Why is everybody else's child normal?"

The higher the intellectual or social scale of the parents, the more resentful their attitude.

"My husband and I were both Phi Beta Kappas. We were both honor students right through college. We have teachers, doctors, lawyers, and writers in our families on both sides. I just can't understand it! It doesn't make sense!"

No, it doesn't make sense. Nor can one always explain why it happened or how. The situation is there, however, and must be met. Just being bitter and envying every mother who has a normal child is not going to solve the problem.

Overprotection and Rejection

The attitude parents take toward their mentally retarded child varies considerably. Some are so sorry for him and so overwhelmed with pity for him that they

overprotect him and shower him with affection. Others go to the opposite extreme. They reject their child and show their displeasure and resentment toward him. I know one father, a professional athlete, who prides himself on his manly strength. He always looked down on weaklings and now that he has one in his own home, he rebels against it. I know another father, a college professor, who is ashamed to admit that he has a son who cannot even learn the ABC's.

Rejection is not limited to the father. Some mothers also reject their retarded child. Recently, a mother brought her boy to the clinic for examination. She insisted that he be institutionalized. Even after we convinced her that the boy was definitely educable, she still was adamant that he be sent to an institution. We learned later that she was planning to remarry and didn't want to be encumbered with a child that required so much of her time and attention.

Adjustments

There was a time, and not, so very long ago, when parents of a retarded child found it almost impossible to adjust themselves to their trouble. They looked upon their tragedy as an affliction, a curse, a mark of shame that only death could erase. For the few that resigned themselves to their trouble uncomplainingly and without rancor, there were thousands who went about with feelings of envy, broken pride, guilt, and resentment.

Can you blame them?

You certainly cannot blame them after you have heard them tell of the agonizing experiences they went through in seeking help and cure for their child—how they ran from doctor to doctor and how often they

were dismissed with a shrug of the shoulders and the cold ultimatum, "Send him to an institution and forget about him!"

Parents do not forget about their child so easily. The more helpless the plight of their child, the more they remember him and care for him. They are not anxious to get rid of their child no matter how much trouble he may give them. That is why they do not act on the first cruel order that sends a shudder through their hearts. They start on a long, exhausting trek to seek more advice, more hopeful counsel. They carry with them, hundreds, often thousands of miles, the child, hard to manage, hard to keep quiet; the child who doesn't know what it is all about; the child who evokes pity and scorn and curious glances everywhere.

From one city to another they trudge, from one clinic to another, from one specialist to another. Everywhere they are confronted with the same verdict. "There is no hope. There is no cure for your child. Send him away as soon as possible!"

No wonder parents become despondent, discouraged, heartsick. And yet they refuse to give up. They grasp at every straw; they try out every remedy held out by quack and charlatan who wax rich on their affliction.

There seems to be no end to their misfortune. They lose not only their courage and their morale, but all the financial reserve they have. Many of them pile up debts which take a lifetime to pay.

Now, however, this dismal picture is giving way to a much more hopeful one. People everywhere are becoming interested in the problems of parents with retarded children. Physicians, educators, research workers, and the public generally are awakening to the realiza-

tion that the question of mental retardation is one for which they must supply the answer for the parent who has the problem in his home.

Best of all, however, the parents themselves are finding their personal adjustment and salvation in the efforts they are making for their own children and those of others similarly affected. They are banding together everywhere, establishing schools, organizing study groups, holding conferences, disseminating information. In doing so, they have got a new lease on life. They have become leaders in a movement that is bringing them and their children out of the shadow and into the sunlight of a new world—a world that offers warmth and help and hope for their child.

CHAPTER 2 Advice to Parents

Parents must realize that sooner or later they have to face the situation and the sooner they do, the better for all concerned. They have to learn that bemoaning their fate is not going to get them anywhere, nor is it going to help their child in any way. They should do everything possible not only to adjust their child to the conditions under which he has to live but to adjust themselves.

Parents must stick together in their trouble. No solution can be found if each pulls in a different direction. It is a hard, rocky road at best, and mother and father must travel it together, hand in hand, to reach the goal.

To those parents who rack their brains and search their consciences with a fine comb, we say, "Stop tormenting yourself and listen to advice that will make it easier for you to live with your trouble."

There is not a single family that has not suffered some deviation from the normal at one time or another. If mental retardation could be placed at the door of iniquity, on the part of some member of the family, we would have mentally deficient children in every family.

As for worrying about what the neighbors will say, forget about that entirely. The neighbors are too busy with their own troubles to bother about yours. And don't envy them. They may have troubles far worse

than yours. Above all, don't try to convince your neighbor that your child is as good and as smart as hers. She won't believe you anyway. Don't go to the other extreme either, of trying to get sympathy by airing your troubles in public. People won't keep your secret for you. They'll only spread it around and smooth it over with false pity. You don't need their pity, their sympathy, their counsel. When you want advice about your child, go to your doctor who will help you without betraying your confidence.

Medical Program

The first thing that parents should do in planning a constructive program for their child is to get a diagnosis and a complete evaluation of his condition. They should put their faith in a physician whose opinion and judgment they value, and then be guided by what he tells them. Running about from one physician to another, from one psychologist to another, will get them nowhere. Above all, parents should beware of the unfounded promises of unscrupulous persons for a quick and miraculous cure for mental retardation. There is no such thing. You will find the physician you choose ready not only to give you the best service he can, but to see that you get any other assistance you need from reputable specialists.

As will be pointed out in a subsequent chapter, making a diagnosis of mental retardation is not easy. The determination of the cause is still harder. Parents can help the physician in both tasks by being realistic and not trying to overrate their child's ability. They should help the physician by giving him as objective a picture

of their child's condition as they can, with as little emotional coloring as possible.

The parents should follow the medical program the physician outlines for them, particularly as to the general nutrition, the care of the teeth and gums, and the correction, wherever possible, of disturbances of vision and hearing. They should learn what to do in case of convulsions. They should bring their child to the physician for regular periodic examinations.

Play

It is important that the child have a yard in which he can play and get his outdoor exercise. He cannot play in the street or go to the playground himself like the normal child. For his own safety and his mother's peace of mind, it is therefore best that he should play in his own back yard. If there is no yard, there should at least be a front or back porch on which he can play and be kept out of harm's way. It is advisable to have his play area protected by a fence or gate so that he cannot roam away and get lost.

The mentally retarded child is often hyperactive, restless, and destructive. It is therefore advisable that he have not only a large, open space where he can play and have freedom but he should have toys to play with that are large and can stand rough handling. The toys for the mentally handicapped child should be chosen with his physical and mental limitations in mind. They should not have sharp edges or be made of pieces that come apart easily. Toys that can be fitted into large grooves and toys of various colors and shapes are very good for their educational value and for the practice they give the child in co-ordinating eye and hand

muscles. Pull toys, little wagons, a bicycle that is easy to manage, are also to be recommended for the opportunity they give the child to move around and get exercise in walking, jumping, and running.

Another matter that calls for special attention is that of the furniture and the furnishings in the house. The less furniture there is for the child to stumble over or to destroy, the less heartache the mother will have. Most children are careless and destructive, the retarded and unstable child particularly so. My advice to the mother is to have no fancy lamps to turn over, no expensive bric-a-brac to break, no dangling wires to trip over, no precious tables to mar. It will be healthier for the child and for the mother if the furniture and home decorations are kept as simple as possible.

Educational Program

In their anxiety to do their best for their child, parents must be careful not to push him beyond his capabilities. It is better for a child of ten, whose mental capacity is limited, to be in second grade and do well than it is to put him into the fourth grade and have him become frustrated because the work is beyond him. The frustration and emotional disturbances which might ensue would only complicate the problem.

Tutoring the child to bring him up to grade also has its limitations. It can be overdone and may overburden him. Education cannot be jammed down a child's throat, and to attempt to do so is foolhardy.

Parents often make this mistake even with normal children, forcing them through long years of schooling beyond their capacity. The results are much more dis-

astrous when a mentally retarded child is compelled to strive for what he will never achieve.

The trouble with many parents is that they take the normal child as their standard for comparison. This attitude upsets both the parents and the child. Parents should consider the child at his own level and let him develop at his own pace. It is his individual mental growth that counts and not the standard rate.

The following case illustrates my point:

A four-year-old child was brought to me for examination. I found him to be in poor physical and mental condition. He soiled his clothes; he did not sleep well; he was destructive and boisterous. After a pneumoencephalography, which relieved the pressure on his brain, there was a spectacular change in his behavior. Today, at the age of five, one year later, he is attending a nursery school for normal children where he is making unusual progress.

The mother is very happy about the improvement. The father, although admitting the progress his child has made, is worried that at five, his son is only in nursery school instead of kindergarten. In other words, the father is comparing his child's status with that of the average child of his age, instead of comparing his present condition to what it was a year ago.

Education At Home

If the child is not seriously retarded, the mother can do a great deal for his education at home. If she is not too tense and does not get out of patience with him because he is slow in learning, she will be able to accomplish much in her own way.

Since the average retarded child cannot absorb book

learning and cannot "make the grade," so to speak, the mother does not have to be a trained teacher or a college graduate to make progress with him. Patience, understanding, and ingenuity are much more important as part of the mother's equipment than scholarship or a university degree.

The mother should not attempt to teach the child at his own age level. It is the educational capacity and not the chronological age that must be taken into consideration. Not much equipment is needed for a start. Colored paper, crayons, pegs, blocks, clay, offer endless possibilities for creative activity. Through these media, the child will learn all the fundamentals of color, size, and number. Simple games, poems, and songs that can be found in any books for children can be added to the primary material as soon as the child is ready for them.

For the older child who is only moderately retarded, a globe, road maps, and weather charts are useful. Building, hammering, woodcutting are popular forms of activity with the boys; sewing, cooking, and weaving, with the girls. One should not expect precision or perfection in the work turned out by mentally retarded children. If they learn co-ordination even in the smallest degree and concentration even for a short period, it is something accomplished. Whatever they do should be done under supervision, especially when they are learning something new. That is particularly true if they are permitted to cook or to cut, which can be dangerous if they work without supervision or guidance. Above all, they should be encouraged and praised for any accomplishment so that they will feel that they have achieved success in what they are doing.

Some parents make the mistake of helping their re-

tarded child with chores he can do himself. They should let him do whatever he can and assist him only when necessary.

Firmness

The age-long question as to whether children should be disciplined comes up in connection with the mentally retarded child as often as it does with the normal child. It is unwise to overprotect or spoil any child, whether he is retarded or normal. If the child is so retarded that he does not understand what is expected of him, it is of little avail to try to discipline him. Most retarded children, however, can understand simple directions and realize when they are disobeying. One can be firm with them without being too severe. Rewards are more effective with the retarded child just as they are with the normal child.

Emotional Problems

The idea appears to be prevalent that only very intelligent people have emotional problems. The fact is that emotional disturbances are frequent among the mentally retarded, even the youngest of them. Most emotional upsets among the retarded are expressed in fear and rage. These outbursts must be treated with understanding, sympathy, and firmness, to an even greater extent than those of the normal child. When a child has a tantrum it is best to let him get over it, otherwise he becomes more infuriated. If the child's mentality is high enough to understand, he may be talked to after he is over his tantrum. The retarded child, as does every other child, craves love and affection and thrives on them. If he does not receive them and is repulsed,

he becomes upset, frustrated, and unmanageable. He looks to the mother for everything the world has denied him—care, help, protection, and affection.

Subsequent Children

"Should parents of a mentally deficient child have other children?"

My answer to this question is "Yes!" except in cases of Tay-Sachs, known as amaurotic family idiocy, that may repeat itself in other children, or when there is already more than one retarded child in the family, no matter what the cause. The question of subsequent children, where the first child is a mongoloid, is often raised. Since the consensus of opinion today is that mongolism is not hereditary, I recommend having more children. However, I advise the mother to have a basal metabolism test before her next pregnancy as there might be some relation between metabolic disturbances in the mother and the mongolism. When the mental retardation is due to hypothyroidism, I insist on the mother having a basal metabolism test before she becomes pregnant again.

Nothing pieces together the lives of parents who have had a subnormal child more than the birth of a child that is normal. It not only gives them the happiness they thought they would never have again, but it raises their self-respect and confidence that have fallen to a very low ebb with their earlier misfortune.

Brothers and Sisters of the Retarded Child

When there are other children in the family, the problem of the retarded child becomes more complicated. The two questions that come up most frequently are:

1. Should the other children be told of the condition of the retarded child?

2. Should the retarded child be kept at home with his normal sisters and brothers?

The answer to the first question is in the affirmative. They should be told at one time or another. It is much better for them to hear the truth from their own mother and father than to learn it from an officious neighbor or a taunting playmate, just as it is better for them to learn the facts of life at home than from the "gang."

When they should be told depends in great measure on the reactions the sisters and brothers show to the mentally handicapped child. If they notice something is wrong and ask what it is, they should be told the truth immediately. If the children do not ask what is wrong, it is best to wait until they are a little older.

The answer to the second question, whether the retarded child should be kept at home with his sisters and brothers, again depends upon their reactions. If they love their helpless sister or brother, they will certainly learn the lesson of true altruism in their contacts with him. Many children become partners in their parents' troubles when allowed to share them. They will also become more understanding and more helpful just as they do when they are asked to help in the care of a new baby, who, they feel, needs their protection. One must be careful, however, not to permit the normal children to overdo their sense of responsibility. I know two sisters who sacrificed their personal needs and jeopardized their future to cater to every whim of their subnormal brother.

The mother, with the best intentions in the world, may make the mistake of showering too much affection

on her retarded child and giving him too much of her time. The other children are apt to grow resentful toward their retarded brother or sister because of the mother's overprotective attitude. To prevent development of complexes in normal children, it sometimes becomes necessary to remove the retarded child from home and send him to boarding school, at least temporarily. The mother must exercise tact and judgment in such instances. She should not neglect her normal children and she should be careful not to show her mentally handicapped child too much love or attention in their presence.

Home versus Institution

It is the privilege of parents to keep their retarded child at home, and every effort should be made to help them do so. However, in the case of a retarded child for whom little can be done, a child who disrupts the life of the family and makes a slave of the mother, parents would do well to institutionalize him. Once parents have been convinced that this is the only solution to their problem, they should try to resign themselves to the idea and attempt to adjust their lives by finding happiness in their other children or in helping others.

I have seen homes and families disrupted because of a mentally retarded child. I have seen mothers who lost their health and their youth in an effort to keep a child at home that should have been sent to an institution years before. I have met fathers who worked themselves to the bone so that their mentally retarded child could have expensive schooling he could never absorb.

Most of the sacrifices made by parents are prompted by the most unselfish of motives. They should not be

made, however, at the expense of an entire family for a child who is too far gone mentally to know the difference between his home and an institution.

Sacrifice is a great human virtue but it is one that can be carried to an extreme. There is no point in sacrificing one's self when nothing is gained and no one is benefited thereby.

Ten Commandments for Parents

1. Get medical advice early and follow the program outlined.
2. Don't adopt a defeatist attitude.
3. Don't develop a complex of shame or guilt.
4. Don't neglect your normal children because of your retarded child.
5. Don't pauperize yourself to give your child the best.
6. Don't push your child beyond his capabilities.
7. Try to meet your child's emotional problems.
8. Don't be afraid to have other children.
9. Do not covet the child of your neighbor.
10. Help further the cause of the mentally retarded.

CHAPTER 3 Historical Survey

It is a far cry from the ancient to the modern concept of mental retardation. We have gone a long way since the time when all mentally retarded children were believed to be possessed by the Devil who could be driven out only by magic and prayer. Mental retardation, today, is no longer regarded as the curse of an evil spirit or as a disgrace, but as a disease like any other disease. As such, we are prepared to attack it with scientific methods of diagnosis, prevention, and treatment. Not so long ago, most mentally deficient were classed as idiots. Now we classify them according to the various levels of their mental ability.

What has brought about this change of attitude?

The answer to this question can be found in the story of the efforts on behalf of the mentally retarded. The humanitarianism of a few courageous souls—champions of the forgotten child—looms large in the pages of this history.

One of the first to interest himself in the education of a mentally retarded child was Itard, a French physician who lived between 1774 and 1838. He found such a child wandering nude in the woods and making unintelligible sounds like an animal. This boy, whom he later wrote about as *The Wild Boy of Aveyron*, he took into his home and attempted to teach.

The Century Psychology Series

Richard B. Elliott, Editor

THE WILD BOY OF
AVEYRON

(RAPPORTS ET MÉMOIRES SUR LE
SAUVAGE DE L'AVEYRON)

BY

JEAN-MARC-GASPARD ITARD

TRANSLATED BY

GEORGE AND MURIEL HUMPHREY

WITH AN INTRODUCTION BY

GEORGE HUMPHREY



THE CENTURY CO.

NEW YORK : LONDON.

TITLE PAGE OF THE ENGLISH TRANSLATION OF
ITARD'S BOOK, "THE WILD BOY OF AVEYRON."

Itard set the following goals for the boy's training:

1. "To interest the boy in social life by rendering it more pleasant than the one he was leading.
2. "To awaken his nervous sensibility by more energetic stimulation.
3. "To extend the range of his ideas by giving him new needs and by increasing his social contacts.
4. "To lead him to the use of speech through imitation brought on by necessity.
5. "To induce him to employ the simplest mental operations over a period of time upon the objects of his physical needs, afterwards applying these mental processes to objects of instruction."

Itard was not able to accomplish as much as he had hoped with "the wild boy of Aveyron," but his pioneer efforts were not lost. Seguin carried on where his great teacher, Itard, had left off, first in France and later in the United States.

Seguin established what he called "A School for Idiots" in Paris in 1837. Here he applied his new and original ideas on the education of mental defectives—education based on the five senses. In 1844, the French Academy of Science put its stamp of approval on Seguin's method of education and on his institution which was the first of its kind.

In 1848, Seguin came to the United States where he became the pioneer in the education of the mentally retarded child in this country. He wrote, lectured and helped to establish institutions for the care of the feeble-minded. His writings are considered classics to this day.

Starting with the axiom that the education of the senses must precede the education of the mind, Seguin

laid down two principles for the teaching of children whose nervous system was not well developed: 1) exercising the imperfect organs to develop their function; 2) training the functions to develop the imperfect organs. He described some ingenious devices for the training of the senses and cited cases in which these exercises had been adapted to special incapacities. It is interesting to note that Seguin was one of the first to make the observation that the brains of mentally deficient children were not always diseased or abnormal but were often simply arrested in development.

Montessori, whose system of auto- or self-education for normal children was very popular in this country more than a decade ago, did her early educational work with mentally retarded children. Like Itard and Seguin, whose example she followed, she stressed teaching based on the five senses, particularly the sense of touch. She was so successful in her work with mentally deficient children that some of them in time were able to compete with normal children.

Another of the early advocates of training the mentally retarded was Dr. Decroly, a Belgian physician. He employed educational games at the child's level.

The first, most effective attempt to treat mental retardation due to cretinism, which is common in Switzerland, was made by Gugenbuehl, a Swiss physician, in 1835. Although it was known that cretinism could be improved by thyroid extract, Gugenbuehl was one of the first to combine the medical treatment with the educational. He established schools for cretins that served as models for the physicians and educators in other countries, as well as in Switzerland.

Various medical studies made from time to time contributed to our knowledge of mental retardation both directly and indirectly. The work of Charles Billard in 1828 and that of William Little in 1843 gave us some interesting information on brain damage in the newborn. The studies of Broca on brain localization in 1861 opened up a new line of thought on lesions of the brain. Even the work of Gall on phrenology, although later popularized to the point of abuse, was a great influence for good. It was Gall's work on phrenology that impressed Seguin with the value of the physiological training of the special senses. The description of mongolism by Dow of England in 1866, in his classic paper on the *Ethnic Classification of Idiots*, helped to differentiate the mongol from other types of mental retardation.

Studies of neurological conditions of childhood, particularly of the newborn, and of acute infections of the nervous system in infants and older children have contributed a great deal to our knowledge of mental retardation. The studies on cerebrospinal fluid have also given us much valuable information.

We are indebted to Gesell and his associates for the establishment of standards for normal child development. Child psychiatry, a comparatively new branch of pediatrics, has helped materially in the understanding and management of the child suffering from mental disturbances. The Chicago Juvenile Psychopathic Institute which was established in 1909, as part of the Juvenile Court, furnished us with many vital facts about the relation of juvenile delinquency to mental retardation.

Psychological Testing

A great step forward in our knowledge of mental retardation was made through the psychological evaluation of children.

It was always known that there are mental as well as physical differences among individuals. However, it was not until we had scientific tests for intelligence that we had definite means of measuring these differences.

Mental testing is of comparatively recent origin. Attempts at testing had been made in 1883 by Galton of England and in 1893 by Cattell in the United States. The standardization of mental testing on a scientific basis was not put to practical use, however, until the beginning of the twentieth century.

In 1905, Binet, a French psychologist and Simon, a French physician, devised a test by means of which we could compare the mental level of the child with his actual age. This scale was termed the Binet-Simon test. To arrive at the child's correct mental status, these authors divided his mental age by his chronological age. For instance, if the child was eight years old and was able to meet only half of the requirements of the test designed for a child of his age, his mental level would be only that of a four-year-old child, or 50 per cent of the normal standard for his age.

This determination of the child's mental growth rate established the concept of the intelligence quotient, popularly known by its initials as the I.Q.

The I.Q., which has become a household word, may range above or below the average 100. Children with

an I.Q. above 110 are considered mentally superior; those whose mentality registers less than 80 per cent of the average norm, are classed as retarded. The greater the deviation from normal, the higher the degree of retardation. Numerous other tests followed the Binet-Simon, most of them based on the pioneer work of these two men.

Institutions

Interest in the welfare of the mentally deficient led to the establishment of institutions and schools for them. The first institution for the education of the mentally handicapped was established in England in 1846. The first state institution in the United States was opened up in Massachusetts in 1848, under the direction of Dr. S. Howe. This was followed three years later by a state institution in New York under the direction of Dr. H. Wilbur. Both of these institutions tried to combine educational with custodial care. They modeled their program on the principles laid down by Seguin. Other states followed the example of Massachusetts and New York. Now we find one or more institutions for the mentally deficient in practically every state of the Union.

Private Schools

In addition to state schools, numerous private schools for the mentally handicapped child were established in various parts of the country. Their number is constantly increasing.

Organizations

A new era in the history of mental retardation was ushered in with the organization of the American Association on Mental Deficiency, in 1876. This society, which is composed of physicians, psychologists, and educators throughout the country, is doing a great deal to further the cause of the mentally retarded. In 1909, the National Committee for Mental Hygiene was organized by Clifford Beers. The name of this organization was later changed to the National Mental Hygiene Society.

Working on a more personal basis are groups of Parents and Friends of the Mentally Retarded Child which are springing up all over the country. The first group was organized in New York about eleven years ago. It culminated in the National Association for Retarded Children which has chapters in many cities in the United States.

Literature

The literature on mental retardation has kept stride with the growth of the movement. Books and articles dealing with the mentally handicapped child have appeared in the medical and psychological literature throughout the world. *The Journal of Mental Deficiency* published by the American Association on Mental Deficiency is filled with information on every phase of the subject.

Recently, many popular articles have been written, calling the attention of the public to the problem. Pearl Buck's book, *The Child Who Never Grew*, has

aroused nationwide interest in the mentally retarded child and his problems.

Change of Concept

One of the most important advances in the study of mental retardation has been our change of concept. For a long time we thought of the condition as irreversible. This conception was based on the idea that damage to the brain of the mentally retarded child is fixed and unalterable. We have learned, however, that some of the trouble may be due to pressure around the brain or to chemical changes in the brain. Moreover, the impairment in the mentality of the child may have some relation to the chemical and physical processes in the glands and other parts of the body. The nutritional state of the body has also been found to have some bearing on mental retardation. If the new theories advanced are sound, we may be able to do a great deal through the glandular and nutritional approach.

The modern pediatric practice of treating the child as a whole, instead of just the affected organ or a particular ailment, has given us a much more comprehensive view of the entire subject of mental retardation.

With our more progressive concept has come a new approach and a new hope. We are now ushering in an era of understanding for the retarded child that will bring us greater understanding, greater facilities for education, treatment, and research.

CHAPTER 4 What Is Mental Retardation?

Mental retardation is one of the most challenging problems of childhood. It affects not only the child but also his parents, his brothers and sisters, and the community. The mentally retarded child needs the help of the physician, the psychologist, the social worker, the teacher, and even the lawmaker.

Fortunately, the question of mental retardation is now being brought into the open. The child who is mentally retarded is no longer kept behind closed windows and locked doors. Mental retardation, formerly looked upon as a stigma, is now considered a disease, like tuberculosis, diabetes, and heart trouble.

Mental retardation has been designated by various terms and defined in many ways. Reduced to its simplest form, however, mental retardation stands for a subnormal intelligence and a reduced capacity for learning. There are so many degrees and types of mental retardation that there is no single definition that can include them all. It is more important that we have a broad concept of the condition than it is that we have a good definition of it. A warm understanding of the retarded child will get us much further than a cold definition or classification.

Degrees of Retardation

There are children whose minds are almost entirely blank. There are others who cannot learn the three R's or absorb theoretical education of any kind, but can learn to help themselves and to attend to certain simple duties. There are those who may never attain normal mentality but who can be taught a simple trade; some of these attend special classes for the slow learners where the curriculum is adapted to their special needs. Then there are children who attend regular classes at school and follow the regular program but who are unable to keep up with the other pupils, and sooner or later are discovered to be below the normal standard. Some of these children may continue to go on from grade to grade, although at a slower pace than the average child. They may even be graduated from the elementary school but eventually their deficiency becomes too noticeable to pass up.

The White House Conference on Child Health and Protection, held in 1930, applied the term "mental deficient" to a mentally handicapped child who could adjust himself to his surroundings and the term "feeble-minded" to the child who could not.

Retarded children may be maladjusted, but lack of adjustment is not necessarily a sign of mental retardation. One finds many children who are socially maladjusted, but who are normal or even above normal in their mental rating.

Many mentally retarded children are happy. Some are quiet and submissive; others are just the opposite, noisy and belligerent. In other words, one finds among the mentally retarded just as many different personality

traits as among normal children, with possibly even greater extremes.

Types of Retardation

There are many types of mentally retarded children, those with and those without convulsions, those with and those without paralysis. The average mentally retarded child, fortunately, has no convulsions or paralysis.

There are two special types of retardation, cretinism and mongolism. The cretin, who suffers from a thyroid deficiency, is stunted in growth, has a blank facial expression, heavy lips, protruding tongue, coarse features, and dry hair. Not every case of cretinism, however, is as marked as the one described above. There are various degrees of hypothyroidism in children.

There are approximately 60,000 mongoloid children in the United States. They derive their name from the fact that they have the slanting eyes and general facial appearance of a Mongol. The mongoloid child is also distinguished by other special characteristics, such as a short neck, chubby fingers, and a curving little finger. Many mongoloids show a straight, horizontal line on the palm of the hand instead of the oblique line of the normal child. Sometimes there is a straight line on one palm only. All mongoloid children are mentally deficient.

Just as there are various degrees of mental retardation in general, there are also variations of deficiency in mongoloid children. Some may attend ungraded classes and may be able to absorb a certain amount of academic knowledge.

Terminology

In former years, all mentally retarded children were referred to as idiots. Now, physicians and psychologists use various terms to characterize different degrees of retardation. *Moron* designates a child with an I.Q. of 50 to 69, which represents a maximal mental age of seven to ten years; *imbecile*, a child with an I.Q. of 20 to 49 and a mental age of three to eight years at maturity; *idiot*, a child with an I.Q. of 0 to 19 whose mental age approaches three years or less in adulthood.

However, except for scientific purposes, there is no valid reason to continue these harsh and unkind terms to describe the mentally handicapped child. The "idiot," "imbecile," and "moron," that were flung at God's unfortunate children with such brutal derision, should be eliminated entirely from our vocabulary. With a more understanding attitude and a more progressive approach to the problem, we should speak of the child who suffers from a lowered mentality or is slow in learning, as a mentally retarded, mentally deficient, mentally handicapped, or exceptional child.

In our discussions we shall employ the term "mental retardation" in its broadest sense to include all types and all degrees of subnormal mentality. Other terms will be used only when necessary for purposes of differentiation.

In the earlier literature, mental retardation and epilepsy were often spoken of as occurring together. This can be explained by the fact that most of the reports were made on institutional cases among whom epilepsy was common. Now, we realize that the two conditions do not necessarily go hand in hand. Some mentally re-

tarded children have convulsions. Most of them do not. In our cases, only about 25 per cent suffered from seizures. Many epileptic children are normal mentally.

Normal Development

To understand the child that is not normal, one must know the mental and physical development of the normal child. Generally speaking, there are certain acts that most children perform at various ages.

Even the newborn babe can do specific things, although most of his actions are reflex in nature. The reflexes that manifest themselves at birth are sucking, swallowing, sneezing, and yawning. The newborn babe can nurse from the breast or drink from the bottle. When a finger is put into his hand, he will hold on to it. This is known as the grasp reflex. This reflex, or automatic action, disappears after two months and does not reappear until the child is about six months old, when he can reach for things and grasp them knowingly and without assistance.

The normal infant usually looks at objects before he is a month old; coos at one to two months; holds up his head at three months; recognizes his parents and shows preference for his mother at two to three months; recognizes outsiders at four to five months; sits up without support at six months; plays with his toes at six to seven months; says "Daddy" and "Mamma" at ten to eleven months; has a vocabulary of three to four words at twelve months; and walks at twelve to fourteen months.

At eighteen months, a normal child can name some common objects and point to his nose, mouth, and ears. At twenty-four months, he composes simple sen-

tences of two to four words, listens to stories, and looks selectively at pictures.

At three years, a child speaks in sentences of five to eight words, plays simple games, uses a crayon with purpose, and shows marked increase in finger dexterity.

At four years, the normal child uses scissors to cut out pictures and counts up to ten. He shows a rapid increase in vocabulary at this age.

At five years of age, the normal child is usually able to carry on a conversation with an adult; he can count four or more objects; he can imitate rather precise manual tasks of drawing and folding.

At six years, he prints letters and begins his regular schoolwork.

Children who are retarded from birth are generally slow, not only mentally but also physically. They cannot hold up their head, sit, or walk at the usual time. Since talking is a combined mental and muscular process, most mentally retarded children show speech delay and distortion. Some never learn to talk while others talk so poorly they cannot be understood. Many of these children have defective hearing or do not hear at all. Some have convulsions or paralysis. The extent of impairment depends on how much or how little of the brain is involved.

Incidence of Mental Retardation

The figures for mental retardation vary greatly.

New York City authorities estimated that "21/2 per cent of the general population falls within an I.Q. range of 50 to 75, with an additional 1/2 per cent having I.Q.'s below 50."

The two recent world wars brought out the national

significance of mental retardation. On the basis of thirteen million examinations for Selective Service done up to 1944, 4.9 per cent were rejected for mental and emotional disorders, 4.3 per cent for mental deficiency, and 1.5 per cent for neurological defects.

Incidence Among Children

No accurate figures are obtainable. One authority on the subject states that 25 per cent of our child population under eighteen years of age suffer from some form of mental retardation. Others place the number at 12 per cent of the child population. Some even claim that ten out of every one hundred children born are mentally below par.

The American Association on Mental Deficiency estimated in 1946 that 7 per cent of the school population in this country are mentally retarded. This includes both the "feeble-minded and the grossly intellectually retarded, as defined by the White House Conference. Approximately 4 per cent of the number fall into the classification of the mentally retarded with an I.Q. over 75. According to the Bureau of the Census, there were approximately thirty million school children in the United States in 1947 between the ages of five and eighteen. If the 7 per cent figure of the American Association of Mental Deficiency is correct, there are over two million retarded children of school age alone, in this country. If we add to this number the many retarded children under five years of age, the number would be staggering.

In 1941, there was a total of one hundred thousand mentally deficient individuals in institutions. Of this number, about 10 per cent were children. The number

is higher now, but it still represents a very small percentage of the mentally retarded children in this country, as the greater number of these children are at home and up to date we have no statistical record of them.

Sex, Race, and Economic Status

Statistics show a greater number of males than females among the institutionalized children. One report for institutionalized cases showed 53.8 per cent males and 46.2 per cent females. The reason there are more boys than girls in institutions is that the parents are reluctant to send their young daughters to an institution and are apt to keep them at home as long as possible. In our clinic we also found a preponderance of males over females, the ratio being 54 per cent to 46 per cent.

From time to time, a statement creeps into the literature that mental retardation is more common among children of a certain race or nationality. This is not true. There is one type of mental retardation that is supposed to be limited to a certain race. This type is very rare and is statistically insignificant in the general distribution of mental retardation. The idea that mental retardation is more prevalent among Negroes is not borne out by experience. The frequent migration of the Negro population, the poor housing conditions, and the environmental deprivations from which they suffer, account for the many "slow learners" who are wrongly designated as retarded. In our clinic, the ratio of white to Negro was sixty-two to thirty-eight.

Economic status has no particular relation to the incidence of mental retardation except from the standpoint of nutrition. Poor nutrition in early childhood, as will be brought out later, may cause some slowing

up of the mental processes. This lagging, however, is correctable and should not, therefore, be considered a true retardation.

Mentally retarded children are found in the families of the rich and the poor, the educated and the ignorant. They appear in every race, every nation, every creed.

Mental retardation is indeed a universal problem.

CHAPTER 5 The Brain

To understand mental retardation, one should know a few fundamental facts about the structure and the function of the brain.

For centuries, philosophers and scientists have been studying human intelligence, but there is still a great deal to be learned about the subject.

The outer surface of the brain looks like a walnut. If you look at the kernel of a walnut, you will notice deep ridges or wrinkles on its surface that seem to penetrate into the body of the nut. The brain looks much like that except that it is softer and more pliable. The spaces between the ridges of the brain are called convolutions. The larger and more curled the convolutions and the deeper the ridges, the greater the brain capacity.

Divisions of the Brain

There are several gross divisions in the brain that are named according to their location and function.

1) The *cerebrum*, or the forebrain, is the largest section of the brain. The most important part of the cerebrum is the cortex, which is the outer layer of the brain. The cortex controls the movements of the body and the mental processes. If something goes wrong with the cortex, paralysis and mental deterioration usually follow.

2) The *cerebellum*, or hindbrain, which is much smaller than the cerebrum, controls the equilibrium, or balance, of the body. Diseases of the cerebellum affect the co-ordination and the gait of the individual.

3) The *medulla* is the life center of the body. It reg-

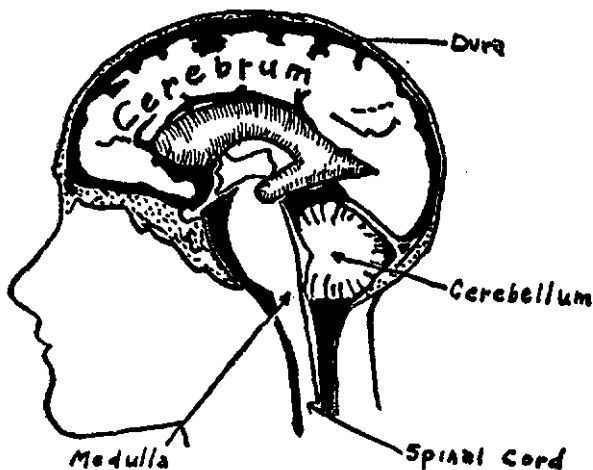


DIAGRAM OF THE BRAIN.

(Modified from the author's chapter on Cerebrospinal Fluid in Brennemann-McQuarrie's *Clinical Pediatrics*, published by W. F. Prior Co., Hagerstown, Maryland)

ulates the breathing and other vital functions of the body.

It is significant that both the cerebrum and the cerebellum have two hemispheres. If anything goes wrong with one hemisphere, it is possible for the other to continue to carry on, just as it is possible to function with one eye, one ear, or one kidney.

There are certain specific centers in the brain, such as the respiratory and hearing center. Although respira-

tion or breathing is carried on by the lungs, it is controlled by the brain. Hearing is conveyed through the ears but it is regulated by the brain. The question of a speech center has been a matter of controversy. The consensus of opinion is that there is no single center of speech, but a speech area composed of more than one speech center and associated regions.

Is there a center of intelligence in the brain and if so, where is it located?

This question has troubled many investigators for generations. In spite of the years and years of study on the brain and its functions, we are still not certain whether or not there is a definite center of intelligence.

By inference, it is thought that the center of intelligence might be in the front, the prefrontal area of the brain. Those who have had the front part of their brain removed through an operation known as frontal lobotomy or lobectomy, have shown some reactions that would tend to show that intelligence is located in that area. They have suffered from lapses of memory and have become incapable of logical thinking. However, this evidence alone cannot be considered conclusive. All we can say with certainty is that intelligence functions through the brain.

There is evidence to show that not only the cortex but also the part of the brain known as the hypothalamus may play a role in intelligence and therefore also in mental retardation.

There are twelve cranial nerves in the brain that branch out to other parts of the body. They control special functions, such as vision, smell, touch, taste, and motion.

Normally, the various parts of the brain work as a

unit, in perfect co-ordination with each other and in co-operation with the spinal cord and the nerves extending from it. Any disturbance in brain development results in impaired functioning of the brain.

Glands in the Brain

There are two small glands in the brain that exert a great influence on the mental and physical condition of the individual. One of these is the pituitary gland, the other the pineal. The pituitary gland is called the master gland of the body. It regulates the growth of the bones and maintains the water metabolism. Little is known about the function of the pineal gland, but it is believed to be related to vision and sexual development.

Covering of the Brain

It is not surprising to find an organ as sensitive as the brain well protected. First of all, the brain is housed in a strong, bony vault, the skull. Then it is further protected by three layers of tissue, all of them together being known as the meninges. The outer layer, which is hard and firm is attached to the skull. It is called the *dura*. Between the *dura* and the brain are two soft layers. One is the *arachnoid*, the other the *pia*. The *arachnoid* consists of strands of fibers between the *dura* and the *pia*. The *pia*, which is the covering directly above the brain, is made up of blood vessels that encircle the top of the brain and dip into the brain proper.

Cerebrospinal Fluid

We all know that the blood circulates around the body. The blood that supplies the brain is part of this general circulation. There is, however, another liquid that cir-

culates in the inner spaces or ventricles of the brain and between the arachnoid and the pia around the brain and spinal cord. This liquid, known as the cerebrospinal fluid, is clear and colorless, like water. It forms a water bed around the brain and the spinal cord and acts as a shock absorber against the jarring caused by the movements of the body.

Under normal conditions, there is only a small amount of cerebrospinal fluid in and around the brain, perhaps no more than two ounces altogether. In disease, however, particularly when there is shrinkage of the brain because of damage or underdevelopment, the fluid becomes increased in amount and produces pressure on the brain. This pressure irritates the brain and gives rise to various symptoms exhibited by mentally retarded children, like restlessness and convulsions. In cases of hydrocephalus, or "water head," as it is commonly called, the cerebrospinal fluid becomes tremendously increased in amount. The pressure caused by this increase is sometimes so great that it wears down the cortex of the brain.

Electrical Waves

The brain, like the heart, gives off electrical waves. These waves are recorded on a special machine called an electroencephalograph. The recording, which consists of zigzag lines, is called an electroencephalogram.

From a reading and evaluation of these brain waves, we can often determine whether the brain functions normally or not. Further studies on the electrical changes going on in the brain hold great promise for the future of mental retardation.

Brain Metabolism

There is chemical activity in the brain as there is in all the other organs of the body. This activity, which is known as metabolism, is an important factor in brain function. The brain uses up oxygen, carbohydrates (sugar), and fat. Any interference with the consumption of these elements may impair the function of the brain.

General Metabolism

Faulty metabolism in other parts of the body may also affect the metabolism of the brain. The relation of amino acids to brain function offers a fruitful field of study.

Recent studies have brought out the fact that nutritional deficiencies bear an important relation to brain function. Patients suffering from vitamin deficiency usually have disturbances of brain function. This is particularly true in pellagra. When a child's nutritional status is very poor, he may be affected not only physically but mentally.

The effect of starvation on brain function is evident particularly by the condition known as kwashiorkor. Kwashiorkor is a disease prevalent in Africa, but it is also found in other parts of the world. It occurs in children about the time of weaning and manifests itself by edema, depigmentation of the skin with peeling, anemia, and curious changes in the hair. What is most interesting to us is that there is a change in the mentality of the children. From being normal happy children, they become peevish, irritable, whining, crying, and apathetic, with no interest in the world about them. This disease is one of the conditions in which there is an evident

birth were attributed to hemorrhage of the brain. Now we know that they can also be due to underdevelopment of the brain.

Oxygen Hunger

The brain may be affected even if there is no hemorrhage or underdevelopment.

A shutting off of the supply of oxygen to the brain will cause a choking of the cells with eventual mental deterioration. This sometimes happens in the newborn when the oxygen supply to the brain is cut off by some disturbance in the heart or by interference with respiration. Any obstruction in the pathways of the lungs, even a little plug of mucus, may cause injury to the brain. It takes just a few minutes of oxygen hunger to produce permanent damage to the brain.

Size of the Brain

Has the size of the brain any effect on mentality?

Even under normal conditions the weight of the brain varies. The brain of most mentally retarded children, however, is usually smaller and weighs less than that of the normal child. This is particularly true in children whose mental retardation can be traced to underdevelopment of the brain. This condition is known medically as *microcephalus* (micro—small; cephalus—brain).

In many cases of subnormal mentality, the brain of the child is not only smaller than average, but different in contour. The convolutions are not as large nor as deep as they are in the brain of the normal child. The portion of the brain that receives the incoming waves of hearing and vision may also be thinner than in the normal brain. In the final analysis, however, it is not the

size of the brain that counts, but its capacity for functioning.

Size of the Skull

Is there any relation between the size of the brain and the size of the skull?

When the brain is very small, the skull within which it lies is, as a rule, also small. Occasionally, however, one finds a small, thin brain in a large massive skull. In hydrocephalus (water brain), for instance, the huge head one sees is no indication of a large brain underneath. The head looks large because the bones of the skull have separated. The pressure exerted by the increased amount of the fluid around the brain is responsible for this condition. Even when the skull is normal in size, it is still possible for it to house a brain that is defective in structure or in function. In other words, the size of the skull is no indication of the size of the brain.

The brain, the master organ of the body, holds many of the secrets of mental retardation.

CHAPTER 6 How the Doctor Makes a Diagnosis

Parents may suspect that something is wrong with their child's mentality, but they should not attempt to diagnose his mental condition any more than they would his physical condition. They should leave that to the physician who has the training and experience that enables him to interpret what he finds. The diagnosis cannot be made in a hurry as it involves examinations and tests that may take weeks for their completion.

The pages that follow tell how the doctor arrives at a conclusion. This is not intended as a lesson to the reader on how to diagnose a case of mental retardation. Its purpose is to acquaint parents with what has to be done so that they will have an idea of the amount of careful study and investigation it takes to make a final diagnosis. I shall also point out how parents can help the physician.

The examination of any child requires not only a special knowledge of children, but also an unusual amount of patience. The examination of a mentally retarded child calls for both in double measure.

Most children resist examination. Children suffering from a mental or nervous disorder often rebel and fight against examination. One cannot expect them to co-op-

erate with the doctor or nurse as their power or reasoning is very low and their concentration is very poor. Moreover, a mentally retarded child has to undergo many examinations that are often very exhausting to him, to his parents, and to the doctor. Remonstrating with him or trying to explain the need or importance of the examination has little or no effect.

Case History

The doctor begins his study by taking the history of the case.

No matter what the complaint is or what part of the body is affected, a complete history is very important as it may shed light on the nervous disorder. When the doctor is examining a child he suspects to be mentally retarded, he constantly has in mind the causes that may have led to the retardation. He inquires about the mother's health during pregnancy, with special reference to kidney disease and high blood pressure. Did the mother have German measles? Did she have any miscarriages? Did she have x-ray or radium treatment? How long was the mother in labor? Was an anesthetic given during labor? If so, which one? Was there any Rh disturbance? All of these questions have a special bearing on the present condition of the child.

The history of the case also includes the family background. Is there any mental deficiency, epilepsy, syphilis, or tuberculosis in the family? Are there any other members of the family with a similar condition?

There are many more facts the doctor must know about the child's medical history.

Was he born at full term or prematurely? If prematurely, how many weeks or months ahead of time? Was

he delivered with or without instruments? Did he have blue spells directly after birth? Was he jaundiced? Did he have any special feeding problems? Did he vomit a good deal? Did he fail to gain weight?

The birth weight is of special consideration. The average weight of a normal newborn at birth is five to seven pounds. A birth weight below five pounds speaks for prematurity. Overweight may indicate some abnormality. While many normal babies weigh eight to nine pounds at birth, anything over nine pounds may be due to glandular disturbance. Babies whose mothers are diabetic also weigh much more than does the average baby.

The physician wants to know at what age the baby held up his head, sat without support, walked, talked. Does he now say single words or complete sentences? Is his speech distinct or muffled? Does he hear well?

The physician wants to know further whether the child had any serious illness or fever during infancy and early childhood. Was he immunized against diphtheria, whooping cough, tetanus, and smallpox? The doctor is particularly anxious to find out whether the child had convulsions. If so, at what age? How frequently did they occur? Was the entire body convulsed or was it limited to one part of the body? Was there foaming at the mouth? Did the child lose consciousness? Did he complain of headache or fall into a deep sleep after the convulsion? Every detail of the child's reaction is significant in the making of a diagnosis.

The physician usually inquires whether the child is right- or left-handed. This inquiry is of greater theoretical than practical significance. It just happens that many retarded children are left-handed, but that does not imply that every left-handed child is retarded. On

the contrary, although the majority of normal individuals are right-handed, thousands of people of superior intelligence are left-handed.

The most important phase of the history taken by the doctor centers about information directly related to the child's retardation.

When was it first observed? How old was the child at the time? Who was the first to call attention to the fact that the child was not up to standard?

It is surprising how often parents state that they did not notice anything out of the ordinary until their child entered school and could not keep up with the rest of the class. It hardly seems possible that it would take parents, especially a mother, years to discover that her child was below par mentally. Yet, many intelligent parents claim that they observed nothing wrong about their child until it was forced on their attention by someone, a teacher, a doctor, a neighbor, sometimes even a child.

Many parents find it hard to tell their story coherently. One can readily understand why. For years, in many instances, they have buried their tragedy within their hearts. Finally, when they do unburden themselves, they literally "talk their hearts out." The doctor feels for them and would like to permit them to talk on and on, just to relieve them of their pent-up feelings, if nothing else. He is a busy man, however, and his time is not his own. Above all, he wants to get a coherent history of the case.

It would be wise, therefore, for parents to organize their data before they come to the physician. The telling of a disconnected story not only consumes time that is very valuable, but it also places too much emphasis

on unimportant details and loses sight of the significant facts.

The doctor is concerned with vital information about the child's mental and physical development. It doesn't help him any to know what the neighbors said or why the mother was too upset to notice anything was wrong.

"My neighbor said it was just the teeth or worms."

"I guess I was too young to know what it was all about."

"I thought he was just a little slow and my mother said he would outgrow it."

Remarks like these do not explain anything. Definite statements like the following tell the doctor what he needs to know:

"Sonny didn't sit up until he was thirteen months old. He didn't start to walk until he was two and one half years old."

"Susie had convulsions from the time she was born. She always ran a high temperature with her convulsions."

"Billy was born two months ahead of time. He was a blue baby. The doctor had to give him artificial respiration and keep him in an incubator."

Physical Examination

The physical examination consists of attention to height, weight, state of nutrition, heart, and lungs. It also covers observation of physical features, such as the size and shape of the head, facial expression, examination of the palms, fingers, and toes, and abnormalities of the skin and the teeth. To the parents, the general examination may seem superfluous since the trouble is mental in nature. However, the general condition of

the child may be an external manifestation of some disturbance of the nervous system. Congenital heart conditions, pointed or irregular teeth, discolorations of the skin are looked for particularly, as they are sometimes found among mentally retarded children.

After all preliminary examinations have been completed, the doctor is ready to begin a thorough checkup of the child's nervous system. First, he looks for deviations from the normal in the child's reflexes, his walk, his muscular co-ordination. He takes special note as to whether there is weakness of the extremities. He observes the child's actions. Is he restless or drowsy? Does he understand what is said to him? Many specialized tests are then made.

Eyeground Examination

An examination of the child's eyes, with special reference to the condition of the eyegrounds, is of vital importance. Eyeground examinations in infants and children require a great deal of time and patience. It is often necessary to put drops in the eyes to dilate the pupils and facilitate examination.

Under normal circumstances, the eyeground is made up of a circular area with blood vessels radiating to a central point from all directions. When all is as it should be, the area appears bright and distinct. In certain diseases of the brain, however, hemorrhages are seen in the eyeground. In others, the blood vessels appear very pale and in still others, the eyeground looks very indistinct. The examination of the eyeground reveals not only the condition of the eye but, in many instances, it also mirrors the condition of the brain and explains the nature of the mental deficiency.

Laboratory Tests

There are several laboratory tests that are very helpful in making a diagnosis of mental retardation. A blood count and hemoglobin determination are done routinely. A Wassermann or Kahn test for syphilis is usually done. In some cases, the blood is examined for a chemical substance of the blood known as cholesterol which is found in excessive amounts in cases of thyroid deficiency. In Negro children, the blood is examined for sickling of cells which occurs in a severe condition, known as sickle-cell anemia. This disease, which occurs almost entirely among the colored, sometimes produces symptoms of nervous disturbances. This, however, does not mean that mental retardation is more frequent in Negroes.

The urine is examined routinely for albumen, sugar, and pus cells. In addition, it is tested for the presence of phenylpyruvic acid. This substance is found in the urine in a certain familial type of mental deficiency.

A basal metabolism, or breathing test, is done on some children. A low metabolic rate may indicate a deficiency in thyroid function. This test is not always accurate, however, because of the difficulty in getting the patient to co-operate.

The most important laboratory tests for mental retardation are spinal puncture, X ray, and encephalography.

SPINAL PUNCTURE: In doing a spinal puncture, the doctor inserts a needle into the spine and lets a small amount of fluid around the spinal cord run out into a test tube. The pressure of the fluid is measured. The specimen is then sent to the laboratory for further ex-

amination. In mental retardation, the cerebrospinal fluid is often increased in amount and in pressure. Occasionally, there are also changes in the chemical constituents of the fluid.

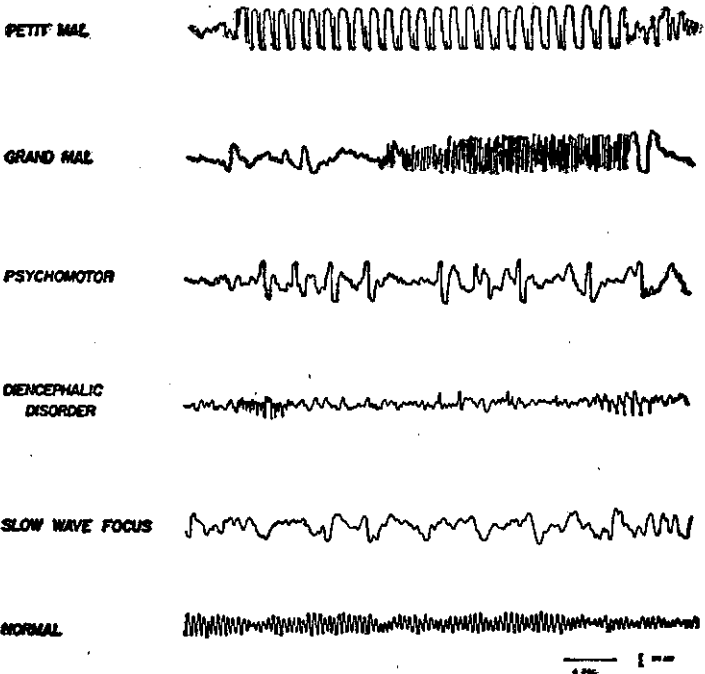
Not every retarded child needs a spinal puncture but many do. Often a spinal puncture throws light on the diagnosis and treatment. Some parents dread having a spinal puncture done on their child. As a matter of fact, the procedure is harmless and there is no more pain than the insertion of a needle anywhere else in the body. It calls for only one or two days of hospitalization.

X-RAY: X-rays of the skull are usually taken in every case of mental retardation. X-rays of the skull may reveal an old skull fracture or it may show a separation of the bones, which indicates an excess of fluid around the brain, a condition known as hydrocephalus, or water brain. Once in a while, x-ray shows an area of calcification in the brain. This is present in a disease called toxoplasmosis and sometimes follows an acute infection of the brain like meningitis. In suspected lead poisoning, x-rays of the long bones are taken. In suspected cretinism or thyroid deficiency, x-ray of the wrist bones is indicated for the determination of the bone growth, which is delayed in hypothyroid conditions.

ENCEPHALOGRAPHY: Encephalography is a recording of the brain waves (encephalo—brain; graph—writing). There are two types of encephalography, *electro* and *pneumo*.

Electroencephalography: The electroencephalogram records the electrical activity of the brain just as the electrocardiogram records that of the heart.

In electroencephalography, electrodes are attached to the skull and the waves given off are recorded on smoked paper. This recording is called an encephalo-



SAMPLE STRIPS OF ELECTROENCEPHALOGRAMS (BRAIN WAVES) IN VARIOUS CONDITIONS.

(Courtesy of Drs. Gibbs and Dr. Stamps)

There are characteristic electroencephalographic changes in grand mal, petit mal, and psychomotor disturbances—the commonest types of epilepsy. In mental retardation, associated with seizures, the electroencephalogram is therefore of great value in determining the type of seizure and the treatment to be instituted for the convulsions.

In mental retardation without seizures, the electroencephalogram is usually normal, but occasionally there are special changes. A slow wave focus indicates a damaged area of the brain, contributing to the mental deficiency.

gram. In some cases of mental retardation, the electroencephalogram shows nothing abnormal. In others, it shows disturbances of the brain. In cases of retardation accompanied by convulsions, electroencephalography is of great diagnostic value as it shows whether the patient has epilepsy, also what type of epilepsy it is. The procedure is also of value in testing a child's hearing.

Pneumoencephalography: Pneumoencephalography is a procedure by means of which the brain is visualized through air injected into the spinal canal. The air rises and accumulates in and around the spaces of the brain. The larger the spaces the more air accumulates in them. Pneumoencephalography is often spoken of as "air study." An ordinary x-ray of the skull shows the bone structure but it does not show the ventricles or the spaces around the brain. A pneumoencephalogram is particularly helpful when one suspects brain shrinkage due to deterioration of the brain. Not every case of mental retardation shows brain shrinkage on the pneumoencephalogram but when it does it is of great diagnostic value. The encephalogram also makes it possible to determine the degree of brain involvement, a factor that is very vital in planning the future program of the child.

Making a diagnosis of mental retardation of a child is not only a tremendous task, but a grave responsibility, for it involves the present and future happiness of the child and his parents. The doctor owes it to himself and to them to employ every possible means before he pronounces his final verdict. He must make a complete physical examination of the child, a special study of his nervous system, a careful examination of the eye-

grounds, take x-rays, and do various other laboratory tests.

Outline of History and Examination

The following chart, which is used in the routine examination of every child seen at the clinic of the Dr. Julian D. Levinson Research Foundation, will give the reader an idea of the many steps that enter into the making of a diagnosis of mental retardation.

**THE DR. JULIAN D. LEVINSON RESEARCH
FOUNDATION**

Name					CCH Clinic No.
Address					Levinson Clinic No.
Phone					Admission Date
Sex	Race	Age	Birth Date		Parent's Name
Referred by					Occupation

I. GENERAL HISTORY

Retardation—age first noticed

Other Symptoms

Behavior

Sleep

Toilet trained

Speech

Hearing

Vision

Right- or Left-handed

II. INVENTORY OF SYSTEMS

Nervous

Gastrointestinal

Cardiovascular

Respiratory

Genitourinary

III. BIRTH HISTORY

Type of Delivery

Length of Labor

Anesthetic

Full Term

Premature

Birth Weight

Cyanosis

Jaundice

Hemorrhage

Convulsions

Vomiting

Oxygen given?

IV. FEEDING

Breast

How long?

Artificial

Present Diet

Vitamins

Feeds self?

V. PREVIOUS HISTORY

Medical Immunization	Surgical Any reaction?	Traumatic
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VI. DEVELOPMENT

Age held head up Walked	Sat Talked	Crawled First Tooth
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VII. FAMILY HISTORY

<i>Mother:</i>	Gravida	Para	Miscarriages
Health During Pregnancy		Toxemia	German Measles
Rh	Irradiation	Hemorrhage	Illnesses
Age at birth of child:		Mother	Father
Consanguinity			
Siblings:	Sex	Age	Health
Diseases:	Tbc.	Diabetes	Epilepsy Mental
Economic Status			
Method of heating home		Battery casings?	

VIII. PHYSICAL EXAMINATION

Height	Weight	Head	Chest
General Examination			
Neurologic Examination			

IX. LABORATORY TESTS**X. PSYCHOLOGICAL EVALUATION****XI. DIAGNOSIS****XII. TREATMENT AND MANAGEMENT****XIII. SUBSEQUENT COURSE****XIV. SUMMARY**

CHAPTER 7 Team Work

In the preceding chapter we discussed the role of the physician in making a diagnosis of mental retardation. The physician, however, cannot do this alone. He must have the co-operation of the psychologist, the hearing specialist, the speech therapist, the social worker, and the school teacher. They must all work together as a team.

The Psychologist

One of the most important members of the team is the psychologist who puts the child through a series of tests to determine his mental status and to evaluate his potentialities.

Psychological examination is one of the most effective means at our disposal for establishing the degree of mental retardation. Through the child's performance in various tests, we learn the status of his intelligence and the relation between his mental and his chronological age.

The test most generally used is the Stanford-Binet. This is a revised form of the old Binet-Simon test. This test, however, although reliable in many ways, is not always an accurate measure of intelligence. A child with a speech difficulty would not do well on the Stanford-Binet as it is essentially a verbal test. In a case of this kind, a nonverbal test like the Grace Arthur would give more reliable results.

For children over five years of age, the test of choice is the Wechsler Intelligence Scale for Children which makes it possible to tell whether the child is more capable in the verbal or in the nonverbal area. It also furnishes information about the child's functioning in ten different aspects of performance, thus enabling us to plan his educational training in a wide range of activities.

Personality tests are of diagnostic value in estimating to what extent the retardation may be the result of an emotional blocking. A clear picture of the child's personality is also important in the setting up of a suitable environment for him and in the determination of the most satisfying types of activity.

To know how to interpret his examination of the child, the psychologist must have some idea of what he does in everyday life. The Vineland Social Maturity Scale is the most popular test for this purpose. It is based on the knowledge of the general behavior typical of a child at different ages. In cases of mental retardation it is used to differentiate between mental retardation with social incompetence or without. This test is helpful in the planning of a program because it indicates the various aspects of the child's social competence. The child's social quotient (S.Q.) is usually in the same range as his Intelligence Quotient (I.Q.).

Until recently, there were few known methods of testing a child under two years of age. Now, however, newer studies that take into consideration the neuromuscular as well as the mental development of the child, make it possible to test children at a much earlier age.

Mental testing is of great value if one realizes its

limitations and does not place too much reliance on the intelligence quotient alone. A low I.Q. does not give us the right to dub a child as a moron any more than a high I.Q. warrants our classifying a child as a genius. Most of us recall the epidemic of I.Q.'s, when mothers ran from one psychologist to another to get their child's mental rating. Tears flowed and resentment ran high when mothers compared I.Q.'s and discovered that the neighbor's child had a higher I.Q. than theirs. We can avoid such incidents by judging a child not on a single test but on his reactions as a whole. It is the interpretation of the test in the light of other findings that really counts.

Some children are too severely retarded to be tested accurately. In such cases, the psychologist cannot express the mental capacity in figures. She can do so only in general terms.

Psychological evaluations aid us in formulating an educational program for the child after establishing his capacity for learning. The psychologist, therefore, plays a significant role in the diagnosis and guidance of the mentally retarded child.

The Hearing Specialist

In dealing with a child suspected of being mentally retarded, it is necessary to determine whether he can hear, and, if so, whether he can hear well or only partially. If the child cannot hear, it is important to know whether the impairment is due to trouble in the ears or in the brain. This decision means much for the future of the child. If the difficulty can be traced to the ears, the child can make progress with special training.

Parents can help the doctor determine whether their

child can or can not hear, through their own daily observations. Unfortunately, many parents are reluctant to admit that their child cannot hear well or cannot hear at all, just as they dislike to admit that he is below par mentally.

Sometimes the doctor can determine for himself the child's ability to hear. At other times it is very difficult. It is often hard to decide whether the child does not respond because of his inability to hear or because of his inability to concentrate. In such cases, the physician may get additional information by calling upon someone specially qualified to diagnose hearing problems, like an ear specialist or an audiologist. The former is a physician, the latter may not be, but he is one who has made hearing problems his particular field of study.

Many universities have audiologists in their departments of speech or psychology. The opinion of an audiologist is worth getting in any cases that present unusual difficulties in diagnosis. Occasionally, however, even with the most expert advice, one cannot establish definitely whether the child's hearing impairment is due to deficient hearing or to the retardation. Time often supplies the answer, as the older a child gets, the more recognizable the defect from which he suffers.

There are several methods by which one can test a child's hearing. The simplest is to note his response to the spoken word or command. Then there is the hand-clapping test that can be tried even on the very young. If the child hears well, he will react quickly to the sound by turning toward it or by blinking his eyes. Another method of testing a child's hearing is by means of a tuning fork. The fork is struck against a hard surface until it resounds. Then it is held at various dis-

tances from the child's ear. However, neither of these tests is conclusive as the child may be responding to the vibrations set up rather than to the sound made. He may appear to react and still be unable to hear.

Another test and one that calls for special skill in its operation is made **with** an instrument known as an audiometer. This test, **however**, calls for co-operation on the part of the child. A mentally retarded child, as parents know, is not able to co-operate well, if at all. There is still another test that holds out promise and that is the psycho-galvanic skin resistance test. This test can be done only by experts.

In all cases of hearing difficulty, the audiologist can be of great assistance both in recognizing the extent of the hearing and in treating the trouble. Above all, he can do a great deal to guide us in training the mentally retarded child who has little or no hearing.

The Speech Teacher

Speech testing is another important link in the chain of investigations. Speech is usually one of the best indications of intellectual progress. Practically all children who suffer from some degree of mental retardation also have some speech defect. Most of them speak so indistinctly and so poorly they cannot be understood. Very few can compose sentences or carry on a regular conversation. Some can say only a few words, and others can only repeat words.

Esquirol, a French medical writer, a contemporary of Seguin, used speech ability as a measure of mental retardation. He classified the mentally deficient into three groups: 1) those who used short phrases, 2) those who talked in monosyllables, and 3) those who just

made inarticulate sounds. Another writer, who classified the mentally retarded according to their speech called 1) those using simple sentences—*simpletons*, 2) those using simple words—*fools*, and 3) those using simple sounds—*idiots*.

Lack of intelligence and of concentration on the part of the child may make it difficult for the doctor to determine the full extent of the speech difficulty. The speech teacher can help the doctor considerably, both with the diagnosis and the therapy.

The Nurse

The nurse, who deals with the child at home or at the hospital, has an opportunity to observe the child's mental reactions and behavior as well as his physical condition. Being objective in her attitude, she can give the doctor more reliable information about the child's mentality than his mother can. There are some children's hospitals that make provision for this type of training for nurses. An example of this new trend is the training program for nurses at the Children's Division of the Cook County Hospital. Here, nurses, under the guidance of specially trained personnel, are taught to observe the child's behavior and actions during convalescence. The Child Development Unit of the hospital has trained many nurses in this direction.

The Social Worker

The social worker is a very important member of the diagnostic team. She acts as the liaison officer, as it were, between the doctor, the clinic, and the home. She furnishes the doctor with information about the home and the economic and social status of the parents.

It is desirable that the worker be one who has had special training in psychiatric social work.

A sixteen-month-old child was brought to the clinic with a history of mental retardation. Both the father and the mother appeared dissipated. The child looked very pale, undernourished, and neglected. The social worker, on investigation, found that the mother was an alcoholic and an epileptic and was constantly under the influence of either alcohol or some drug. The social worker also learned that the mother was not legally married to the father of this child, nor was she divorced from her former husband, to whom she bore two children. The house was in disorder. It was evident that the child could not remain with his mother. Arrangements were made for his care in a foster home where he showed considerable improvement.

The information obtained by the social worker is of the utmost importance to the doctor in his diagnosis and advice. If the parents cannot afford the food, the vitamins or drugs recommended, or the tests required, the social worker can contact the proper social agencies who will assist the parents. In this way, the child will not have to be deprived of the care or medication he requires. Through her follow-up work into the home; she can be of inestimable service by explaining to the parents the importance of carrying out the instructions given by the physician. When the child cannot be kept at home and must be sent to an institution, the social worker who gains the confidence of the parents and feels for them in their trouble, can do much to soften the blow of the tragedy for them.

The School Teacher

It very often happens that the school teacher is the first to call attention to the fact that the child is below par mentally. The parents, in their love and solicitude for their child, are prone to overlook his deficiencies and to condone them or to delude themselves into thinking that the child will outgrow them. When their child starts school, however, and is faced with the competition of other children, his shortcomings become apparent.

The responsibility of the teacher is great. On the one hand, she should be observant enough to recognize the child's handicap and, on the other, she should be careful not to brand him as retarded. He may be just shy, afraid, or immature because he has been overprotected at home. He may have visual or auditory difficulties or may not have the cultural background of the other children in the class. Before the teacher passes judgment that the child is mentally retarded, she should observe him very closely and for a long time. She should also enlist the services of the special personnel provided by the Board of Education—the psychologist, the adjustment teacher, the speech teacher. If the child has to be taken out of the regular class and put into an ungraded room, the situation should be handled with as much tact and understanding as possible to save his parents unnecessary heartache and embarrassment.

The making of a diagnosis and the planning of a guidance program for a mentally retarded child takes the combined efforts of many. It calls for team work of the highest type on the part of the physician, psychologist, audiologist, speech teacher, nurse, social worker, and school teacher.

CHAPTER 3 Early Recognition

Many parents ask how early mental retardation can be recognized.

"Can it be recognized at birth, or at least during the newborn period?"

One cannot give a definite answer to either of these questions, for there are many factors that enter into the picture from the very beginning. In some instances it is possible for the physician to recognize the condition at birth. In others, he may suspect its existence and, in still others, he may not be able to detect it during the newborn period or even during early infancy.

In the Newborn

When a baby is born with mongoloid features, such as slanting eyes, stubby neck, short fingers with curving of the little finger, one usually takes it for granted that he is mentally defective. However, there are exceptions and therefore one must be careful not to classify all babies with slanting eyes as mongolian idiots. Mongolian features are, of course, normal in children of Oriental origin. Occasionally also, one finds slanting eyes and Oriental features among normal white children. It may be a family trait.

Mongolian spots, greenish-blue discolorations, sometimes found on the lower spine of young babies, have

often been associated with a retarded mental state. This is a mistaken premise. These spots, which are due to an increase in the pigment of the skin, are found occasionally in normal, white infants. Several years ago, a baby with mongolian spots on its lower spine was brought to me by a greatly perturbed mother. The mother threatened to divorce her husband whom she accused of being of Asiatic origin and of marrying her under the pretense of being white. The father brought proof to the contrary, but it was not until I had convinced the mother that the spots were no indication of either Mongolian ancestry or mongolian idiocy that peace was restored in the family.

Cretinism and mongolism often present an appearance so similar that it is hard to differentiate between them. We have as yet no definite criteria for differentiating between these two conditions during the newborn period. X-ray and chemical examination of the blood have been successfully employed to differentiate between the two conditions in older infants and children, but these are of no value in the newborn. However, there is a marked difference in their response to treatment. Cretinism responds favorably to treatment; mongolism does not. Therefore, in the former, the outlook is usually good if treatment is instituted early enough; in the latter, the prognosis is poor.

The size of the head is often an indication of the mental state of the child. A small head (microcephalus) or a large head (hydrocephalus) usually indicates mental deficiency if the deviation from normal is very marked one way or another. A very large head may be associated with retarded mentality, particularly where there is also a noticeable defect in the lower spine. This

defect is known medically as *spina bifida*, *meningocele*, or *myelocele*. However, a baby that looks hydrocephalic at birth may turn out to be normal mentally.

Any disturbance of the nervous system in the newborn baby should make one suspicious of possible future mental retardation. The most obvious sign of trouble in the newborn is convulsions, which are indicative of some disturbance in the central nervous system. If the convulsions do not occur again they may not cause serious damage, but if they do, they may result in permanent injury to the brain.

Blue spells in the newborn may also point to some disorder of the central nervous system. They may be brought on by insufficient oxygen in the brain, by hemorrhage, or by inflammation of the brain. Blue spells may also be due to congenital heart disease or respiratory obstruction. No matter what the cause, however, they often affect the mentality.

A newborn baby may show some neurological symptoms at birth and still grow up to be a perfectly normal child. It is, therefore, wise to withhold judgment on his mental status for at least a half year. During this time, he should be seen and studied at regular intervals.

In Older Children

It is a great deal easier, of course, to recognize mental retardation in an older child than it is in an infant. The various stages of the child's development, his actions and reactions, can be judged by more definite standards the older he grows. Even if the parents should be slow in recognizing signs of backwardness in their own child, the neighbors and the neighbors' children will be quick to notice them.

As pointed out previously, children who do not see or hear well often give the impression of being slow. Sometimes a teacher regards a child as retarded when his poor response may not be due to his lack of intelligence at all. Lack of concentration and an inferior grade of school work may be due to an inability to see clearly the figures or letters on the board or to hear distinctly the lessons assigned.

The same reaction to a lesser degree occurs when a child comes from a foreign country or from a very small community. The child just learning a new language in a strange land or the child just taken out of a provincial atmosphere may have difficulty in adjusting himself to new faces and new experiences. In doing so, he may give the impression of being "dumb" when he is merely timid, afraid, or insecure. The fact that he "does not belong," that he is different from the other children about him, may give him complexes that make him feel and act inferior.

Children suffering from behavior problems have often been diagnosed as mentally retarded. It is frequently difficult to say where one ends and the other begins.

A child of ten was brought to our clinic for treatment of mental retardation. On medical and psychological study, it was found that she was not mentally retarded but was primarily a behavior problem. The child was put into the hands of the clinic psychologist who straightened out her behavior difficulty and made it possible for her to return to school where she is now making a fine adjustment.

It is even more difficult at times to decide whether one is dealing with a psychiatric condition or a mental

retardation. Yet, the diagnosis is very important as the management of the two conditions is entirely different.

There is a current notion among many that cerebral palsy and mental retardation are one and the same condition. That is not the case. There are many spastic children who are not mentally retarded and many mentally retarded children who are not spastic. In fact, one finds among spastic children not only great numbers who are of normal mentality but many who are above average intelligence.

Parents often upbraid themselves and their physician for not having recognized mental retardation in their child at an early age. We cannot put the blame on either the parents or the doctor. It is difficult to make a conclusive diagnosis of mental retardation in a newborn baby. It is even hard at times to make a diagnosis on an older child.

In spite of all the obstacles encountered in the making of a diagnosis of mental retardation, one should make every effort to discover the presence of the condition as early as possible. Early recognition means early diagnosis, and early diagnosis means early treatment.

CHAPTER 9 Causes of Mental Retardation

What is the cause of mental retardation?

This question assumes its greatest significance in the search for preventative measures. Unless we know the cause of a disease, we cannot hope to eradicate it. A study of mental retardation among children reveals the fact that there is no single cause but any of many causes that may be responsible for the condition.

Heredity

Until recently, heredity was considered the greatest factor in mental retardation. Some authors claimed that 77 per cent to 90 per cent of mental deficiency was due to heredity. The evidence, however, is far from convincing. The "Kallikak family," in whom mental deficiency was found in successive generations, was cited as conclusive evidence of hereditary degeneration.

The story goes that a certain Martin Kallikak had illicit relations with a barmaid of low intelligence and that all the descendants of this union were mentally deficient. The descendants of Martin's lawful wife, on the other hand, were persons of more than average intelligence.

It has been shown by careful investigators, notably Myerson and Evans, that the proof of a hereditary factor in this oft quoted example is open to question. In the

first place, most of the evidence was based on hearsay and the opinion of unreliable persons. Moreover, the feeble-mindedness of the tavern maid was never fully established. As for the study itself, it was made almost a century and a half ago, long before there was any scientific way of measuring intelligence.

On the other hand, one cannot disregard the role of heredity in mental retardation. I know one couple who had five subnormal children. In a case of this kind, there must have been an hereditary or rather a familial factor. Mental deficiency in a child with congenital syphilis is definitely traceable to heredity.

Heredity, however, is by no means as important a causative factor in mental retardation as it was formerly thought to be.

Prenatal Causes

The health of the mother during pregnancy may affect not only the physical but the mental health and development of her child.

It has been known for years that kidney trouble with consequent high blood pressure may cause neurological disturbances in the infant. It works in a vicious circle. Kidney trouble brings on high blood pressure. High blood pressure is often responsible for prematurity. Prematurity predisposes the newborn baby to disorders of the nervous system. Disorders of the nervous system go hand in hand with subnormality.

German Measles

The relation of mental retardation to German measles of the pregnant mother has been definitely established during the last decade.

In 1941, Gregg, an Australian physician, reported seventy-eight cases of congenital cataracts observed in children whose mothers had had German measles during pregnancy. Two years later, a group of Australian doctors corroborated his observation. They found that many children who were mentally deficient also had congenital heart trouble and cataracts. They traced all three to German measles contracted by the mother during the first three months of pregnancy.

Does German measles justify the termination of the pregnancy?

This is a question on which I am consulted from time to time by physicians and prospective parents. Most authorities advise the termination of the pregnancy, with which I agree. I do not, however, insist on this procedure if the parents wish to take a chance. Although the possibilities for a normal baby are not too great, not every mother who has had German measles during pregnancy gives birth to a mentally retarded child. Hundreds of perfectly normal babies are born every day to the mothers who have had every kind of complication during pregnancy.

Although German measles has been quoted most frequently as the cause of mental retardation, other infectious diseases like regular measles, chicken pox, and whooping cough, suffered by the mother during pregnancy, may also have an injurious effect on the mentality of the child.

Rh Factor

Recent investigation has disclosed a connection between mental retardation and incompatible Rh factor, in the parents and the child.

Some cases of mental retardation are due to differences in the Rh factor of the blood of the mother and the child. This is found usually when the mother is Rh negative and the child Rh positive. When the two types of blood come into contact with each other, there is an incompatibility that may result in a severe jaundice or even death of the newborn. The condition of the brain is called nuclear icterus or kernicterus because of the bile found around the nuclei or kernels of the brain. The discoloration from the bile poisons the brain and interferes with its function. Formerly, infants with an Rh disturbance died shortly after birth. Now, however, with our new method of treatment by blood transfusion, we can usually save the life of the baby but not always his mentality.

Irradiation

Some investigators claim that repeated x-ray or radium treatment of the mother during pregnancy may result in some brain disturbance in the child.

Emotional State of the Mother

Has the emotional state of the mother during pregnancy any effect on the child's mentality?

The consensus of opinion is that one has no bearing on the other. A scare, a shock, or any experience that might have an upsetting effect on the mother emotionally during pregnancy would not affect her child's mentality.

Consanguinity

Consanguinity, blood relationship, particularly marriage of first cousins, has often been claimed to be the

reason for offspring of deficient mentality. The facts do not corroborate this claim. One may see an occasional case of mental retardation in a child whose parents are first cousins, but one also may find unusual talent in such children.

Age of Parents

Years ago, it was thought that mongoloid children were born only to parents over forty years of age. In fact, one authority claimed that 75 per cent of the mongoloids were born to older parents. We are studying this question in our clinic at present. Up to date, most of the mongoloid children we have seen were born to parents under thirty years of age.

Some investigators believe there is a definite relationship between the age of the mother and the occurrence of birth injuries in the baby. They base this claim on the fact that cases of this kind have been found to occur most frequently in children of young mothers. The contributing factor here, we feel, is not the age of the mother but the prolonged labor associated with the birth of the first child. Until more data is gathered on this subject, I think we are safe in assuming that the age of the parents, particularly the age of the mother, cannot be made responsible for mongolism or any other defect.

Birth Abnormalities

INSUFFICIENT OXYGEN IN BRAIN: An insufficient amount of oxygen in the brain right after birth is known as brain anoxia. If this condition lasts more than a few minutes, some brain cells may die and some symptoms of brain disturbance may manifest themselves. Brain

anoxia (insufficient oxygen in the brain) is usually associated with an inadequate supply of oxygen in the lungs. Oxygen hunger occurs when there is an obstruction in the breathing apparatus such as a plug of mucus in the windpipe.

Difficult labor, prolonged labor, or premature separation of the placenta may cause neurological disturbances in the newborn by producing cerebral anoxia.

DELIVERY: Even the anesthetic administered to the mother may be of significance in the causation of mental retardation. Medical men are not in agreement as to whether it is or is not better to dispense with an anesthetic during delivery and return to nature's primitive method of childbirth. If an anesthetic is employed, the question arises: "Which anesthetic offers the least danger to mother and child?" Quick instrumental delivery versus prolonged labor is another debatable question among physicians, particularly obstetricians and pediatricians.

BRAIN HEMORRHAGE: Injuries to the baby's head during birth, resulting in hemorrhage in the brain or its coverings, may result in mental deficiency. It should be made clear, however, that when we speak of injury to the brain we do not refer to mechanical injuries due to the use of forceps. Some parents, when told their child had a birth injury, immediately place the blame on the physician who delivered the baby. Brain injuries may occur in a natural birth during the passage of the baby through the birth canal. Considering how small the birth canal is and how large the baby's head is, it is surprising how few brain injuries occur during delivery. The hemorrhage in the brain does not have to be ex-

tensive. Sometimes even a small hemorrhage may do a great deal of damage.

PREMATURITY: Disturbances of the brain may occur much more frequently in premature than in full-term babies. This is due to the fact that the blood vessels of the brain in prematurely born infants are thinner than those of the full-term baby. They, therefore, give way more easily. The entire nervous system of the premature baby, being more fragile than that of the full-term infant, cannot withstand the impact of life as well.

UNDERDEVELOPMENT OF THE BRAIN: As has been pointed out in the chapter on the brain, some children are born with brains that are not fully developed. We cannot account for this underdevelopment but we do know that it is always associated with a mental retardation.

CRETINISM AND MONGOLISM: Insufficient secretion of the thyroid gland results in stunted growth, underdevelopment of bone structure, and above all, retarded mentality. This condition is known as cretinism.

Occasionally, mental retardation may be due to impaired function of other glands of internal secretion, such as the pituitary and pineal glands. These have been discussed previously in connection with the brain.

Several theories have been advanced as the cause of mongolism. Some authorities believe that it is due to metabolic disturbances of the mother during pregnancy. It is possible that a metabolic disorder of **the thyroid** of the mother may have some relationship to mongolism. Earlier in the chapter we discussed the other theory—the advanced age of the mother, which we believe is of little or no causative importance.

Infections

SYPHILIS: Not so many years ago, many cases of mental deficiency could be traced to syphilis of the parents. The condition was not often diagnosed until the child was about eight or nine years old when it came to light together with other syphilitic symptoms. Fortunately, the incidence of syphilis has dropped considerably with the early diagnosis and treatment of the condition. With the decrease in the spread of syphilis has come a corresponding decrease in the number of cases of mental retardation traced to this cause. Syphilis, however, must not be overlooked as a possible cause.

ENCEPHALITIS: Encephalitis, inflammation of the brain, suffered during infancy or childhood may be followed by various degrees of mental retardation. The inflammation is usually due to bacteria or to some virus infection. The encephalitis often passes unnoticed when it first occurs. It may not be until months later that the mother recalls, on questioning, that during an attack of tonsillitis or pneumonia, the child had been very drowsy or had a high temperature or a convulsion.

There is another type of inflammation of the brain that is a forerunner of impaired mentality. It is caused by a parasite and is known as toxoplasmosis.

MENINGITIS: Although meningitis is an inflammation of the covering of the brain, the infection may spread to the brain proper under the meninges. When the damage extends to the brain, mental retardation usually follows. Sometimes the retardation is due to pressure on the brain by the cerebrospinal fluid which is always increased in meningitis.

Chemical Poisoning

LEAD: It was Benjamin Franklin who originally called attention to lead poisoning that occurred among printers. It is only recently, however, that lead poisoning has been discovered among infants and children. Practically all lead poisoning in children affects the nervous system and it is invariably followed by mental retardation.

"How do children come into contact with lead?"

Lead poisoning in children has been traced to two principal sources: 1) the licking of toys containing lead and 2) the inhalation of lead fumes. Most of the toys containing lead are manufactured in Japan, but some are made in this country. The infants ingest the lead and get chemical poisoning.

Battery casings that have been discarded and thrown into empty lots are often picked up by poor unsuspecting parents and used to heat their homes. The fumes they give off are inhaled by the children who become unfortunate victims of lead poisoning and its aftermath—subnormality. Sometimes we encounter several cases of lead poisoning in a single family. In one family I found five children and a dog suffering from lead poisoning.

Years ago, when medication containing arsenic was prescribed rather frequently, we had occasional instances of encephalitis following its use. The chemical reaction set up in the brain produced symptoms of mental retardation. Arsenic is so rarely prescribed today that it can be dismissed as a causative factor.

Trauma

Some cases of mental retardation may be traced to an injury to the head. The injury may have been a minor one, such as an ordinary fall from a step or a chair, and it may have been overlooked or passed over as of no consequence at the time. However, before one places the blame for the retardation on the trauma, he should make sure that the condition did not exist prior to the injury.

Nutritional Deficiencies

There is accumulating evidence to show that disorders of nutrition may cause some disturbances of mentality. We do not know just what lack of metabolic food element may be responsible for the retarded development, but we do know that, when the nutritional deficiency is corrected, there is marked improvement in the mental reaction of the child.

Congenital and Acquired Causes

It is not always easy to decide between the causes present at birth and those acquired later. If the child was slow in balancing his head, following light, crawling, sitting, walking, or talking, it is most likely that his mental condition was below normal at birth. Incomplete development of the brain or injury to the brain could be responsible for the condition. If the child appeared normal at birth and later showed signs of subnormality, inflammation of the brain can be considered.

Sometimes, however, the history is very involved. The child may have been slow in his muscular development to begin with, and in addition, he may have had a pneumonia or other infection with convulsions that

affected his mental functioning. In such a case, it is difficult to decide whether insufficient brain development or inflammation of the brain is the underlying cause of the retardation. Sometimes, the reason, like life itself, is veiled in mystery.

Summary of Causes of Mental Retardation

I. *PRENATAL:*

- A. Kidney disease and high blood pressure during pregnancy.
- B. Infectious diseases of pregnant mother, especially German measles
- C. Rh disturbance
- D. Irradiation

II. *BIRTH ABNORMALITIES:*

- A. Insufficient oxygen in brain
 - 1. Respiratory obstruction
 - 2. Difficult labor
- B. Brain hemorrhage
- C. Prematurity
- D. Underdevelopment of brain
- E. Cretinism
- F. Mongolism

III. *INFECTIONS:*

- A. Syphilis
- B. Encephalitis
- C. Meningitis

IV. *CHEMICAL POISONING:*

- A. Lead

V. *TRAUMA TO THE HEAD*

VI. *NUTRITIONAL DEFICIENCIES*

CHAPTER 10 Prevention of Mental Retardation

Can mental retardation be prevented?

In many cases, mental retardation cannot be prevented. Occasionally, however, it may be if we can remove the conditions that cause it.

In the preceding chapter, we discussed the many conditions that might lead to mental retardation. In this chapter, we shall point out the various ways in which we can attack these causes and remove their pernicious effects.

We can start the work of prevention of mental retardation before the baby is born.

Before Birth

Prevention of infectious diseases during pregnancy, particularly during the first three months, will go a long way toward the prevention of physical and mental disturbances in the child.

The expectant mother should have repeated blood pressure determinations and frequent examinations of her blood and urine.

The expectant mother should avoid exposure to any infectious diseases, but particularly to German measles. A great deal of experimental work has been done on methods of preventing German measles in pregnant

women who have been exposed to the disease. So far, no definite conclusions have been reached. It is the opinion of some medical men that the injection of serum globulin will either prevent or lessen the effect of German measles on the future child.

Since prematurity may be one of the causes of mental retardation, whatever means we take to prevent it would result in a reduction in the number of mentally retarded children.

In the Newborn Period

Prevention of mental retardation should be thought of with the first breath the baby draws.

If the baby does not breathe well at birth, it has to be resuscitated. Proper methods of resuscitation are of great importance. The sooner the respiratory pathways of the newborn babe are cleared, the fewer the chances that the brain will be deprived of oxygen. Oxygen hunger, as pointed out previously, has been found to be a frequent forerunner of mental retardation.

The nervous system of the newborn is very sensitive and must be protected from shock of any kind. Therefore, the less a newborn baby is handled the better. This applies to all babies, but particularly to the premature infant whose nervous system is much more susceptible to disturbances of any kind than that of the full-term baby. Premature infants get chilled very easily and must not be exposed to the air too much. They have to be kept in electrically heated incubators and fed with a medicine dropper or tube. It stands to reason, therefore, that careful handling of premature infants is of the greatest importance in our early war against the onslaught of mental retardation.

Since convulsions in the newborn are closely associated with mental deficiency, anything we can do to prevent their occurrence or to lessen their frequency will be a step forward in the prevention of mental deficiency.

Blood transfusions for the newborn baby in cases of an Rh disturbance are not only a life-saving measure, but they may often be effective in preventing mental deterioration.

Repeated drainage of the bloody fluid from the skull, in a special type of hemorrhage known as subdural hematoma, may remove the possibility of a mental retardation.

In Infancy and Childhood

Just as it is important to examine the baby's toys for sharp edges, it is also necessary to see that the toys contain no lead. Babies chew anything that comes their way and if the toys contain lead, the baby may get lead poisoning, which may lead to mental retardation. It is, therefore, advisable to make sure that the paint on the toys contains no arsenic or lead.

Battery casings should not be used for heating. In avoiding lead poisoning from these sources, we would be preventing its aftermath—mental deterioration.

Some medical men believe that children born with a thyroid deficiency will not become mentally retarded if they are treated before they are a year old. Even if the thyroid treatment is effective in only 50 per cent of the cases treated, we owe every child suffering from hypothyroidism the benefit of the doubt and should put him on thyroid extract as early as possible.

In many cases of encephalitis, which is so frequently associated with mental retardation, the damage done by

the disease is discovered too late. However, there are two forms of encephalitis that are definitely preventable: the encephalitis that sometimes follows whooping cough or measles and equine encephalitis. Whooping cough encephalitis can be prevented by immunizing the child against whooping cough as early in infancy as possible. Fortunately, there is a simple method of preventing measles or lessening its severity when the child has been exposed to the disease. The administration of immune globulin, if given early enough, will prevent the occurrence of the disease. However, even if given after the child has acquired the measles, the disease will usually be very mild and encephalitis will seldom, if ever, result.

Another preventable type of encephalitis is equine encephalitis. This disease attacks horses in certain regions of this country. The horses, in turn, transmit the disease to children who come into contact with them. Immunization of the horses against the disease will prevent the spread of equine encephalitis.

During A Acute Illness

Children who pass through an acute infectious disease may be left with some psychological disturbance that may affect them mentally and emotionally. Proper psychological guidance given to every child during and after an acute infectious illness may prevent emotional disturbances later.

Some fine work in this direction is being done in one of our large municipal hospitals through its Child Development Unit. The sick child, no matter what his ailment, is studied and observed carefully during the acute stage of his illness and during convalescence. As soon as his condition permits, he is given recreational

therapy adapted to his age and his state of health. Before he leaves the hospital, everything possible is done to help him make his adjustment to a normal program. Many children's hospitals are beginning to recognize the importance of restoring the child not only to physical but to mental health.

A prolonged stay at a hospital not only tends to make a chronic invalid of a child, but it makes inroads on his mental capacities. Some young children who have been at the hospital for a long time show a delayed speech development. Older children often lose their ability to express themselves because of the many hours they are alone and out of social contact with well children and their normal activities. All pediatricians agree that a child should be sent home from the hospital as soon as his physical condition permits, in order to avoid harmful psychological reactions and a retarded mental development.

Prevention of Head Injuries

All children fall at one time or another. Most of the falls are harmless. Occasionally, however, a child hurts his head and may run into serious trouble. Parents should try to prevent all accidents but particularly head injuries in children. As a matter of precaution, any child who has fallen on his head should be taken to a physician for examination. He may discover something which will be of great importance to the future of the child. If he finds nothing, the examination is still worth while for the reassurance it gives the parents.

CHAPTER 11 Treatment of Mental Retardation

For many years it was taken for granted that nothing could be done medically for children who were mentally retarded. As a result, little or nothing was done for many of them in the way of medical treatment. With our constantly increasing knowledge of the many ramifications of mental retardation, we have begun to realize that retarded children, like all children, are entitled to regular medical attention. If the mental retardation itself cannot be improved medically, we know that many of the conditions that accompany and aggravate it can. Convulsions can be controlled; nutritional deficiencies can be corrected; speech defects can be improved.

Although no specific treatment has yet been discovered that will act as a cure for mental retardation, it would be wrong to leave a mentally retarded child without treatment or without medical management. If left without medical attention, the mentally retarded child will go from bad to worse and become a burden to his parents and to society. Even in the days before streptomycin was discovered, when tuberculous meningitis was considered fatal, I felt it was wrong to leave a child with tuberculous meningitis untreated, to put him in an isolation room and wait for him to die.

Drugs

The medical treatment of mental deficiency differs with the cause and the severity of the condition. Every case must be individualized.

If the trouble is due to insufficient thyroid, the administration of thyroid extract is indicated.

It is estimated that 25 per cent of the cases of acquired hypothyroidism can attain normal mentality if treated early enough, during infancy if possible. However, even in older children, thyroid extract may be of great benefit. One of our patients, a girl thirteen and a half years of age, showed an increase of fifteen points in her I.Q. after the administration of thyroid extract.

We take a much broader view of hypo- or insufficient thyroid function than was taken years ago. Formerly, hypothyroidism was diagnosed only in children who showed extreme signs of insufficient thyroid secretion in the body, such as, sallow face and protruding tongue.

Today we know that hypothyroidism varies in degree. Children with sub-clinical hypothyroidism show only mild symptoms. The administration of thyroid improves both their physical and mental condition.

Mental retardation, due to inherited syphilis, is treated by penicillin. There is little likelihood of a sub-normal child with congenital syphilis becoming normal as the damage to his nervous system is too severe at the outset. In some cases, however, antisiphilitic treatment may be followed by marked improvement in the mentality.

In mental retardation due to lead poisoning, the symptoms accompanying the poisoning grow less severe under treatment.

There is one drug that has recently raised the hopes of many parents and that is glutamic acid. Because of the great publicity given this drug, parents have been demanding it of their physicians. The fact that it can be given by mouth and does not have to be injected into the veins like so many other drugs and serums, has added to its popularity.

The original work on glutamic acid was done on animals in 1936. It was found that glutamic acid increased the activity of the brain and raised the sugar metabolism. Later, a group of clinicians tried the drug on human beings.

A great deal of work on glutamic acid has been done in this country. Up to date, however, the results have not been uniform. One group of investigators, notably Zimmerman and his colleagues, recommends its use very highly on the ground that it raises the I.Q. considerably even in mongolian idiocy. Some found it of benefit in certain cases but not in all. Others report little improvement from its use. The effect of the drug, therefore, is still controversial. However, all agree that, when used, it should be given in large doses, as small doses are ineffective.

In some cases, parents have reported marked improvement after the administration of glutamic acid. The statement of parents, however, cannot always be relied upon. In their anxiety to see a change for the better, they often let their wishful thinking get the better of them. One cannot blame parents for grasping at anything they think might help their child, nor can one censure them if they insist that the doctor give their child what they feel might be a "miracle drug," even though he may not always agree with them.

The determination of the effect of glutamic acid on mental deficiency will have to await further scientific investigation. On the basis of the research we are carrying on at the Dr. Julian D. Levinson Research Foundation, we are hopeful that some amino acid will prove of value. At present, I see no harm in administering glutamic acid provided the parents understand that it is not a cure-all for mental retardation.

One of the conditions that requires drastic treatment is convulsions. Fortunately, not all cases of mental retardation suffer from convulsions, but those that do require vigorous treatment, as every convulsion does some damage to the brain. No convulsions should be left untreated. The treatment varies with the character of the seizures. Electroencephalographic tracings often help in determining the type of convulsion and the drug effective for it.

Convulsions are due primarily to a disturbance of the nervous system. Any infection in the body, however, may precipitate a convulsion, particularly in a brain that is not normal. By removing the factor that causes the convulsion, we can often prevent its recurrence. For instance, if diseased tonsils are the root of the trouble, their removal may eliminate the infection and the consequent convulsion. Not all of the preventive measures advocated have the effect claimed for them. Circumcision, for example, has no influence on convulsions, nor is the old belief that teething causes convulsions substantiated by facts.

Corrective Measures

We have no specific medical treatment for the speech difficulties that often accompany mental retardation.

The cutting of the frenulum, the little fibrous cord at the base of the tongue, has been recommended for the improvement of the speech of a subnormal child. This treatment, however, has no effect on the speech impediment which is due not to any malformation in the mouth or larynx but to trouble in the central nervous system.

The teeth and gums of every mentally retarded child should be given special attention. Many mentally handicapped children have some deformity of the teeth. In some cases, the teeth are pointed, in others, pegged. Early decay of the teeth and inflammation of the gums are common. Frequent examinations of both are of utmost importance to the general health.

Disturbances of vision and hearing, which often accompany mental retardation, should be taken care of, particularly in borderline cases.

The posture of many mentally handicapped children is poor and calls for correction. Orthopedic treatment and corrective exercises should be given where deformities are present.

Surgery

Brain surgery has recently been advocated for the treatment of mental retardation. The operation, known as revascularization, was introduced by Doctors McKhann and Beck. It consists in the uniting of an artery and a vein in the neck. This is done to permit the flow of more arterial blood to the brain, thereby supplying oxygen to the cells deprived of it. The operation is employed not only for mental retardation but also for convulsive disorders. The innovators of revascularization report improvement following their operation in 35 per cent of mentally retarded children, particularly in those

with convulsions. These results are not borne out by others who have done the operation. Not enough time has elapsed to warrant any positive statement about the merits of the procedure.

I have tried an operation for loosening adhesions around the brain in a condition known as arachnoiditis. In this condition, the covering of the brain sticks to the brain and prevents it from expanding. The number of cases on which this operation was performed is still too small to report on its effectiveness. I believe, however, it may prove of value. Even if it does not act as a cure, it may help to arrest the deterioration.

Pneumoencephalography, in which the fluid around the brain is removed and the brain spaces filled with air or other gases, is sometimes valuable in treatment. Although the effectiveness of this procedure has been questioned, I have observed dramatic results following its use on some occasions. It relieves the pressure around the brain and helps to break up adhesions that may be present. Some physicians claim that pneumoencephalography offers only temporary relief as the fluid may reaccumulate. However, even though the results may not be permanent, the treatment is worth trying because of its alleviation of the existing symptoms. Further study will tell how effective this treatment is.

Nutrition

Keeping up the general nutrition is a matter of importance. Occasionally, one finds a mentally retarded child who is overweight. In such a case, dietary management is necessary. The majority of mentally deficient children, however, are thin and often pale and emaciated looking. Feeding is frequently a problem, especially

for those children who have difficulty in mastication. Many even have to be spoon-fed. Some children cannot retain liquids and should have an all solid diet. Each case should be studied for the special food problem it presents and individual treatment prescribed. The most important thing to remember is that the child must eat and be able to digest his food if he is to grow and develop. All children need vitamins in addition to their regular food intake and these should be prescribed for them by the physician.

Improvement in nutrition is often followed by improvement in the mental status of the child. This has been demonstrated in our clinic, time and time again.

A colored male, sixteen months of age, was brought to the clinic. He was unable to sit, did not utter any words, and did not seem to understand when spoken to.

The mother had been told previously that he was mentally retarded and little could be done for him.

After a series of tests, including x-ray, blood counts, and psychological examinations, it was decided that the child's mentality had some relation to the physical underdevelopment and his general undernourishment.

Proper feeding and vitamins were prescribed.

At the next visit to the clinic, three months later, the child showed a gain of almost five pounds and a marked improvement in his mental condition. He was alert. He spoke a few words, laughed when his mother played with him, was able to walk holding on to his mother's hand, and was responsive to his surroundings and those about him. In every way, he showed a definite change for the better in his mental reactions.

An Italian baby, ten months old, was brought to the clinic because he was unable to sit up, did not respond to sound, and was thought to be mentally retarded.

The child looked anemic, underdeveloped, and undernourished.

Proper nutrition was recommended together with vitamins and iron.

On his return to the clinic two and a half months later the child was able to sit unsupported, and to stand holding on to a chair. He looked much brighter all around and appeared to notice everything around him. His mother reported a definite improvement in all of his actions.

The two cases quoted above belong to the type of mental lagging we often encounter in children with nutritional disturbances. The condition appears to be a slow mental development rather than a true mental retardation. The very fact that the correction of the nutritional deficiency results in a speeding up of the mental progress seems to corroborate this idea.

CHAPTER 12 Education of the Mentally Retarded Child

The education of the mentally retarded child is one of the most vital problems confronting the parents, the teacher, and the community. On the one hand, we realize that the mentally retarded child, like the normal child, is entitled to an education. On the other hand, we know that he does not fit into the regular system of education. Special teaching, therefore, has to be arranged for him to fit his particular capabilities and needs.

From the standpoint of education, mentally retarded children are usually classified as *educable* or *uneducable*.

Among the educable are included those with I.Q.'s above 50; among the uneducable, those with I.Q.'s below 50. The public school system makes provision for the former in special classes or ungraded rooms but it makes no provision for the latter. No public school attempts academic training for children whose I.Q., determined by reliable, valid psychological test findings is less than 50.

Although I shall employ the classification of "educable" and "uneducable" in the discussion that follows because it is so widely accepted, I feel that the term is really a misnomer, as there are hardly any children who can be considered entirely uneducable. Even those

who are looked upon as uneducable from the standpoint of formal education can be taught something of practical value and can profit from appropriate training.

The best example of the educational potentialities of the so-called uneducable child is the mongoloid. For years there was a deep-seated impression that a mongoloid child could not absorb knowledge. I have seen mongoloid children who made considerable progress under the supervision of a young woman who devoted a great deal of time and energy to their education and training. Her success is an example of what can be done by interested, trained persons who are willing to make the education of such children their life work.

The principle underlying the education of a mentally retarded child is the development of all his potentialities by every possible means. It is surprising how much one can accomplish with patience and ingenuity. Children who would be considered failures in "book learning" might do well in gardening and in nature study. Some learn to do plain sewing, weaving, and carpentry. Others can do simple art work under guidance. Still others take to music, dancing, rhythmic play. All children love animals as pets and can be taught a great deal about their care and habits.

The emphasis in all cases must be on the practical instead of the theoretical. The idea behind the education of the mentally retarded is the development of the undamaged portion of the brain, to compensate for the damaged area.

The education of the mentally retarded child naturally differs with the degree and type of his retardation.

The Borderline Child

The child who is nearest the normal standard, the one whose intelligence quotient is from 75 to 85 is known as the borderline child.

The borderline child presents the best prospects for education and yet he is the most pathetic and most unhappy of all retarded types. He is intelligent enough to realize that he is different and that makes him very sensitive. He feels he is unwanted because the other children won't play with him. They do more than that. They poke fun at him and call him names. They taunt him in the brutal way children often show toward those they consider inferior.

No wonder that the borderline child feels that he "does not belong." No wonder that he becomes a problem child and falls an easy victim to every evil influence that makes him feel he is a somebody and can do something.

The borderline child is frequently worse off than the more severely retarded child because he is placed either with children above his mental level, which thwarts him, or with children below his mental level, which degrades him. Many parents make the mistake of trying to keep their borderline child in a class with normal children. Some teachers, in their anxiety to please the parents, concede to their wishes, only to find that the child cannot keep up the pace for very long. It is best, whenever possible, to put the borderline child in a class with children of his own level of intelligence.

Special Education

In the chapter, "Historical Survey," I referred to the work of Seguin, one of the earliest advocates of educational training for the mentally deficient child. In this chapter, I shall discuss the need for specialized education for the subnormal child that led to the establishment of special classes in the public schools.

The idea originated at a meeting of the American Teachers Association held in 1878. The first city to act on the suggestion was Cleveland with the establishment of two special classes in the public schools. In 1892, Chicago followed Cleveland's example. The Chicago experiment later developed into the Department of Child Study where "slow learning" children are tested psychologically and then placed where they belong. Special rooms and classes for children who do not fit into the regular groupings, are now found in hundreds of cities throughout the United States.

Special Classes

It is an art to teach normal children. It is an even greater art to teach the subnormal child. One who undertakes the instruction of mentally retarded children needs more than general training as a teacher. She must have an understanding of the personal, psychological, and social problems presented by the children she is called upon to guide. She should know the special characteristics of the subnormal child, his physical in-co-ordinations and his mental deficiencies. She should teach him at his own level and yet feel her way to go slightly above that level if the child's progress permits it. She must stress the concrete and avoid the theoretical

as much as possible. The period of instruction should be very short and the subject matter varied as the child's concentration is usually poor and his memory span brief. She should praise and encourage the child whenever possible to make the road of learning pleasant for him and to give him the feeling of success.

Above all, it is up to the teacher to discover the special inclinations and interests of the child and utilize these to his best advantage. It would be foolhardy, of course, to expect a teacher or any human being to do all of these things with a class of forty or even thirty which is the number many teachers of regular classes have to contend with. The limit should be eight or at the most nine children in a class of this kind. The ideal arrangement would be only five children to a teacher. Then the teacher could give all the children in the class the individual attention they need and still give each child an opportunity for group work and social contact with other children.

With such a set-up, parents would not have to complain that their children in the special classes in the public school do not learn anything but spend most of the school time in play. With well-trained teachers and small classes, the retarded child would be given every opportunity to progress as far as he is able to. Of course, one must sound a note of warning here, that the child should not be forced beyond his capabilities or absorptive powers. Too much pressure may produce an emotional block that will interfere with his mental development.

Outside Activities

Should a retarded child be encouraged to engage in extracurricular activities?

If special speech lessons or corrective gymnastic exercises are included as outside activities, I would say that they are necessary in certain cases of mental or physical impairment. They should, however, not be overdone.

Some parents go to the extreme of hiring tutors for their children to bring them up to grade. That is not to be recommended generally, as tutoring often burdens a child and confuses him. Needless to say, retarded children should have no homework. If they cannot absorb learning at school, they surely cannot "make it up" at home.

I have often been asked about radio and television. Whatever one thinks of these amusements for normal children, they should not be allowed in too large doses for retarded children. In fact, any programs that overstimulate or overexcite the child are to be avoided. Victrola records, carefully chosen at the child's level, entertain the child without arousing him too much. Tiring the child or putting too much strain on his nervous system is to be guarded against at all times.

Children With An I.Q. Below 50

Since a child with an I.Q. below 50 is not admitted to the public schools other provisions have to be made for him. If it can be arranged, he should be sent to a day school where he can receive training five days a week and still have the benefit of the mother's care when he comes home. If a day school is not available, he may

have to be sent away to a boarding school. Unfortunately, the private schools that can offer the best facilities are out of reach of the average income family because of the tremendous expense they involve. The day school, too, although less expensive, is still more than most parents can afford, particularly if they have other children to support. Often, therefore, the mother has to bear the burden of not only the care, but of the education and training of her subnormal child.

If the public school is not equipped to care for children whose I.Q. is below 50, the city and the state should subsidize schools that can take care of such children and educate them to the best of their ability. If it were not for groups of parents all over the country who are establishing and conducting their own schools, children with an I.Q. below 50 would get no education at all. I hope the time will come when every public school will have special classes or ungraded rooms where children with an I.Q. of 40 or lower will be accepted. This would relieve the trying situation found in many poor homes.

The Preschool Child

Experiments have been carried on recently to teach and train mentally retarded children of preschool age. The reports are very encouraging. There is no doubt of the fact that, if a preschool program for young, mentally handicapped children were instituted in the public schools of every large city, there would be fewer failures during the first few years of school. Moreover, the tremendous sums paid for special education and care at a later age would be materially reduced.

The program designed for the subnormal preschool

child is much like that of the normal child. It centers around free play of all kinds that stimulates imagination and creative expression. The child is given an opportunity to express himself through games, toys, and various other media in a social atmosphere with other children similarly placed.

Personal Hygiene

The education of the mentally retarded child should include attention to personal hygiene. He should be taught to wash his hands before eating and after going to the toilet. He should learn to brush his teeth and to comb his hair.

Social Education

Social education should be part of the general education of the mentally retarded child. An attempt should be made to bring him into contact with normal children, at least part of the day. If that is not possible, he should be brought together with children of his own mental level so as to develop in him some social consciousness. Group participation is as important for the retarded child as it is for the normal child. Assembly programs, concerts, school plays, and all sorts of recreational activities in which normal children take part should also be provided for the mentally retarded child. Summer camps and farms for retarded children offer the best solution for the child's need for social contact with other children.

Play Therapy

Emotional problems of the retarded child may yield to play therapy. Observation of the child's play often gives

a clue to his feelings and behavior. The psychotherapist is trained to understand the meaning of the child's play activities just as the psychiatrist who works with adults, is trained to understand the emotional phase of his patient's conversation.

The retarded child needs much more guidance in his play than does the normal child. He also needs training in concentration and constructive outlets to replace his natural instinct for destruction. It may take considerable time and effort to achieve these results but the response to continued effort and interest on the part of the play therapist is often very gratifying.

There are children in whom the restriction of intelligence is a secondary process resulting from anxiety and inability to adjust themselves. The outlook for these children depends upon the severity of their emotional disturbance. Successful treatment, however, brings greater ease and better functioning.

Music Therapy

Music therapy, which has been found of value in convalescence from various diseases, has proved very beneficial in the teaching of the mentally retarded child. Many children who cannot absorb formal education of any kind can be taught rhythm. Music has a calming effect on the child who is naturally high strung and irritable. It not only keeps him interested but it helps him concentrate.

Plastic Art

Plastic art, more popularly known as clay modeling, is one of the best media of expression found in every nursery school and kindergarten. Clay modeling can be

utilized to greatest advantage in the education of the mentally retarded child. It helps him express himself creatively and at the same time gives him an outlet for his aggressiveness and his emotional problems. Moreover, it is easier to handle than crayon or pencil and makes it possible for him to use both hands at once. The softness of the material and the many possibilities it offers for constantly changing forms keep up the child's interest for a greater period of time than any other form of constructive work or play.

Education of Institutionalized Children

Even children, who are institutionalized because they are considered hopeless, should not be left without some kind of training. Heads of institutions are getting away from the idea that the children are there for custodial care only and that their parents have sent them there to get rid of them with the hope that they won't live too long.

Institutions must change not only their program but their very name. They should be known as schools and not as just asylums for the mentally unfit. Fortunately, the newer trend is now moving in that direction. A few of the more progressive state institutions are now called schools, and they justly pride themselves on their humane treatment of the children and on their fine plans for their rehabilitation. With the introduction of modern and scientific methods of education for the mentally deficient, the attitude of parents and the public toward the state institution will change for the better.

CHAPTER 13 Vocational Training and Guidance

The ultimate goal in the education of the mentally retarded child is to have him learn to help himself. More specifically, his teaching should be directed toward the earning of a living. There is nothing that parents of a retarded child desire more than that their child be able to support himself, particularly if anything should happen to them.

There was a time when a child of subnormal mentality was doomed to a life of inactivity and boredom. Fortunately, this attitude has been completely changed. Such a child is no longer looked upon as a total liability. He will not be a burden to the community if proper means are taken to guide and train him to the full extent of his capabilities. Educators, vocational counselors, and employers all agree that many boys and girls of limited mental capacity can be trained to fill a place in our industrial system.

It is obvious that retarded children cannot be expected to become scholars or to be prepared for any professional work. They are not college material; they are not even high school material. Many of them, however, can be taught some trade or skill that will make it possible for them to make a living. As a matter of fact, the world is full of people who can manage to hold down

a job but who would fail miserably in a psychological test.

Of course, it is understood that one with a very low intelligence cannot be expected to hold any kind of job. However, a boy or girl with fair intelligence can usually be placed in some kind of position and can make good at it if the requirements are not too demanding. The higher the I.Q. of the prospective worker, the more specialized the job he can fill. In rural communities, there are chores about the farm that can be done, planting, harvesting, taking care of the animals, cleaning the barns, bringing the produce to market. In the cities, there are industries of every kind. In a city like Detroit, hundreds of unskilled workers can find jobs connected with the manufacture of automobiles and machine parts. The same is true of other industries, like clothing, shoes, and furniture. There is work and room in thousands of factories and shops throughout the United States for the employment of every retarded youth who has any potentiality for training. There is a flourishing lamp factory in Eindhoven, Holland, where all the work is done by mentally retarded adolescents. There is no reason why similar experiments cannot be carried out in this country.

Pertinent Factors in Vocational Training

The training of a mentally retarded child with the view of preparing him to become a working member of society, is a long-range program that calls for the cooperation of many interested persons. The training cannot begin too soon. It must start at a much earlier age than it would for a normal child. To wait until the boy or girl is sixteen is too late.

The Role of the Parents

The earliest responsibility rests with the parents, particularly the mother, who is with the child so much during his early years. Work at home, under proper supervision, is the best preparation for outside work later.

The first lesson the mother must learn is not to do everything for the child, but to let him do as much as he can for himself. No matter how slow the child may be or how much he taxes her patience, the mother should teach the child to help her in her household tasks in every way possible. The child should learn how to make a bed, wash and dry dishes, set a table. He or she should help the mother with her shopping, her errands. The child can learn a great deal about the value of money, the quality and price of foods, by accompanying the mother when she does her shopping and marketing.

I should like to quote the experience of one mother, a very wise and patient mother, who learned how to utilize whatever potentiality she felt her son had. She turned his frustrations and destructiveness into constructive channels and thus made a useful child of one who had been looked upon as "a terror" by all the shopkeepers in the neighborhood.

"One day," she said, "when I took my Bobby to the fruit store, I saw him picking up the potatoes and apples that had fallen to the floor. I noticed that he made neat little piles of the different vegetables and fruits as he put them into the bins where they belonged. I was watching him with a great deal of interest, when suddenly the owner of the store pounced up behind him,

grabbed him by the collar, and yelled, 'Get out of here, you dumbbell! You're wrecking my store.'

"My poor little fellow, who was then about eleven years old and unable to express himself in words, ran up to me in fright and began to sob.

"I turned to the shopkeeper, but not in anger, and said, 'Bobby was just trying to help you, Mr. Nelson. He meant no harm. He was just picking the fruit and vegetables from off the floor and arranging them in orderly fashion where they belonged. Don't scold him, please, or be angry with him, Mr. Nelson. He's really a good boy when one understands him. Won't you please let him come here every morning and take your potatoes and carrots and corn out of the big bags and arrange them nicely in your bins? To make him feel as if he's doing a real job, I'll give you a dime every day that I want you to pay him as if you were hiring him yourself. Won't you please do that for a mother who is trying so hard to bring up an unfortunate child to take his place in the world the best he can?'

"It was a wonderful experience for Bobby," she continued. "It gave him a sense of pride and achievement as he did his little job every morning. He did it very well and before the month had passed, his employer raised him to twenty-five cents a day. He even insisted on paying Bobby himself as Bobby also ran his errands."

Unlike Bobby's mother, many parents underestimate the ability of their mentally handicapped child. They act on the premise that he can never become self-reliant. That line of thinking is wrong to begin with. I recall the case of a boy of fifteen who was offered a job but his parents would not let him take it lest he get lost or something happen to him. One day I decided to test

out the boy to prove to the parents that they were wrong. I gave him a dollar bill and asked him to buy me several articles—a block of paper, a blotter, a ball of twine, and a package of cigarettes. The mother was very worried and jittery while he was gone. The boy, however, not only returned safely but he brought back with him all the items I had asked for and also the correct change. The experiment convinced the parents that the boy could follow orders and could find his way about. I found him a job as an errand boy and he made good at it.

Some parents, though anxious to have their child find a niche in life, are reluctant to have him do menial work, like dishwashing, garbage collecting, ditchdigging, and the like. One can understand their feelings in this regard, but it is far better for the boy and girl to do work that they can do, no matter how menial, than to try to fit them into a "white collar" job that is beyond them. Doing something, no matter how little, is much more satisfying than remaining at home doing nothing. Activity of any kind is preferable to inactivity.

Parents who are usually the first to discover a child's aptitude, should develop it to his advantage.

"Johnny isn't good in arithmetic but give him a hammer and a screw driver and you should see what he can do."

Johnny most likely has mechanical ability and he should be given a little workbench in the basement of his home and be permitted to develop his natural interest in construction. Whatever skill he possesses will stand him in good stead later in life. The same is true of little Susie who can't learn to spell but "who sure can embroider pretty," to quote grandma.

The retarded child has to receive a good portion of his training for the future in the special classes of the school he attends. Teachers of mentally handicapped children should therefore be familiar with the manual arts and crafts and should know the value of the work-bench as an object of concrete education for the adolescent boy who needs to be prepared for work in the world of industry. Teachers should also acquaint themselves with some of the basic demands of labor so that they can prepare the children under their care to meet those requirements.

Above all, the special task of the teacher lies in developing in the retarded child those habits and attitudes that will make it easier for him not only to get a job but to keep one. Encouraging a child to be neat, to work well with others, to complete a task begun, to adjust himself to his surroundings, are a few of the many ways in which a teacher can prepare a child for the work ahead of him.

The teacher, too, is in a position to discover what the child is best suited for through an evaluation of his mentality, his ability to learn, his co-ordination and concentration on the various school tasks. The report of the specially trained and interested teacher offers an important guide to the potentialities and limitations of the mentally retarded child.

The Boards of Education in some cities, notably New York and Minneapolis, have a special curriculum of vocational training for children of retarded mental development. They give instruction in nonacademic skills and in the importance of punctuality, obedience, and responsibility so that the student can be of definite value to the employer. Above all, an attempt is made in

these classes to make the "workable youth" feel that he has a function to perform in the world. Praise and encouragement for successful achievement make the training program not only a valuable but a happy one.

Placement Bureaus

The finding of a job is, of course, a great deal more difficult for one of subnormal than of normal intelligence. The former cannot go through the regular channels of employment agency, want ads, personal interviews, or written applications. A mentally retarded person has the distinct disadvantage of being unable to make a good first impression. His facial expression may be blank, his movements slow, his speech indistinct. He may not be able to read well or write legibly. Yet he may possess the qualities one seeks in an employee—honesty, industry, loyalty.

Since the mentally retarded cannot make their own contacts for employment, someone must do it for them. Placement bureaus and vocational counselors that work hand in hand with parents, teachers, psychologists, and special groups for mentally retarded children, are the best "go-betweens."

The guidance and placement counselors spare the applicant the disappointments and frustrations involved in finding a job and also reduce the failures so frequently incurred, by screening the prospective worker before attempting to place him. Through their contacts with employers they have also been instrumental in having training programs continued right on the job in many industries.

Before the applicant is recommended for placement, he should be put in good physical condition. He should

be examined by a physician for his vision and hearing, the condition of his heart and lungs. He should have a complete check up of his blood and urine. His teeth should be taken care of. Whatever physical deficiencies are found, should be corrected in every way possible.

The Employer

The attitude of the employer is of great importance in the hiring and placing of the mentally retarded employee. The average employer has no time, patience, or inclination to bother with the worker who does not fit into the mold. There are some employers, however, who can be interested in the employment of retardates who have been trained in vocational skills. Some are actuated by humanitarian impulses; others by labor shortages brought on by the war. Whatever the motive, however, many possibilities for employment are open to those who can fill them. The likelihood of success in holding a job is greatest if the employer is made aware at the outset that the boy or girl of subnormal mentality will be slower to grasp orders and slower to carry out tasks than the one of normal intelligence.

It is much more effective to *show* the "slow learner" how to do something than it is to *tell* him how to do it. Constant repetition and practice promote efficiency in simple tasks for the retarded. Patience and understanding on the part of the employer will find their reward in a faithful employee. Because of their fear of the new and their tendency to cling to anything that offers them security, retarded persons are less apt to leave a job than normal, restless youths.

The Public

It is necessary to educate the public to the realization that, under careful supervision and with proper training, boys and girls with I.Q.'s below normal can become useful to industry and need not be a burden to society. This fact has been demonstrated over and over again in the case of the physically handicapped and there is no reason why it cannot work out with the mentally handicapped as well.

An important factor to take into consideration is the child's personal aptitude for the work he is to do. We study the individual interests of normal children. Why not do the same for the subnormal youth and try to place them at the type of work that will make the most of their natural inclinations and interests?

Does the boy like to work with tools? Is he interested in airplanes, radios, machines, photography?

Does the girl like to cook, to sew, to weave, to do housework?

The chances for success in achievement and adaptation are much greater if the child is fitted for the job and the job for the child.

Caution must be exercised in the placement of the mentally handicapped in work that calls for the operation of a power machine or any task like sawing, cutting, or baking that carries a physical hazard. A child with poor co-ordination or a history of convulsive seizures should not be expected or permitted to do work of this kind. Similarly, a child with a speech or hearing defect should not be placed in any position that calls for oral reports of any kind.

Supervision is called for in all cases. For that reason,

retardates do best, not in a position of responsibility but in one in which they can serve as aides or helpers. Even though this designation is not made in all the vocational possibilities listed in the outline that follows, it is in this capacity that most of the mentally retarded find their place and work with greater likelihood of success.

The number of vocational possibilities open to retardates can be increased almost indefinitely with the development of training programs for them.

The following outline lists many of the occupations into which the mentally retarded child of working age can fit. The list is arranged alphabetically for easier reference.

*Vocational Possibilities for the
Mentally Retarded*

BOYS

Automobile	Farm work
Mechanics, washing, etc.	Foundry work
Baking	Garage work
Basketmaking	Gardening
Bell boys	Cutting grass
Bookbinding	Trimming hedges
Bowling alley	Glasswork
Pin boys	Golf course
	Caddies
Cabinetmaking	
Candymaking	Handyman work
Carpentry	
Carving	Key making
Clerking	Labeling
	Labor of various kinds
Delivery boys	Lithographic work
Dishwashing	Laundry

Matmaking	Rug weaving
Messenger	Saddlery
Netmaking	Sailboats
Newspaper stand	Shipping room
Packing	Shoemaking and repairing
Painting	Shoe shining
Paper boxes	Store help
Parking lot	Stock room
Pasteboard making	Tailoring
Photography	Tinsmithing
Porter	Truck work
Portfolio making	Ushering
Printing	Woodwork
Radio repair or parts	Wrapping

GIRLS

Artificial flower making	Kitchen work
Basketmaking and weaving	Knitting
Candymaking	Lampshade work
Cooking	Laundry
Kitchen helper	Mending
Dishwashing	Millinery
Dressmaking	Mother's helper
Embroidering	Sewing
Hospital work — in kitchen and ward	Sorting
Hotel work — cleaning and bedmaking	Stock girl
Housework	Washing
	Weaving
	Wrapping

CHAPTER 14 Outlook for the Future

When a child has been diagnosed as mentally retarded, can one predict what his mental status will be in the future?

"What does the future hold for our child?"

"Will he be able to take care of himself, to become self-supporting, to learn a trade, to make a livelihood?"

"What will happen to him if anything happens to us?"

Even parents of a normal child are worried about these things, particularly about what will happen to their child if anything happens to them. The anxiety is understandably greater and the fear much keener when the child is mentally handicapped.

The future outlook for a mentally retarded child is extremely important in deciding whether he should be kept at home, sent to a special school, or committed to a public institution. These decisions are of particular concern to parents of moderate means. Too many of them are pauperizing themselves and sacrificing their families to send their mentally handicapped child to an expensive private school with the hope that they can prepare him to take care of himself.

"What of the future?"—the question to which parents of a retarded child seek an answer with heavy hearts, is one that calls for deliberation and reservations.

Criteria for Judging Future

The future of any individual is a matter of great uncertainty. Even more so is the future of a mentally retarded child. However, the physician can usually form some judgment about the outlook, as to whether it is good, bad, or hopeless, after he has studied the child both physically and mentally from every angle. The doctor may not consider his study completed before he has had the opinion of the psychologist, the speech teacher, and other specialists. When all the results have been studied and evaluated, the physician is ready to give the parents the full benefit of his information, experience, and skill. Together with the parents, he is then prepared to work out a definite plan for the best future possible for their child. The physician, like any other human being, may err in judgment, but, since his interest in the child is genuine, he can be counted on for wholehearted co-operation.

Laboratory studies and special procedures are helpful not only in the diagnosis of mental retardation but in the prognosis as well. The most valuable of these is pneumoencephalography—air studies of the brain. If the pneumoencephalogram shows severe brain destruction, very little hope can, as a rule, be held out for the future. If the pneumoencephalogram does not show any marked deterioration of the brain, it is not always possible to state with certainty that the child will do well. On the whole, however, the chances for improvement are greater and the outlook more hopeful in a case of this kind.

It goes without saying that the higher the child's mentality, the more optimistic the prediction for the

future. It is also to be expected that a mentally retarded child who has no convulsions will do better than one who has, and that a child without paralysis has a brighter future than one with paralysis. In many instances, however, the future can be influenced by education and treatment. A child with convulsions will improve if something is done to control his convulsions. A child with paralysis will get better if he gets physio- and occupational therapy. A child who is educable will progress through special education and training.

A three-way program—medical, psychological, and educational—should be planned for every retarded child. The program should aim to correct or at least to fit in with the natural shortcomings of the child.

Defeatist Attitude Decried

In my work with normal children, I have always been a great believer in the adage: "Where there's life, there's hope!" My faith in this axiom has remained unshaken through my many years of practice with sick children. No matter how ill the child, as long as it still has a breath of life, I do not give up hope for its recovery.

I feel the same about the subnormal child. I never could reconcile myself to the defeatist attitude that nothing can be done for the mentally retarded child. This premise is as destructive as the one that says it is useless to try to save a house that is on fire. Although there may be some houses that are not worth saving, every child is certainly worth rescuing. It is surprising how much one can salvage out of what appears to be a human wreck.

I have seen children, whose mentality was so low that

they were considered hopeless, show special aptitude in unlooked-for skills. Some did well in handicraft and drawing; others showed a keen appreciation of music and a fine understanding of rhythm. There are any number of mentally retarded who love to listen to and quote poetry.

Occasionally, one finds a child of subnormal mentality who not only does well in the arts, but who excels in one of the arts. Evidently this is not as rare as one would think, for even in the older literature there was a special term to describe such an accomplishment. "Idiot savant"—the "wise idiot"—was the title given to one who appeared to be a fool but who showed the talent of a genius.

It makes the future prospect less to be dreaded when one thinks of the many interests that can be developed even by the least endowed of God's creatures—the children considered "not worth bothering with."

I am particularly opposed to the stand taken by many physicians that a mongoloid child should be rushed to an institution immediately after birth without even being shown to the mother. Many doctors tell the mother that the child was born dead. That, I feel, is not fair either to the mother or the child.

Mongoloid children vary greatly in degree of retardation. Some of the so-called "high-grade" mongols can be taught. I have encountered many such children both in the clinic and in private practice. A great many find their place in the ungraded rooms and special classes. To take them away from their parents without giving them a chance seems cruel and heartless at our stage of progress and civilization. I feel very strongly that the parents, particularly the mother, should be given a voice

in the matter. The facts should be explained to her and she should be the one to decide whether she wants to keep the child with her or send him to an institution. I have known mothers who were greatly perturbed about the situation when they learned that the child was taken from them summarily without their permission or knowledge. The tragedy of the situation is most marked in cases where there are no other children.

Of course, even with the most optimistic attitude toward the future of the average mentally retarded child, one must admit that there are some children for whom the outlook is poor because of irreparable damage to the brain.

Even then, parents should not despair of the child's future. If they can afford a private institution for their child, they know he will have all the physical comforts their money can buy for him, perhaps for the rest of his life. If they send him to a public institution that operates on a progressive program, their child will find not only a physical haven but a school that will put his hands to work even if his mind does not function well. And what is more, the child in the institution will find others like himself, so, instead of being an outcast in an unfriendly, competitive world, he will be able to live in a social group of his own.

Life Expectancy

What is the life span of the mentally retarded child?

That is a matter that no one can predict. Years ago, before the discovery of antibiotics, children often succumbed to infection at an early age. This was particularly true of mentally defective children who ran a very high temperature with the slightest infection. Many of

them, particularly those who were malnourished, were often carried away by some intercurrent disease, such as pneumonia. Now, with penicillin, streptomycin, and the other new "miracle" drugs, the life expectancy of all children has been considerably increased.

There is only one type of mental deficiency in which the life span is limited. Children suffering from amaurotic family idiocy (Tay-Sachs) which is accompanied by blindness as well as a blackened-out mentality, seldom live beyond two years of age.

Outlook and Early Recognition

The outlook for the future of the mentally retarded child is in great measure influenced by early recognition of the retardation. The earlier the condition is recognized and treated, the more hopeful the future outlook.

Above all, anyone concerned about the future of a mentally retarded child must never take a defeatist attitude. He must work on the assumption that there is always a ray of hope. The child's future, to a great extent, depends on the optimism and stamina of those interested in his welfare.

CHAPTER 15 Community and State Responsibility

The sooner we realize that mental retardation is a community problem and, therefore, a public responsibility, the better for all concerned. It is true that the brunt of the burden is borne by the parents, particularly by the mother, but the problem extends beyond the boundaries of the home. The community aids children who suffer from other diseases. It provides clinic care and hospital facilities for normal children. It has done a remarkable job in giving country-wide aid to those stricken with polio, heart disease, and tuberculosis. Why shouldn't it do something constructive for children with mental retardation?

As a matter of fact, the community should take a special interest in mental retardation if only for its own protection and economy. Children of borderline ability often fall an easy prey to vicious influences and thus swell the number of juvenile delinquents in every city and state of the Union. Their classification and education should be the special concern of the community in which they live.

In the short time that our clinic has been in operation, we have been convinced that with proper study, attention and guidance, hundreds of mentally retarded

children could be habilitated and made into useful citizens. Institutionalization, too, of children who are educable could be cut down considerably, thus relieving the taxpayer of a big tax burden. Interest in the mentally retarded child is, therefore, not only a great humanitarian act, but one that would be of great economic advantage to the average citizen.

Fortunately, there is a growing awareness of the gravity of the situation. Groups have banded together in many cities not only to discuss the question of mental retardation but to make plans and raise funds for the care and training of the mentally handicapped. They deserve and need the co-operation of every Board of Education and every welfare agency in their city and state.

How Can the Community Help?

The community should provide educational or training facilities for all types of mentally retarded children.

There should be special schools or at least special classes for borderline cases in every large town and city.

Vocational schools for older children are of utmost importance. One of the most urgent needs is the provision of facilities for the training of children not fitted for academic work.

Guidance centers for finding employment for mentally retarded adolescents should be established in every large city.

Play schools for children who are uneducable would provide daily care and appropriate training in self-help areas for those who are now confined to the home. The

ungraded opportunity rooms in the present public school systems admit only children with I.Q.'s above 50, but no provision has been made for those below this grade.

There should be special courses in teachers' colleges and in universities for training teachers in the education of mentally retarded children.

Adequate remuneration should be offered teachers of the mentally retarded to attract capable young men and women to the work.

Seminars and demonstrations should be arranged for those interested in the education of the mentally defective.

There should be a closer relationship between parents and teachers, psychologists and social workers.

I am often asked, "Who should do all these things?" I feel that the education of the mentally retarded child, like that of the normal child, should be the responsibility of the Board of Education. I believe it is the duty of the Board of Education to extend its educational facilities to the mentally retarded. It can be done if the community will supply the funds.

All cases of encephalitis and other inflammations of the nervous system should be reported to the Board of Health. These cases should be followed up by frequent examinations for at least three to four years after the occurrence of the trouble. Encephalitis, particularly, is often a forerunner of mental retardation.

The community should, in addition, establish clinics for parents who cannot afford to take their child to a private physician. The clinic should make both medical and psychological studies of the child.

State Responsibility

Up to the present, the main provision made by most states for the care of the mentally retarded has been in the form of institutions for the uneducable. These usually give only custodial care which, at best, leaves much to be desired.

The state should re-evaluate its program. It should do more than just herd children together. It should have a definite constructive program.

Its institutions should be properly staffed. Most state institutions suffer from insufficient personnel, both in the number of physicians and other professional employees and attendants. The principal fault lies in the fact that the salaries are not remunerative enough to attract the best and most efficient workers.

There should be greater and better facilities for the training and supervision of the children housed in the institutions. Some of the children may be educable and could be salvaged through proper education.

More research should be done in the state institutions for retarded children. The possibilities for scientific investigation are tremendous because of the great number of children that are housed there for years. The opportunity for continued observation and follow-up work should make a study of this kind of inestimable value and of great practical significance.

The state should establish training centers for the mentally retarded. Transportation should be provided for children who live any great distance from centers.

The state should pay for the education of retarded children in small communities where no provision has been made for ungraded rooms. A traveling consultant

should be available for those who live in small communities.

There should be a state registry of teachers and administrators specially qualified to teach and train mentally retarded children.

There should be a state or federal law against the manufacture of toys containing lead. There should also be a law forbidding the dumping of battery casings in empty lots. These laws would eliminate the cases of lead poisoning traced to these sources and would thus deplete the ranks of the retarded.

Sterilization

There are those who advocate sterilization of the mentally defective by the State. The first sterilization law in the United States was passed by the Pennsylvania legislature in 1905, but it was vetoed by the governor. In 1950, sterilization was carried out in twenty states on a total of 955 mentally deficient persons. At present, practically every state has a sterilization law in effect.

However, in spite of the sterilization laws, the procedure has been carried out infrequently because popular sentiment in this country is against any compulsory act that infringes upon the personal rights of the individual.

Except in rare cases, sterilization is an unnecessary operation. A person who is a candidate for sterilization can be provided the protection he needs in an institution.

CHAPTER 16 Research

Medical progress is based on research. The prevention and treatment of diphtheria, whooping cough, and other infectious diseases of childhood have been made possible through scientific research. The same thing is true of diabetes, meningitis, and many more diseases that once took their toll of human life and energy. What was hopeless yesterday is curable or preventable today because of the untiring efforts of research workers everywhere.

What Is Research?

Research calls for careful, painstaking investigation in the search for something new. Sometimes the quest is short; usually, it is long and sometimes one never finds what he set out to seek. One never knows whether he will find something spectacular to reward his efforts or whether he will find nothing at the end of years of continuous study. The great physician, Paul Ehrlich, named his remedy for syphilis, "606" because it was the 606th experiment, following 605 unsuccessful attempts.

However, even if the goal sought is never reached, no research work is entirely lost, no effort fruitless. An accumulation of data gathered after years of investigation does lead somewhere. The great discoveries we have today are the result of the cumulative efforts of many

years and the work of many investigators. The pathfinders who cleared the road, the pioneers who laid the early foundations, may not have lived to see the fruit of their labors but they did not build in vain.

Medical history has grown on experiments of this kind. Cures we take for granted today were made possible through the initial efforts of investigators who thought they had failed in their undertaking. The discovery of insulin is a living example of this succession of trials and errors that eventually brought success in our day. One after another, men worked in laboratories and hospitals all over the world, looking for a cure for diabetes. For years and years they thought they had sought in vain. All at once, however, a team of four investigators added the last crucial experiment to the many that had preceded them. So was born the great discovery, the cure for diabetes that has brought health and happiness to thousands who had known only misery and who had lived under the shadow of death. The miracle was not born suddenly as it seemed at the time, but it came after a long, trying gestation, after a hard, difficult labor.

Such is the nature of true research!

The need for research on all phases of mental retardation is urgent. We should encourage every type of research—medical, psychological, educational, clinical, and laboratory. The work has been started, but it is only a beginning. Special investigations and methods of study are naturally a matter for the individual investigator to decide for himself. The following, however, are a few of the many avenues for study that require intensive research. The possibilities for further study are unlimited.

Medical Investigations

The great hope for the treatment and prevention of mental retardation lies in the medical field. Among the many problems confronting the medical investigator, the following are of vital significance:

CAUSES OF MENTAL RETARDATION: The underlying causes of mental retardation are numerous. The quicker we recognize them and the harder we attack them, the more successful our efforts for prevention.

DRUGS: There are many drugs that have been recommended and tried out in the treatment of mental retardation. Some of them have value, some have possibilities, and some are of little or no benefit. A study should be made of these drugs and of the conditions under which their use is indicated. It is not enough to know whether they are effective. We should also know whether they are harmful or not.

SURGERY: A study should be made of the surgical procedures advocated for certain types of mental retardation. Because of the risk attended on any surgery, this special phase of treatment should be given very careful consideration.

BODY FLUIDS: Research on the function and reaction of the body fluids, particularly of blood and cerebrospinal fluid, should give us some valuable information. We look to a study of this type for light on the causes, prevention, and treatment of mental retardation.

NEWBORN: A study of the nervous system of the newborn in health and in disease will give us a standard of comparison between the baby that is normal and the baby that is not.

Premature birth, difficult delivery, anesthesia during

labor—these are all matters for study and investigation. They all may have some bearing on subsequent mental development.

Improved methods of resuscitation for respiratory obstruction at birth may reduce the possibility of mental retardation. Even the method of feeding may have some bearing on neurological disturbances in the newborn.

RH STUDIES: The relation between the Rh disturbance and mental retardation has been well established. Further research should be done on methods of treatment with special reference to mental deficiency.

BRAIN METABOLISM: Research on the metabolism of the brain should give us a clue to the diagnosis and treatment of certain types of mental retardation. This type of experiment has to be carried out on animals primarily.

VIRUS STUDIES: Studies on virus encephalitis, particularly German measles, should give us a good deal of valuable information on the prevention of mental retardation.

STUDIES ON NUTRITION: Nutritional deficiencies have been found to be an important factor in mental retardation. Further studies are necessary to discover what food elements are involved.

Medical research on mental retardation should not be limited to the laboratory. It should be a combination of clinical and laboratory research and should represent the co-operative efforts of the physician, dietician, and laboratory worker.

GENETICS: The relation of genetics to mental retardation is an interesting field for study. What prenatal influences cause the child to be born mentally deficient? What special genetic changes cause mongolism? Is there

any relation between the metabolism of the mother and mental retardation? Anthropological studies may, in due time, throw light on mental retardation.

Psychological Research

In the field of psychology, a great deal of research has been carried on for years. However, we need further studies on psychological testing, particularly for very young children, and better clinical application of the results obtained.

Educational Studies

In the educational field we should investigate more progressive methods of teaching for all types of mentally retarded children, particularly for younger children, with special emphasis on play therapy. The question of vocational training and guidance for older boys and girls requires further studies.

Wherever one turns there are unsolved problems in mental retardation that require careful study and investigation. Research of any kind calls for a great deal of financial support for the establishment and maintenance of well-equipped clinics, laboratories, and schools. Parents and friends of the retarded children and other interested persons can further the cause of mental retardation by making funds available for research.

Research holds the key that will unlock many secrets of mental retardation.

CHAPTER 17 Questions and Answers

The following list of questions was selected out of the hundreds that have come to me through the mail, on the lecture platform, in the clinic, and at the office. I have chosen those that were asked most frequently as I felt they were of the greatest concern to parents of retarded children.

Q. Can mental retardation be detected at birth?

A. Mongolism and the mental retardation that accompanies it can be recognized at birth by the facial features of the child. In other types of retardation, however, the condition may be suspected at birth but it is difficult to diagnose it so early.

What are some of the signs of mental retardation in infancy?

When a child does not show the expected development in mental and motor functions at various stages of infancy, there may be something wrong with his nervous system that should make one suspicious of mental retardation.

A normal baby usually smiles at one month of age; recognizes his mother at two months; holds up his head at three months; sits up at six months; walks and utters a few words at one year.

Do all normal children conform to the same standard of development?

When we speak of the "standard of development," we must always make allowances for individual differences. There is no set date on which every child will perform certain definite functions. One child may walk at ten months of age. Another may not walk until he is fourteen months of age, yet both may be perfectly normal.

Is every child who cannot talk mentally retarded?

Not necessarily. Some children cannot talk because they cannot hear. Most mentally retarded children, however, either cannot talk at all or have a speech defect. The degree of speech impairment varies with the severity of the retardation.

What is the cause of mental retardation?

There are many causes of mental retardation. Among the most common are the following:

Infectious diseases of the mother during pregnancy, especially German measles.

Premature birth

Rh disturbance

Lack of oxygen supply to the brain at birth

Encephalitis and meningitis

Hemorrhage of the brain at birth

Mongolism

Cretinism (due to lack of thyroid)

Is heredity an important factor in mental retardation?

Occasionally we find a hereditary background in mental retardation. However, the percentage of

mental deficient who have inherited the condition from which they suffer is small.

Can mental retardation be prevented in any way?

In many cases, prevention may not be possible. In some cases, however, we can prevent the conditions that cause the retardation. For instance, by prohibiting the manufacture and use of toys containing lead, and by eliminating the use of battery casings for heating purposes, we would prevent mental retardation due to lead poisoning.

Are there any "shots" or serums for the prevention of mental retardation?

There are no injections or serums for the prevention of mental retardation as there are for other childhood diseases.

What is the treatment for mental retardation?

There is, as yet, no single type of treatment that is specific for all forms of mental retardation. However, it would be wrong to leave a mentally retarded child without medical care. Deprived of medical guidance, the mentally handicapped child may go from bad to worse.

How about glutamic acid as a method of treatment?

Glutamic acid, because of the widespread publicity given to it, has attained great popularity among the laity and has aroused great hopes among parents. Some investigators claim that glutamic acid increases the metabolism of the nervous system and bolsters up the mentality. Others dispute this claim. Even those who are enthusiastic about the good effects of glutamic acid admit that, though it has

value, it is by no means a panacea or cure-all for mental deficiency.

What would be the favorable reactions after glutamic acid?

Improved behavior and a brighter mentality would indicate improvement in a general manner. A more accurate test, however, would be a psychological evaluation before and after the administration of the drug. An increase in the I.Q. of one or two points would not be enough. The improvement must be very marked.

Is glutamic acid harmful in any way?

Up to date no harmful results have been reported after the administration of glutamic acid, even in cases where it had no effect on the child's mental condition.

What about surgery for mental retardation?

Recently two physicians devised a special operation for certain cases of mental retardation. They believe that by tying the jugular vein and the carotid artery in the neck, they can direct the flow of fresh blood to supply more oxygen to the affected parts of the brain. This operation is called "revascularization."

In what type of cases would revascularization be of value?

The originators of the operation claim that in cases accompanied by repeated convulsions, their method of treatment tends to lessen the frequency of the convulsions. The procedure, however, is still in the

experimental stage and its value is disputed by many physicians.

Has any other type of surgery been advocated?

When there are adhesions between the brain and its coverings, their removal by surgical means is sometimes of value. In cases of hemorrhage under the dura, the outer covering of the brain, the blood clot that forms may be removed by surgery.

What is spinal puncture?

Spinal puncture is a procedure in which the spine is punctured with a needle for the purpose of removing the fluid around the spinal cord.

Is a spinal puncture dangerous?

No. Occasionally, headache follows spinal puncture. It subsides in a few hours, however.

What is electroencephalography?

Electroencephalography is the recording of the brain waves for the determination of the type of convulsion.

What is pneumoencephalography?

Pneumoencephalography consists in the removal of cerebrospinal fluid from the spine and the introduction of air or oxygen into the brain. Following the operation, x-rays are taken. Normally, x-rays show only the skull. After air is injected by means of a pneumoencephalography, the brain, or rather the spaces in and around the brain, can be visualized, making it possible to see how much of the brain has been damaged.

What is hydrocephalus?

Hydrocephalus is a condition in which the head is enlarged because of the increased amount of fluid in and around the brain. Although the head is larger than normal, the brain itself is thinner, due to the pressure of the fluid from above or from below.

What is brain fever?

Brain fever is a popular term used to indicate an inflammation of the brain or its coverings. Medically we differentiate between encephalitis, an infection of the brain proper, and meningitis, an inflammation of the covering of the brain.

What is the value of psychological tests in mental retardation?

Psychological tests help us evaluate the child's intellectual capabilities and assist us in determining the extent of the deficiency.

Psychological tests are very valuable in helping us determine the type of education the child should have.

What type of education would you recommend for a child who cannot attend regular classes?

The type of education would depend upon the degree of retardation and mental capacity of the child.

From the standpoint of education, mentally retarded children are classified as educable and non-educable.

What children would be included under the term "educable"?

The term "educable" is applied to children who are below the normal standard but who can absorb

some academic teaching. They fall into the group of I.Q.'s over 50.

What provision is made for the children considered educable?

In most cities in this country there are special classes and ungraded rooms in the public schools, in which these children are taught.

What is meant by the term "uneducable"?

The term "uneducable" is applied to children with an I.Q. below 50. However, although these children may not be able to absorb any formal education, they may be educable in a practical way.

What provision is made for the so-called "uneducable" child?

The child whose I.Q. is below 50 is not admitted to any of the classes in the public school. He presents a very grave problem, especially to his parents. He must be kept at home or sent to a special school.

What type of school would you recommend for the child whose I.Q. is below 50?

The type of school recommended would depend on the financial status of the parents.

If the child cannot remain at home and if his parents can afford it, they should send him to a private school.

Where can parents, who cannot afford a private school, send their child?

Many parents have found it necessary to organize and finance schools of their own for the children not admitted to the public school.

What is meant by the term "borderline"?

The term "borderline" applies to a child with an I.Q. of 70-80.

Can a mentally retarded child, who is a borderline case, ever attain normalcy?

It would hardly be possible for a mentally retarded child, even one not greatly retarded, to reach normalcy. There is too great a deficit to make up. In some cases, however, the child may reach a level where he can hold his own in society.

Should a borderline case be placed with normal children?

A child who falls into the borderline category should not be forced to compete with normal children as they are very likely to reject him and make him feel he does not belong. What is more, such a placement would keep him in a constant state of tension in his attempt to keep up with them. Neither is it wise, however, to place a child, whose I.Q. is 70-80, with children whose I.Q.'s are very low. The ideal setup would be to put him with children of the same type and same mental capacity.

What is meant by the term "exceptional child"?

The term "exceptional" refers to a child **who** is different from the average child. A child **showing** any abnormality, physical or mental, could be included in this category. At one time, the term "exceptional" was used to designate a child of more than usual ability. Now, **however**, it is used for the most part to signify a child of subnormal mentality.

What other terms are used for the mentally retarded child?

There are many terms in common use, such as mentally deficient, mentally slow, slow learner. The terms "idiot," "imbecile," and "moron," so popular a decade ago, are seldom employed today.

What is Tay-Sachs disease?

Tay-Sachs disease derives its name from the two physicians who described it—Tay in England and Sachs in the United States.

It is a form of mental deficiency that often runs in families and is therefore also known as amaurotic family idiocy.

What are the symptoms of this disease?

A child with Tay-Sachs disease is blind and severely retarded mentally. It is one of the worst types of mental retardation we have. Children suffering from this disease rarely live more than two years.

What is the difference between cerebral palsy and mental retardation?

Cerebral palsy and mental retardation are often confused and considered identical but they are not the same. Cerebral palsy is a condition in which the child is spastic and his physical movements jerky and uncoordinated. Mentally, however, he may be normal. The older authors claimed that about 25 per cent of the cerebral palsy cases were mentally retarded. The recent figures are higher.

Mental retardation on the other hand, deals with a deficiency of the brain function. Retarded children do not necessarily have paralysis. Occasionally,

one may find a child who is both spastic and mentally retarded.

Do convulsions always accompany mental retardation?

Not necessarily. Some children with mental retardation have no convulsions. Only about 25 per cent of all mentally retarded children have convulsions.

IS *there any treatment for convulsions?*

Yes, there is. Convulsions should be treated according to their type and cause. Some of the recently discovered drugs are very effective in the treatment of convulsions. No convulsions should be left untreated.

Does the mental retardation disappear when the convulsions are stopped?

The mental retardation does not disappear when the convulsions are stopped. However, if the convulsions are not controlled and they continue to repeat themselves, the retardation grows progressively worse.

Should parents of a mentally retarded child have other children?

I believe they should. I have repeatedly seen families where the first born was mentally deficient and the subsequent children perfectly normal. The only instances in which I advise against having more children is when the first child is a Tay-Sachs, or when there is more than one retarded child in the family.

When parents find they can have normal children, it does wonders for their morale and gives them

great happiness. It also justifies them in their own eyes and in the eyes of their friends.

How many children in the United States are mentally retarded?

The figures given for the incidence of mental retardation vary greatly. One authority on exceptional children states that 25 per cent of our child population under eighteen years of age are mentally retarded. Others place the number at 12 per cent. It has even been claimed that ten out of every one hundred children are mentally below par. A conservative figure is one that places the number of retarded children in the United States at two million, or 7 per cent, of the child population under eighteen years of age.

Is anything being done to train teachers of mentally retarded children?

Yes, something is being done in this direction in various states, by committees on mental hygiene, by departments of public welfare and public instruction and Boards of Education. Some teachers' colleges and universities have training schools or special classes. There is an urgent need for properly trained personnel who understand the problem of the mentally handicapped child.

What can we expect of research on mental retardation?

We can expect a great deal from research on mental retardation. It is a fertile field for study and investigation. We must encourage and support research that will delve into all phases of the problem of

mental retardation in children—the medical, psychological, educational, social. Above all, we should study the many causes of mental retardation and seek means of attacking them so that we can find the answer to the most important question of all—the question of prevention.

CHAPTER 18 The Dr. Julian D. Levinson Research Foundation

The Dr. Julian D. Levinson Research Foundation was organized in the fall of 1950, as a tribute to the memory of a brilliant, young pediatrician and humanitarian who passed away at the age of twenty-seven.

The Foundation has as its purpose: "The fostering of research in pediatric neurology and the clinical study and management of children suffering from neurological disorders."

Since pediatric neurology covers a wide area, it was decided to limit the work of the Foundation to mental retardation. It did not take long to realize what a tremendous amount of work there is to be done on this problem, both in the clinic and in the laboratory. What makes the subject doubly significant is the many conditions that have a bearing on it.

The Dr. Julian D. Levinson Research Foundation consists of a clinic and laboratories—a clinic in which patients are diagnosed and treated, and laboratories in which research is carried on.

Clinic

The clinic of the Dr. Julian D. Levinson Research Foundation is located at the out-patient department of the Cook County Hospital in Chicago.

Every child who comes to the clinic is given a thorough physical, neurological, and psychological examination. He is studied by means of laboratory tests, such as examination of the blood and urine, x-ray, basal metabolism, and brain waves (electroencephalography).

Psychological evaluations of the child's mental status are made by qualified psychologists. A social worker is at hand to investigate the family situation with special regard to its economic status.

Whenever possible, all the work is done at the clinic. However, if a spinal puncture or other specialized procedure is necessary, the child is hospitalized at the Cook County Children's Hospital.

Treatment and guidance are outlined for the parents after a complete mental and physical evaluation has been made of the patient by the clinic staff. Parents are also advised where to go for follow-up work in education, speech training and play therapy, at a nominal cost.

The patients at the clinic include children of all nationalities and races. The Foundation operates on a nonprofit, nonsectarian basis.

Research

Research is done on all phases of mental retardation.

Valuable information is obtained from a study of the patient's history, his background, and the physical and psychological examinations.

Scientific data is gathered through a study of the blood, the cerebrospinal fluid, x-ray, brain waves, and air studies.

Another phase of the research program is the study

by newer scientific methods of the pathological changes in the brain of the mentally retarded child.

Special experimental work on animals is carried on at the Hektoen Institute for Medical Research.

The Foundation is directing its efforts not only to treatment, but also toward the investigation of the causes underlying mental retardation and methods of prevention.

Education

Educational work is carried on by the Foundation to acquaint parents, physicians, psychologists, teachers, and the public at large with the importance of the problem of mental retardation. This is done by means of:

Conferences with teachers, psychologists, physicians, medical students, and nurses.

Educational meetings with question and answer periods.

Radio and television programs.

Co-operation with professional and parent groups interested in retarded children.

Lectures to groups of medical men and psychologists.

Photographs, slides, and bibliographies on mental retardation.

The Foundation has performed no miracles. It has not cured the incurable, but it has been able to do something for every one of the patients. Above all, it has been able to give hope to a great many parents. In some cases, a great deal was done to improve the general health of the child and, in doing so, improvement has been noticed in the child's mental health as well. In all cases, it was possible to outline a program for the bewildered and confused parents.

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The Foundation works on the theory that not all cases of mental retardation are hopeless, that some children can be definitely improved in one way or another, and that something constructive can be done for almost every child and his parents.

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Periodicals

- American Journal of Mental Deficiency*. Editorial Office: 224 East 28 Street, New York 16, New York. Official publication of the American Association on Mental Deficiency.
- Journal of Exceptional Children*. 1201 16 Street, N.W., Washington, D. C. Official publication of the International Council for Exceptional Children. This journal does not limit itself to retarded children but every issue carries items of special interest to parents of retarded children.

Schools and Institutions

LIST OF STATE, COUNTY, CITY AND PRIVATE INSTITUTIONS FOR MENTALLY RETARDED CHILDREN IN THE UNITED STATES *

NOTE

The data available to the Association are arranged in the following order: Institution name, address, capacity, type, sex, age, and rate.

INSTITUTIONS

ALABAMA

State Schools

The Partlow State School—Tuscaloosa, Birmingham Highway, Box 418. 1,215. Mentally deficient, epileptic, and Mongoloids. Both sexes. Children, adolescents. (State) \$10 per week.

Private Schools

Pineview Manor—Montgomery, Cook Road. 45. Mentally deficient, Mongoloids, severe cerebral palsy, and congenital anomalies. Both sexes. Birth to 15 years. \$150 per month.

ARIZONA

State Schools

Arizona Children's Colony—Coolidge. 252. Mental retardation. Both sexes. Birth to 21 years. Not determined.

Arizona State Hospital—Phoenix. 1,514. Epileptic and mental. Both sexes. All ages above 16. State.

Private Schools

Skull Valley Ranch School, Inc.—Skull Valley. 12. Mentally deficient. Both sexes. 5 upward. Varies.

ARKANSAS

State Schools (No Private Schools)

None. Cared for in mental hospitals.

CALIFORNIA

State Schools

DeWitt State Hospital—Auburn. 732. Mental, mentally deficient. Both sexes. All ages from 8 to 84. (State).

Sonoma State Home—Eldridge. 2,671, have 8,224 patients. Mentally deficient, epileptic. Both sexes. All ages. \$20 per month from counties (State).

Modesto State Hospital—Modesto. 600. Mental, mentally deficient. Both sexes. All ages. (State).

Pacific Colony—Spadra. 2,050. Mentally deficient, epileptic, conduct problems. Both sexes. All ages. The State General Fund charges the committing County \$20 per month.

Private Schools

Sunridge Ranch—Agoura. 6. (Boys) Mentally deficient. \$100 month up.

* The following list of public and private institutions, as originally prepared by the Secretary of the American Association on Mental Deficiency, and brought up to date in 1952, is reprinted here with the permission of the Association. Inclusion in the list is not an endorsement of any school or institution by the Association or by the author of this book.

- Pioneer Sanitarium—Artesia. 82. Mental, epileptics, mentally deficient. \$65 to \$125 month.
- Alexander Sanitarium—Belmont. 85. Mental, epileptics. \$400 month and up.
- Blake Hammond Manor—Ben Lomond. 62. Mentally deficient, epileptic, and conduct problems. Both sexes. Children over 5, adolescents, adults, Mongoloids, and spastics. \$125 per month and up; \$1,500 a year and up.
- Hillside Lodges—Boulder Creek. 6. Mentally deficient. Preschool children, crib cases. \$85 month.
- The Guest House—Chula Vista. 42. Mental, alcoholics, mentally deficient, epileptic. \$10 day up and \$200 month.
- Monte Vista Place—Claremont. 24. Mentally deficient, epileptic Infants, crib cases only. \$100 month and up depending on case.
- Clovis Ave. Rest Home—Clovis. 35. Mental (senile), mentally deficient. \$40-\$125 month.
- Van Leuvan Home—Colton. 12. Mentally deficient. Both sexes. Infants, babies. \$100 per month.
- Compton Exceptional Child School—Compton. 6. Mentally deficient. Girls. Crib to 16 years. \$25 to \$40 weekly.
- Charter Oak Lodge—Covina. 85. Mentally deficient, epileptic, mental, alcoholic, conduct problems. Female. Adolescents, adults. \$150 to \$300 per month.
- Mar Vista Sanitarium—Culver City. 68. Mentally deficient. Both sexes. Adults. \$100 and up per month.
- Stagg Manor—Danville. 21. Mentally deficient, epileptic, and conduct problems. Both sexes. Children, preschool to 12 years. \$125 per month and up.
- Marvel Sanitarium—El Cajon. 15. Mental, epileptic, mentally deficient, senile. \$125 to \$175 per month.
- New Wonga Home—El Cerrito. 6. Mentally deficient (children only). \$85 per month.
- Seeman School—El Monte. 78. Mentally deficient. Boys. 5 to 15 years. \$100 to \$150 per month.
- Castle-Lake School—Elsinore. 85. Infants and children of preschool age, crib and ambulatory cases, mentally deficient, spastics, epileptics, and Mongoloids. \$100-\$125 month.
- Garden Grove Sanitarium—Garden Grove. 110. Mental, drug addicts, alcoholics, epileptics, mentally deficient. \$350 month.
- Monterey Sanitarium—Garvey. 105. Mentally deficient and mental. Female. Adults. \$150 per month. (Bed patients \$200; private room \$250).
- Devereux School—Goleta. 90. (Children) mentally deficient and emotionally disturbed. Not given.
- Adams Boarding Home—Hawthorne. 6. (Boys) mentally deficient. \$85 to \$100 month.
- Laura Francis Home—Hayward. 20. Mentally deficient. Both sexes. Infants, babies, crib cases, Mongoloids, and spastics. \$150 to \$200 per month.
- Shelton School—Inglewood. 15. Mentally deficient. Male. Children 4 to 10 years. \$110 a month and up.
- St. Erne Sanitarium—Inglewood. 200. Mentally deficient, epileptic, mental, and alcoholic. Both sexes. Adults. Not given.
- Edna Beth Home—Lafayette. 6. (Infants) mentally deficient. \$85 to \$100 month.
- Helen S. Lucas School—Lafayette. 21. Mentally deficient. Both sexes. Mongoloids. On application.
- Littlerock Home—Littlerock. 6. Mentally deficient. Male. Infants, babies. \$80 per month.
- Veda Lee Nursing Home—Long Beach. 17. (Babies) mentally deficient, epileptic. \$85 to \$120 month, residential.
- Los Alamitos Sanitarium—Los Alamitos. 150. Mental, mentally deficient, epileptics. \$150 month and up.
- Adams Schools—Los Angeles, 7. 28 boarding; 32 day students. Mentally deficient. Both sexes. 5 to 18, children, adolescents. \$155 per month boarding; \$75 per month day school.
- Boyle School for Exceptional Children—Los Angeles. 19. Mentally deficient, epileptic, and complimentary placement service, all type cases and ages. \$75 to \$125 month.
- Casa del Mar Sanitarium—Los Angeles. 88. Mental, alcoholics, mentally deficient. \$85 to \$200 month.
- Cottage Home—Los Angeles. 6. Mentally deficient. Both sexes. Infants and children up to 6 years. \$85 to \$100 month.

Grace Sanitarium—Los Angeles. 40. Mental, epileptics, mentally deficient. Both. \$80 to \$150 per month.

Ruth Lipps—Sunny Crest School—Los Angeles. 50. Mentally deficient, epileptic. Male. \$100 to \$150 per month.

Mrs. Luther Mills Home—Los Angeles. 1. Mentally deficient. 100 month.

Murray Sanitarium—Los Angeles. 60. Mental, mentally deficient. \$120 to \$150 month.

National Sanitarium—Los Angeles, 34. 80. Mental, mentally deficient. Female. \$155 per month.

Turner Opportunity School—Los Angeles. 14. Mentally deficient (children). \$135 per month.

Twentieth Century Sanitarium—Los Angeles. 56. Mentally deficient, epileptic, and alcoholic. Female. Adults. On application.

The Frances Williams School—Los Angeles. 4. Mentally deficient (borderline). Male 5 to 16 years. \$65 to \$75 per month.

Wittman Home—Mar Vista. 35. Mentally deficient, epileptic. \$100 to \$125 per month.

The Culver Home—National City. 3. Mentally deficient (crib cases). Both sexes. Children. \$90 per month.

The Edythe Wood Home—Oakland. 6. (Children) mentally deficient. \$100 to \$125 per month.

Houghton School for Exceptional Children—Ojai. 6. Mentally deficient. \$200 per month.

Mrs. Smith's School for Retarded Children—Pacoima. 5. Children—teachable only. \$30 to \$100 per month.

Altadena Lodge Sanitarium—Pasadena. 75. Mental, alcoholics, mentally deficient, epileptic. \$80 to \$500 month.

Eleterich-Ballard School—Pasadena. 6 resident, 6 day pupils. Female. Children. Mongoloids. \$125 per month.

Las Encinas Sanitarium—Pasadena. Not given. Mental, alcoholic, and conduct problems. Both sexes. Adults. On application.

The Williams School for Handicapped Children—Pasadena, 4. 20. Mentally deficient and mental. Both sexes. Children, adolescents, Mongoloids, and spastics. \$2,400 per year minimum.

El Encanto Sanitarium—Puate. 163. Mental, alcoholics, epileptics. \$155 month and up.

The Wikisal Children's Home—Riverside. 12. Mongoloid infants and small children. Furnished on request.

Cedars Development School—Ross. 75. (Children) mentally deficient, epileptics, spastics. \$175 month.

El Rancho Cara Mella—St. Helena. 6. Mental, mentally deficient, ambulatory, alcoholic. \$150 month up.

Hill Crest Sanitarium—San Francisco. 13. Mental, alcoholics, mentally deficient. Women only. Adults. \$175-\$300 month.

Park Sanitarium—San Francisco. 38. Mental, alcoholics, epileptics, mentally deficient. \$15 per day.

Lois Sharpe Home—San Francisco. 6. Mentally deficient (children, crib cases only). \$100 month.

Mission Lodge Sanitarium—San Gabriel. 76. Mentally deficient, mental and alcoholic. Female. Adults. \$175 per month minimum.

The Herman Rest Home—San Jose. 32. Mentally deficient, epileptic, and mental. Both sexes. Adults. \$250 and up per month.

Luella Fuller School—San Leandro. Day school, 40 pupils only. Mentally deficient. Both sexes. Children, ages 4 to 17. \$40 to \$60 month.

Patterson Sanitarium—San Leandro. 53. Mentally deficient, mental, alcoholics. \$250 month and up.

The Devereux School—Santa Barbara. 90. Retarded 40%, normal neurotics 60%. 6 years old and up, residential. \$4,200 to \$6,000 per year.

Saint Vincent's School—Santa Barbara. 160. Mentally deficient (educable types only). Female. Children and adolescents 5 to 18 years (not enrolled after age of 16) \$75 to \$125 per month.

Braewood—South Pasadena. 75. Mentally deficient, epileptic, mental, and alcoholic. Both sexes. Adolescents and adults. \$8.50 to \$15 per day.

Palmer's Nursery—Stockton. 8. Mentally deficient. Both sexes. Infants (crib cases only). \$110 per month.

Mt. Gleason Sanitarium—Sunland. 45. Mentally deficient, epileptics (women only). \$100 month and up.

Little Country School—Temple City. 10. Mentally deficient. Female. Adolescents. \$125 per month.

Newbrough Boarding Home—Visalia. 2. Mentally deficient. Preschool age children only. \$CO per month.

Bobby Dean Rancho—Walnut. 41. (Children) mentally deficient, mild. \$100 month up.

Three Oaks Sanitarium—Walnut Creek. 6. Mental, alcoholic, conduct problems. Both sexes. Adolescents and adults. \$16.50 per day ward; \$16.50 to \$20 private and semiprivate.

Whittier Rest Home—Whittier. S3. Mentally deficient, mental. \$150 month up.

COLORADO

State Schools (No Private Schools)

State Home and Training School for Mental Defectives—Grand Junction. 625. All types, mentally deficient, epileptic, mental, alcoholics, and conduct problems. Both sexes. Care for all regardless of age or type. \$30 per month.

Colorado State Hospital—Pueblo. 5,804. Mentally deficient, epileptic, mental, and alcoholic. Both sexes. Adults. \$30 per month (State).

Colorado State Home and Training School—Ridge. 345. Mentally deficient, epileptic. Both sexes. Infants, babies, children, adolescents, Mongoloids, and spastics. \$35 per month.

CONNECTICUT

State Schools

Mansfield State Training School and Hospital—Mansfield Depot. 1,066 beds, have 1,315 patients. Mentally deficient and epileptic. Both sexes. Children, adolescents, adults, and pathological types. Determined by Department of Welfare (State).

Southbury Training School—Southbury. 1,184 beds, have 1,450 patients. Mentally deficient and epileptic. Both sexes. AH ages. Determined by Department of Welfare (State).

Private Schools

Ann's Nursery for Babies—Norfolk. 60. Mentally deficient, epileptic, mental. Both sexes. Infants, babies, children, crib cases, Mongoloids, spastic. \$25 per week.

The Kolburne School—Norwalk. School year 30, summer camp session 40. Educable mentally retarded, emotional and personality problems. Both sexes. Accredited: Conn. State Board of Education. \$3,600 per year.

Connecticut Children's Hospital, Inc.—Waterbury. 137. Mentally deficient and epileptic. Both sexes. Infants, babies, crib cases, Mongoloids, spastics, hydrocephalus, microcephalus, cortical atrophy, and birth injury. \$30 per week for children.

DELAWARE

State School

State Training School—Stockley. 475. Mentally deficient. Both sexes. Children, adolescents, adults. Mongoloids. Cost of maintenance, \$2.13.

Private School

Mary Davis Home—Delaware City. 40. All types. Both sexes. Birth to 8 years. \$75 to \$90 per month.

DISTRICT OF COLUMBIA

State School

District Training School—Laurel, Maryland. 750. Mentally deficient. Both sexes. Accept any mental defective who is a legal resident of the District of Columbia, and less than 45 years of age. Supported by tax funds from the District of Columbia, and maintenance charges paid by relatives.

Private School

St Gertrude's School of Arts and Crafts—Washington, D. C. 35. Mentally deficient. Female. Admitted between the ages of 6 and 14. \$100 per month.

FLORIDA

State School

Florida Farm Colony—Gainesville. P. O. Box 508. 575. Mentally deficient, epileptic. Both sexes. 6 to 21 years. State institution.

Private Schools

Brewster Hall Tutorial School—Bradenton. Limited. Retarded, emotionally maladjusted. Both sexes. 7 years upward. On application.

The Duvall Home—Satsuma. 20. Mentally deficient, epileptic. Both sexes. Mongoloids and spastics. No age limit. \$100 per month and up.

GEORGIA

State Schools (No Private Schools)

Georgia Training School for Mental Defectives—Gracewood. 750. Mentally deficient. Both sexes. Children and adolescents between 6 and 18. State.

IDAHO

State Schools (No Private Schools)

Nampa State School—Nampa. 550 beds, 700 patients. Mentally deficient, epileptic. Both sexes. Infants, babies, children, adolescents, adults, crib cases, Mongoloids, spastics. \$50 per month if able to pay.

ILLINOIS

State Schools

Dixon State Hospital—Dixon. 4,850. Mentally deficient, epileptic, post-encephalitic. Both sexes. All ages. None, State Hospital.

Lincoln State School and Colony—Lincoln. 5,246. Mentally deficient, epileptic. Both sexes. Infants, babies, children, adolescents, adults, crib cases. Mongoloids, spastics. Maintenance charges determined by family's ability to pay.

Private Schools

Mount St. Joseph's—Barrington. 135. Custodial care. Female. 6 years up. \$100 per month.

ABC School for Retarded Children—Chicago, 300 E. 75th Street. 40. Retarded. Both sexes. 6 to 20. \$20 to \$50 per month.

Mrs. Colescott's School—Chicago. Retarded, slight spastic problems. Day school. Varies.

Retarded Children's Educational Project, Association House—Chicago. 17. Those considered trainable, not accepted by public schools; mainly imbeciles; not epileptics or seriously physically handicapped. Both sexes. 5 to 13. \$20 per month for 3rd hour daily class, \$15 per month for 2 hour daily period.

St. Mary of Providence Institute—Chicago, 34. 350. Mentally deficient. Female. Children and adolescents. \$1,200 per year.

Beverly Farm Home and School—Godfrey. 250. Mentally defective, epileptic. 4 days to old age. \$100 to \$125 per month.

St. Coletta School of Chicago—Palos Park. 120. Mentally deficient. Male. 6 to 12, with I. Q. between 55 and 75. \$65 per month and up. Note: Boys from the Chicago area only are accepted.

The E. A. Boos School of Educational Adjustment—Piano. 32. Mentally deficient. Male. Chronological ages begin at 5 years for consideration of entrance. \$1.25 per month to \$300.

St. John's Crippled Children's School and Hospital—Springfield. 60. Spastic. 2 to 14 years. According to circumstances.

The Mary Pogue School—Wheaton. 90. Mentally deficient, epileptic and mental. Both sexes. Children, adolescents, adults, and ambulatory spastics. \$225 to \$250 month.

INDIANA

State Schools (No Private Schools)

Muscatatuck State School—Butterville. 1,600. Mentally deficient. Both sexes. All ages. State.

Fort Wayne State School—Fort Wayne. 1. 1,910. Mentally deficient. Both sexes. 6 years and up. \$10 per week charged against each patient, his or her parents, husband or wife, if able to pay, otherwise adjustment is made.

IOWA

State Schools

Glenwood State School—Glenwood. 1,930. Feeble-minded. Both sexes. All ages. Prorated, each month is different (usually runs around 40).

Woodward State Hospital and School—Woodward. 1,680. Mentally deficient, epileptic. Both sexes. Infants, babies, children, adolescents, adults, crib cases, Mongoloids, spastics. \$1.6245 per day.

Private School

The Powell School—Red Oak. 70. Mentally deficient, problems. Both sexes. 5 to 45 years. Varies, depending on physical and mental conditions and habits of child. Note: School or permanent home as desired.

KANSAS

State School

State Training School—Winfield. 1,420. Mentally deficient. Both sexes. Infants to age 80 years. If financially able, \$12 per week (State).

Private School

The Menninger Foundation—Topeka. 8617 West 6th St. 70 adults; 18 children. Mental, alcoholic conduct problems. Both sexes. Children and adults. Children \$450 per month; adults \$25 per day.

KENTUCKY

State School

Kentucky Training Home—Frankfort. 710. Mentally deficient, epileptic. Both sexes. Children, adolescents. \$50 per month if able to pay.

Private School

Stewart Home School—Frankfort. 150. Mentally deficient. Both sexes. Children, adolescents, adults. Minimum rate \$150 per month for board, plus laundry and incidentals.

LOUISIANA

State Schools

Milne Home for Girls—New Orleans. 70. Mentally deficient. Female. Adolescents. Not given.

State Colony and Training School—Fineville. 1010. Mentally retarded and epileptic. Both sexes. All ages. Public.

Private Schools

Louise S. Davis School—New Orleans, 15. 24 boarders; 75 day pupils. Mentally deficient, epileptic, conduct problems. No custodial care cases. Both sexes. Children and Mongoloids. Day pupils—\$30 per month; boarders—\$100 per month.

Magnolia School, Inc.—New Orleans, 20. 60 boarders; 25 day pupils. Trainable and educable retarded children. Both sexes. 3 years through adolescence. Rates vary according to the needs of each child. Average resident fees are \$90 to \$100 monthly. Average day care fees \$40 monthly.

MAINE

State School

Pownal State School—Pownal. 1,500. Mentally deficient including epileptics with mental deficiency and juvenile defective delinquents. Both sexes. 5 years to 55 years. \$10 per week (State).

Private Schools

Plummer Home for Cerebral Palsied—Bath. 6. Mentally deficient and totally disabled. Both sexes. 6 months to 6 years. \$18 per week and up.

MARYLAND

State Schools

Crownsville State Hospital, F. M. Division—Crownsville. 200. Mentally deficient, epileptic and conduct problems. Both sexes. Children and adolescents up to 16 years. Determined by Department of Welfare.

District Training School—Laurel. 750. Mentally deficient. Both sexes. Accept any mental defective who is a legal resident of the District of Columbia, and less than 45 years of age. Supported by tax funds from the District of Columbia, and maintenance charges paid by relatives.

Rosewood State Training School—Owings Mills. 1,259. Mentally deficient. Both sexes. Children, adolescents, crib cases, Mongoloids, and spastics. None (State).

Private Schools

Bowditch Institute—Baltimore. Est. 1937—Non-profit. 25. Epilepsies, emotional and nervous problems. Both sexes. Children, adolescent, and early adult. \$300 per month minimum. In many cases, considerable aid may be had by grants averaging \$35,000 per year.

The Marine Home—Landover. 15 babies. Mongoloids only. Both sexes. Prefer infants. \$70 per month.

The Silver Cross Home—Reisterstown. 85. Epileptic. Female. All ages. \$100 per month.

MASSACHUSETTS

State Schools

Belchertown State School—Belchertown. Working 1,069, actual beds 1,323. Mentally deficient. Both sexes. 25 cases (capacity) ages 2 to 6 years, ambulatory only; balance of population—over 6 years. If able to pay, not exceeding \$10 weekly per current statutes.

Walter E. Fernald State School—Waverly, 78. 1902 actually present, 2040 on the books. Mentally deficient. Both sexes. Children, adults. \$10 per week.

Wrentham State School—Wrentham. 1,811; on books of institution 2,173, Nov. 30, 1951. Mentally deficient. Both sexes. All types and ages. Up to \$10 a week when parents or relatives are able to pay.

Private Schools

The Freer School—Arlington Heights.

Pollock School, Inc.—Brookline. 17 boarding; 15 day. Mentally deficient. Both sexes. Children. \$2,000.

Joseph P. Kennedy, Jr. Memorial—Brighton. 75. Mentally retarded children with an I. Q. of 40, epileptics and children with convulsive seizures are excluded. Both sexes. 6 to 9 for boys; 6 to 12 for girls. \$25 per week.

St. Colletta School—Hanover. 125. Mentally retarded. Both sexes. 6 to 14 for first admittance. \$100 per month.

Perkins School—Lancaster. 70. Mentally deficient. Both sexes. 3 to 18 years are accepted. Variable, depending upon the individual attention required.

The Smith School—Milton, 88. 55. Mentally deficient, conduct problems. Both sexes. Children, adolescents. \$1,230-\$1,400 per season.

The Lila Sanitorium—Woburn. 18. Mentally deficient, epileptics. \$40 to \$45 per week.

MICHIGAN

State Schools

Coldwater State Home and Training School—Coldwater. 1,743. Mentally deficient. Both sexes. All ages. \$2.84 per day (State).

Lapeer State Home and Training School—Lapeer. 4,185. Mentally deficient. Both sexes. All ages. Maintenance rate per day: \$2.21. The maintenance of patients is paid as follows: In full or in part by those having financial responsibilities. By county of commitment for the first 365 days of residence at institution; by state after 365 days of residence at institution; by state from first day of residence if committed as a state pay patient.

Newberry State Hospital—Newberry (Children's Unit). 241. Mentally deficient. Both sexes. All ages, including adults. \$2.40 per day (State).

Wayne County Training School—Northville. 799. High grade mentally deficient. Both sexes. 8 to 16 years. Public institution.

Mt. Pleasant State Home and Training School—Mt. Pleasant. 450. Mentally deficient. Both sexes. Infants, babies (crib cases), adults (male). Fee is on a daily basis determined by the state. Admission only by transfer from other institutions in Michigan.

Private Schools

Ann Arbor School—Ann Arbor. 50. Retarded children, emotional and speech problems. Both sexes. 5 to 15 years. \$150 to \$225 per month.

Bilbie Hall, Inc.—Charlotte. 15. Ambulatory and educable. Male. 12 to 20 years. \$150 per month.

The Coeman School, Inc.—Detroit, 8. 75 day students. Mentally deficient, conduct problems. Both sexes. 4 to 18 years. \$300 per semester of 5 months.

The Irwin Institute—Detroit 6. 16. Children who can be taught with special attention. 7 to 18 years. \$35 per month.

Manor School for Girls—Hudson. 21. Retarded girls. Female. 9 to 21 years. \$125 per month.

Manor School for Girls—Hudson. 12. Mentally retarded girls. Female. 9 to 21 years. \$75 to \$125 per month.

The Manor School for Boys, Inc.—Jonesville. 30. Mentally deficient, conduct problems. Male. 8 to 20 years. \$1,800 minimum, for 11 months.

Harris-Brigham School—Kalamazoo. 36. 4 boarding students. Brain injured, not requiring orthopedic care. 4 to 10 years. \$40 per week.

Pentland School—Romeo. 15. 4 years and over. Mentally or physically handicapped. Both sexes. \$500 per year and up.

Tanglewood School—Charlotte. 6. 6 to 12 years. Retarded educable children. Both sexes. \$175 month and up.

MINNESOTA

State Schools

Cambridge State School and Hospital—Cambridge. 1,108. Epileptic. Both sexes. All ages. \$40 per year (State).

Minnesota School and Colony—Faribault. 3,200. Mentally deficient. Both sexes. All ages. \$40 per year is charged relatives or the county of residence. This money goes into the General Revenue Fund (State).

Owatonna State School—Owatonna. 385. Mentally deficient. Both sexes. Children and adolescents. \$40 per year (State).

Annex for Defective Delinquents—St. Cloud. 75. Mentally deficient. Male. Adults. If family cannot pay, \$40 per year paid by county where ward resides.

Private Schools

Buckeye Hall School—Faribault. 12. Mentally deficient. Both sexes. Children and Mongoloids, enter from 5 to 20. \$100 per month up, based on individual care needed.

Home Study School—Minneapolis. 19. 50. Day school, mentally deficient. Both sexes. 4 to 18 years.

The Laura Baker School—Northfield. 55. Mentally deficient. Both sexes. 5 and up. \$200 per month.

Hammer School—Wayzata. 85. Mentally deficient. Both sexes. Children, adolescents. Varies.

MISSISSIPPI

State Schools (No Private Schools)

Ellisville State School—Ellisville. 685. Mentally deficient, conduct problems. Both sexes. Children, adolescents, adults. (State).

MISSOURI

State Schools

Missouri State School—Marshall. Also includes the division at Carrollton, known as Missouri State School No. 2. 2,102. Mentally deficient, epileptic. Both sexes. 5 to 20 years. County patients \$5 per month; private patients \$20 per month.

St. Louis State Training School—St. Louis. 15. 525. Mentally deficient, epileptic. Both sexes. 5 to 25 years. Private \$40 ambulatory per month; private \$50 bed patient per month; county \$5 per month.

Private Schools

Trowbridge Training School—Kansas City. 85. Retarded. Minimum 6 years. Residential. 100 month up.

Evangelical Emmaus Home—Marthasville. 100. Mentally deficient and epileptic. Male; also small department for females. Adolescents and adults. \$45 to \$85 per month.

Evangelical Emmaus Home—St. Charles. 150. Mentally deficient and epileptic. Female. Adolescents and adults. \$45 to \$85 per month.

MONTANA

State School (No Private Schools)

Montana State Training School—Boulder. 555. Mentally deficient. Both sexes. All ages over 6 years. State.

NEBRASKA

State School

The Beatrice State Home—Beatrice.

Private School

The Bethpage Inner Mission—Axtell. 225. Mentally retarded, epileptics, handicapped. Both sexes. 5. \$65, \$75 and up per month.

NEVADA

State School (No Private Schools)

None. Cared for in Nevada State Hospital—Reno.

NEW HAMPSHIRE

State School (No Private Schools)

Laconia State School—Laconia. 746. Mentally deficient; epileptic if feeble-minded. Both sexes. Children, adolescents, adults, crib cases, Mongoloids, spastics. Male 5 to 21 years; females 5 to 46 years. State supported; relatives pay what they can afford.

NEW JERSEY

State Schools

New Jersey State Colony—New Lisbon. 700. Mentally deficient. Male. Children and adolescents. Nonindigent rate, \$20 per week.

North Jersey Training School—Totowa. 72S. Mentally deficient. Female; and in infants both sexes. Both sexes birth to 4 years, girls 5 to 20 years. Determined by court (State).

Vineland State School—Vineland. 1,775. Mentally deficient. Female. Children, adolescents, adults, crib cases, Mongoloids, spastics, from 5 years to 45 years. \$20 per week private rate; \$5.88 per week county patients.

New Jersey State Colony—Woodbine. Cottages 950; hospital 50. Mentally deficient. Male. From 5 years upward. Determined by committing court.

Private Schools

Dorothy-Hall School—Belmar. 8. Mentally deficient. Both sexes. Little girls and young ladies, boys under 12 years and Mongoloids. \$2,600 per year of 12 months.

The Bancroft School—Haddonfield. 100. Retarded. Both sexes. Children, 3 to 18 years. On application.

Bayside Training School, Inc.—Ocean City. 40. Mentally deficient, epileptic. Both sexes. 3 to 14, ambulant spastics. \$125 per month.

Kinderstand School—Sea Isle City. 10. Mentally deficient. Both sexes. Babies, children, Mongoloids, low grade mentally deficient, infants to 10 years. \$150 per month.

Sea Isle Hospital and Training School—Sea Isle City. 60. Mentally deficient, epileptic. Both sexes. Infants, babies, children, crib cases, Mongoloids, spastics, hydrocephalic, and microcephalic. \$125 per month.

The Beckett School—Vineland. 8. Mentally deficient. 3 to 16 years. Residential. \$125 month.

Cedar Lawn School—Vineland. 14. Mentally deficient. Both sexes. 2 to 8 years. Rates on request.

Training School at Vineland—Vineland. 550. Mentally deficient, borderline normals, and those with specific handicaps such that their functioning is reduced to mentally deficient and borderline levels. Both sexes. Children and adolescents. \$2,400-\$3,600 per year, according to accommodations.

NEW MEXICO

State School (No Private Schools)

Los Lunas Mental Hospital—Los Lunas. 120. Mentally deficient. Both sexes. Children, adolescents. State maintained.

NEW YORK

State Schools

Albion State Training School—Albion. 425. Mentally Defective Delinquents. Female. Adults, 16 years and up. This is an institution under the jurisdiction of the Department of Correction.

Institution for Male Defective Delinquents—Napanoch. 22. Mentally deficient, conduct problems. Male. 16 years of age and over. No charge (New York State Institution, Department of Correction).

Newark State School—Newark. 1,874. Mentally deficient. Both sexes. Children, adolescents, adults. Mongoloids. Per month according to financial ability of relatives.

Willowbrook State School—Staten Island 14. 3,282. Mental defectives. Both sexes. All ages. State institution.

Department of Mental Hygiene—Syracuse, Syracuse State School. 1,133. High-grade mental defectives. Both sexes. 7 through 15, inclusive. State institution, under supervision of the New York State Department of Mental Hygiene.

Letchworth Village—Thiells. 8,658. Mentally deficient; epileptic, with mental defect. Both sexes. Adults and children over 5 years of age of all degrees of mental defect. Determined by Bureau of Reimbursement on financial ability of parents to reimburse.

Wassaic State School—Wassaic. Population 4,407. Mentally deficient. Both sexes. Over the age of 5 years. State institution.

Woodbourne Correctional Institution—Woodbourne. 700 normals, 47 defectives. Borderline and below. Male. 16 years and up. None.

Private Schools

Evergreens Sanatorium School—Albany. 7. Mentally deficient. Males only.

Brunswick Home—Amityville. 65. Mentally deficient. Both sexes. Infants, babies, children, adolescents, crib cases, Mongoloids, spastics. \$152 per month.

Long Acre—Bedford. 24. Mentally deficient, epileptic. Both sexes. Adolescents, adults, speech defects. \$250 per month.

Binghamton Training School—Binghamton. 55. Mentally deficient, epileptic. Both sexes. Children, adolescents, adults. \$125 month and up.

Otsego School for Backward Children—Edmeston. 50. Mongoloids. Birth up. \$125 month.

Nanbeth Hall—Fairport. 14. Mentally retarded; educable. 5 to 12 years.

The Foster Home—Garden City. 13. Epileptic, mentally retarded. Infants to 16 years.

Lochland School—Geneva. 36. High-grade mentally retarded and emotional problems. Both sexes. Children, emotional and behavior problems. \$3,600 to \$6,000.

The Avery Training School—Hawthorne. 59. Mentally deficient. Both sexes. Infants, babies, children, adolescents, crib cases, Mongoloids—life guardianship. \$100 per month.

Bailey Hall—Katonah. 25. Mentally, with an I. Q. of 60 and over. Male. Children, adolescents 10 to 16 years. \$250 per month.

Gary de Vabre Academy—Lake Ronkonkoma. 18. Mentally deficient. Able-bodied adults from puberty up. \$125 to \$150 month.

Wharton Memorial Institute—Port Jefferson. 136. Mentally deficient, I. Q. 60 to 75. Both sexes. Children 7 to 16. On application.

Fernduff School—Rye. Mentally and physically handicapped. Infancy to 21 years.

Algonquin School—Saranac Lake. 28. Mentally deficient and epileptic (controlled). Both sexes. Children. \$2,400 per year, minimum.

St. Rita's Home for Children—Williamsville, 21. 42. Mentally deficient. Both sexes. Infants, babies—may remain at the home up to the age of 5 years. Admissions past 18 months are not considered. \$100 per month.

Soundview School—Yorktown Heights. 23. Mentally deficient. 4 years and up. Residential. \$150 month and up.

NORTH CAROLINA

State School (No Private Schools)

State Hospital at Raleigh—Raleigh. Rated 1,898; actual beds, 2,585. Epileptic, mental, and alcoholic. Both sexes. Children, adolescents, and adults. Charge made for those able to pay (State), \$40 per month for mental cases, \$60 per month for inebriates.

NORTH DAKOTA

State School (No Private Schools)

Grafton State School—Grafton. 1,170. Mentally deficient, epileptic. Both sexes. From 2 years up. Each county pays \$20 per month per patient (State).

OHIO

State Schools (No Private Schools)

Apple Creek State Hospital—Apple Creek. 1,500. Mentally retarded and psychotic. Both sexes. Over 18 years, no children.

Columbus State School—Columbus. 2,100. Mentally deficient, conduct problems. Receiving center for entire state. Both sexes. Children, adolescents, adults receive all types. \$9.80 per week when able to pay.

Orient State School—Orient. 2,450; number of beds, 3,000. Mentally deficient and epileptic. Both sexes. Children, adolescents, adults, crib cases, Mongoloids, spastics. Cost of maintenance.

OKLAHOMA

State School

Enid State School—Enid. 1,425. Mentally deficient. Both sexes. Under Mental Health Act required to accept all mental defectives with a mental age below 9 years. Private patients, \$300 per year.

Private School

The Pearson School for Exceptional Children—Muskogee. 25. Mentally deficient and epileptic. Both sexes. Children, adolescents. Mongoloids, and mild spastics. Not given.

OREGON

State School

Oregon Fair-view Home—Salem. 1,380. Mentally deficient and epileptic. Both sexes. Females under 45 years, males any age. Based on ability to pay, not over actual cost per month.

Private Schools

Colonial Manor—Portland. 30. Adults. On application.

Fairlawn Hospital—Portland. 70. Adolescents and adults. On application.

Morningside Hospital—Portland. 397. Mentally defective, epileptic, and mental. Adolescents and adults. On application.

PENNSYLVANIA

State Schools.

Laurelton State Village—Laurelton. 900, have 938. Mentally deficient. Female. Women of child-bearing age. State owned and maintained.

Polk State School—Polk. 2,210, have 3,200. Mentally deficient. Both sexes. Children. Full cost is actual per capita cost (State).

Selinsgrove State Colony for Epileptics—Selinsgrove. 993. Epileptic. Both sexes. 8 years of age and up. State owned and operated.

Pennhurst State School—Spring City. 8,000. Mentally deficient, epileptic. Both sexes. Children and adolescents. Maintenance charges determined by Department of Revenue following study of family's ability to pay.

Private Schools

Tipahato—Blue Ridge Summit. 24. Mentally deficient, epileptic, and conduct problems. Both sexes. Infants, babies, children, adolescents, adults, crib cases, Mongoloids and spastics. Dependent upon extent of care required.

The Ercildoune School—Coatesville. 23. Mentally deficient. Both sexes. Children. \$175 per month.

Devereux Schools—Devon. 400 (in 14 separate units). Conduct and emotional problems. Both sexes. Children, adolescents. \$350 minimum per month.

The Brett School—Dingman's Ferry. 18. Backward and mental defectives of higher level. Female, a up. Variable.

Elwyn Training School—Elwyn. 1,155. Both sexes. Mentally deficient (must be trainable). Children between ages of 7 and 15. \$1,000 per year, plus extras which include clothing, glasses, dentistry, and minor incidentals.

St. Mary of Providence Institute—Elverson. 100. Mentally deficient. Female. Children and adolescents. On application.

The Matthews School—Fort Washington. Pennsylvania Ave. and Camp Hill Rd.

Marydell School, Inc.—Langhorne. 78. Mentally deficient, epileptic, mental. Both sexes. Children, adolescents, Mongoloids, spastics, custodial cases. \$2,100 per year and up.

The Woods School—Langhorne. 875. Mentally deficient. Both sexes. Children, adolescents. \$275 per month.

Chamberlain School—Media. 24. Mentally deficient, mental. Male. Children, adolescents, adults, Mongoloids. \$90 per month.

Margaret Duer Judge School for Exceptional Children—Milford. 70. Mentally deficient. Both sexes. Children; boys 5-10; girls 5-12. \$125-\$150 per.

Gladys Baker School and Nursery—Phoenixville. 21. All types. Birth up. Both sexes. Depending on the care.

Passavant Memorial Homes for the Care of Epileptics—Rochester. 175. Epileptic. Both sexes. Adolescents, adults. According to ability.

The Merna Owens Home—South Canaan. 75. Mentally deficient. Both sexes. Babies, crib cases, and Mongoloids. \$75 per month.

The Stewart School for Retarded Children—Swarthmore. A boarding school for the psychological training of mentally retarded children. Speech development.

The Martha Lloyd School—Troy. 125. Mentally deficient. Female. Children. \$1,200 per year.

Clifford Nursing Home—West Chester. 37. Mentally deficient, epileptic. Both sexes. Children, crib cases, Mongoloids, spastics. \$175 month.

Oakbourne Colony Hospital—West Chester. 125. Epileptic. Both sexes. Children, adolescents, adults. \$4.00 per day for Pennsylvania residents; \$4.60 per day to out of state.

Heston Hall—Woodside. 28. Mentally deficient. Female. Adolescents, adults, Mongoloids, and slight spastics. \$200 per month and up.

RHODE ISLAND

State School

Exeter School—Lafayette. 484. Mentally deficient and epileptic. Both sexes. All ages. \$5 per week maximum; lesser amount dependent upon responsible relative's financial position to contribute.

Private School

Pine Harbor—Pascoag. 75. Mentally deficient, epileptic, mental. Both sexes. Infants, babies, children, adolescents, crib cases, Mongoloids, spastics, if mentally deficient. \$150-\$175 monthly.

SOUTH CAROLINA

State School (No Private Schools)

State Training School—Clinton. 1,425. Mentally deficient, epileptic, and conduct problems. Both sexes. Children and adolescents. \$20 to \$45 per month, majority beneficiary.

SOUTH DAKOTA

State School (No Private Schools)

Redfield State Hospital and School—Redfield. 690, have 798 patients. Mentally defective and epileptic patients. Both sexes. Children, adolescents, and adults. \$25 monthly, listed against individual patient's county.

TENNESSEE

State School (No Private Schools)

State Home and School—Donelson.

TEXAS

State School

Austin State School—Austin. 1,883, have 2,006. Mentally deficient. Both sexes. Children, adolescents, adults, Mongoloids, and spastics, 6 to 49 years. Up to \$60 per month for those able to pay.

Private Schools

Bilbie Hall, Inc.—San Benito. 10. Ambulatory and educable. Male. 12 to 20. \$150 per month, Oct. 1 through June 1.

The Brown Schools—Austin. 300. All clinical types of exceptional children, and young adults with homogenous grouping in six resident centers. Minimum \$175 month.

UTAH

State School (No Private Schools)

Utah State Training School—American Fork. 500, present 725. Mentally deficient and epileptic. Both sexes. Children and adolescents. \$40 per month (State).

VERMONT

State School (No Private Schools)

Brandon State School—Brandon. 555. Mentally deficient. Both sexes. Between 5 and 21. Approximately \$10.85 per patient per week. State owned and operated.

VIRGINIA

State Schools

Lynchburg State Colony—Colony. 1,984. Mentally deficient and epileptic. Both sexes. All ages. Up to \$40 a month where families are able (State).

Petersburg State Colony—Petersburg. 250. Mentally deficient. Both sexes. Children, adolescents. Between the ages of 8 and 21. No charges of fees (State).

Private Schools

Ruth's Home for Subnormal Children—Bluemont. 40. Mentally deficient, epileptic and spastics. Both sexes. Infants, babies, and children. \$75 per month.

The Thompson Homestead—Free Union. 35. Both sexes. Mentally deficient, epileptic, conduct problems. Infants, babies, children, adolescents, adults, crib cases, Mongoloids, spastics. \$100 per month for infants, babies, children; \$125 and up for adults.

Bellevue School—Hollins. 10. Mentally deficient. 4 years on. \$500 to \$750 per quarter custodial cases, trainable.

The Corley School—Leesburg. 26. Mentally retarded. Both sexes. 8 to 8 years. \$125 per month.

WASHINGTON

State Schools (No Private Schools)

Rainier State School—Buckley. 1,225, plus Yakima Branch 150 (emergency facility). Mentally deficient. Both sexes. Infants to age 60 (by commitment). No special charges made to families (State).

Lakeland Village—Medical Lake. 1,200. Mentally deficient and epileptic. Both sexes. All ages under 50. No charge (State).

WEST VIRGINIA

State School (No Private Schools)

West Virginia Training School—St. Mary's.

WISCONSIN

State Schools

Northern Wisconsin Colony and Training School—Chippewa Falls. 1,204, have 1,773. Mentally deficient and epileptic. Male and female. All ages. \$40 per month.

Southern Wisconsin Colony and Training School—Union Grove. 550 beds, present population 972. Mentally deficient, epileptic. Both sexes. All ages and types of mental deficiency and epileptics. The State's present monthly charge is \$40.00. (Parents or guardians pay an amount set by the State based on the ability to pay).

Private Schools

The Pines—Delevan. 25. Mentally deficient, epileptic. Both sexes. Children, adolescents Mongoloids ages 2 to 14 years, educable preferred. \$150 per month, plus special fee \$30 payable on entrance and annually thereafter for books, etc.

St. Coletta School—Jefferson. 425. Mentally deficient. Both sexes. Children between the ages of 6 and 15. I. Q.'s ranging from 50 and upward. \$75 per month.

The Cove Schools for Brain-injured Children—Racine. 15. Brain injured. Both sexes. Children 6 to 10 years. On application.

Bethesda Lutheran Home—Watertown. 400. Mentally deficient, epileptic, and helpless. Both sexes. Children and adults. \$50 per month.

WYOMING

State School (No Private Schools)

Wyoming State Training School—Lander. 450. Mentally deficient and epileptic. Both sexes. All ages. Determined by the committing judge. (90% don't pay).

HAWAIIAN ISLANDS

Waimano Home—Pearl City, Oahu. 800. Mentally retarded and epileptics. Both sexes. All ages. Set by committing court on ability to pay.

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