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ABSTRACT

This paper discusses the place of reading instruction in the education of brain-injured children and presents some arguments for early reading instruction for children in general. Reading instruction is especially suitable for brain-injured children because reading presents an additional means of stimulating the brain. Meaning is attached to printed words in exactly the same way that meaning is attached to spoken words. The ideal age for learning to read is identical with the ideal age for learning speech. Case histories indicate that the brain grows in response to the demands placed on it. (VM)

HOW BRAIN-INJURED CHILDREN LEARN TO READ

by

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HOW BRAIN-INJURED CHILDREN LEARN TO READ

When you are confronted with a brain-injured two year old who is no further advanced than a newborn babe - who gives no evidence of being able to see or hear, let alone crawl or raise his head - teaching him to read isn't the first thing you think about. What you think about is how to get through to him, by any method, on any level.

Young Tommy was such a child. His eyes wouldn't follow you, or follow a light, or work together. A loud noise would make him start. You could pinch him and get no reaction. In fact, the first time we ever got a reaction out of Tommy was when we stuck pins in him: he smiled. It was a great moment, for us and for him. We had established contact.

That was when Tommy was two. By the time he was four he was reading, and thereby hangs a tale. Let me tell it to you just as it happened, because we didn't set out to teach him to read, it just happened along the way, as part of our overall problem of establishing communication.

Before I tell you about Tommy, though, let me give you a bit more background on our work. Our specialty at The Institutes for the Achievement of Human Potential in helping brain-injured children. We don't treat them ourselves

at The Institutes because we learned long ago that mothers do it best. We do try to teach parents how to help their brain-injured children.

Over the past 20 years we have seen about 6,000 such children. Mostly they were brought to us as a last resort after their parents had been warned by one specialist after another that the problem was brain damage and that brain damage is irreparable.

The diagnoses varied. The symptomatic words used included athetosis, autism, cerebral palsy, cerebral dysfunction, dyslexia, epilepsy, hyperactivity, learning difficulty, mental deficiency, mixed dominance, neurological disorder, retardation, seizures, and speech retardation. The etiological diagnoses included cerebral anoxia, cerebral trauma, encephalitis, hypoglycemia, meningitis, Rh factor, thyroid deficiency, and many others.

Since my assigned topic is *How Brain-Injured Children Learn To Read* and since we didn't ourselves discover the advantages of including reading in our remedial work with the very young until about 1960, and since we feel we learn more with each passing year, let me just recap for you our experience of the last five years. I'll limit myself to those small, brain-injured patients who were under the age of five

when they first came to us, who first tackled reading under our program, and who re-visited us at least once for progress evaluation.

394 children made up this group. We prescribed a reading program for every one of them as early as was practical, and all but three were reading in at least a limited way before their final visit, or before they were six, usually within a year. Some learned to read before they learned to talk. Many learned to read before they learned to walk. About a quarter of them were reading real books within 8 to 15 months.

One of them was Tommy. I won't trouble you with our diagnosis of Tommy's brain-injury. His problem could have originated in a temporary lack of blood supply before, during, or shortly after birth. The brain-injury was clearly severe, extensive, and not restricted to the cortex since there was no light reflex, no startle reflex, a positive Babinski reflex, no grasp reflex. A breakthrough in this area might or might not reveal problems of crawling, involving the pons, or problems of convergent vision, involving the midbrain, or problems of speech, involving the cortex.

We couldn't be sure about Tommy's specific problem.

It could have been that the electro-chemical impulses being sent to his brain by his organs of sight, hearing and feeling were not getting through. It could have been that they were getting through to the brain, but reaching only hurt brain cells. It could have been that they were getting through, and reaching perfectly healthy brain cells, but were not being processed, i.e., not being associated, one with another, so as to be meaningful.

If we had been able to talk directly with Tommy's brain and ask about the situation, the response might have been in effect, "Sure, the switchboard used to light up sometimes, but usually when I picked up I couldn't really hear the message, so I just stopped picking up."

In Tommy's case, when we stuck pins in him, some of those switchboard lights suddenly came on so bright that his brain couldn't help but sit up and take notice and say to itself, "By Golly, I believe somebody IS trying to say something to me."

Some of you may be thinking that I'm setting myself up an easy one. You may be thinking that the way I describe it, Tommy wasn't so much brain-injured as under-stimulated. Obviously, if you shielded a newborn child from all sensation for two years, kept him on his back in a dark room, and made no meaningful sounds in his presence, he could have a totally unhurt brain and still be unable to use it, solely for want of

any opportunity to use it.

We do encounter cases almost like that. But we also get brains with undeniable damage and still make breakthroughs. The brain, after all, has from birth something like 100 billion cells, and more than ten billion of these are neurons capable of function. There are cases on record where five billion of those cells have been surgically removed and put in a glass jar, and the remaining five billion have sufficed to make their owner a superior person in every way.

Brain cells, unlike skin cells, don't seem to replace themselves when destroyed. Because of this it is sometimes assumed that problems arising out of brain-injury are irreversible. When children are diagnosed as brain-injured nevertheless do get well, some argue that they must have been misdiagnosed.

To us it seems rather as if the brain, a supremely versatile organ, is routinely able to compensate for the incapacity of almost any damaged cell by reassigning its duties to other like cells. There may be a very valid parallel here between the brain's reserve of unused cells, and the Telephone Company's reserve of stand-by equipment. I am told that minor breakdowns of telephone switching equipment often go entirely unnoticed by the public, so smoothly are the calls rerouted

around the damaged equipment for handling by the stand-by equipment.

In Tommy's case, therefore, we didn't spend much time pondering whether the problem was dead brain cells, or just uneducated brain cells. We simply used an all-purpose approach that seems often to work in either of these cases. Our technique, basically, was to start shouting.

We enriched Tommy's environment, we stepped up the intensity and frequency of input through all his senses, we took him out of the hushed and darkened nursery and exposed him to lights, action, and loud talk.

In Tommy's case, as in many, many others, this approach got results. We made contact.

Our basic strategy was to try and lead Tommy through all the stages that he had missed. Tommy's body and brain, from conception to birth, had demonstrated the basic law that ontogeny recapitulates phylogeny. It was not time to see to it that the *programming* of his brain likewise took place in logical sequence with no missed stages. The lowest stages of his brain might never be able to get more out of the messages from his eyes than just the difference between light and dark, but nevertheless they needed to learn this basic lesson before the higher stages of his brain could

begin to make their more sophisticated analyses of the same information.

Most children, right from the moment of birth, flail their arms and legs, and flex their eye and neck muscles. If these motions seem aimless - don't you believe it. They are, in a manner of speaking, pump-priming.

Put baby on his tummy and those flailing limbs produce motion and sensation. The brain at first probably makes no distinction between feeling, sight, and sound. Every kind of input must be converted into electro-chemical signals before it can pass over the neural pathways. Messages reach the brain, but they are at very basic levels to start with.

The brain, however, is a ball of burning curiosity and for want of any better initial procedure it applies the only strategy open to it and accepts the incoming signals and files them. In short order it senses repetitive patterns and begins to file like with like. At some point it senses repetitive sequences of patterns, and real learning begins.

The brain begins to note, for example, that one of those seemingly random arm motions, namely pushing on the right is sometimes followed by rolling to the left. Sometimes but not always. It then notes that you can't repeat the rolling to the left sensation, unless a rolling to the

right sensation intervenes. Push on the right, roll to the left. Push on the left, roll to the right.

This right, left, right, left business, by the way, is one of the most fundamental discoveries Tommy will ever make, because it implies his discovery that there are *two sides* to his brain, one controlling the right, one controlling the left. If he can get the two sides working together down at the crawling and creeping level, they'll have less trouble working together later on up at the eye-convergence, depth perception level.

In Tommy's case, we had to pattern him, that is to say we had to do the flexing of his arms and legs and head for him, to make up for the fact that he had apparently missed out on learning how to do it for himself. We supplied intensive pump-priming to give Tommy's brain the kind of rudimentary input it needed to recognize that the signals coming in had a pattern that might reward the decoding.

There is something about the brain that thrives on the successful decoding of incoming signals. Let the brain once sense that the signals from the eyes can be modified by using the eye muscles and it will happily spend hours refining and refining and refining these correlations. We have all seen babies looking, looking, looking. They aren't being idle.

They are methodically learning how to look, how to correlate eye motion, head motion, body motion, and make sense out of it.

There are a billion hypotheses to be tested. Baby must first sense that there is a difference between light and dark, between noise and silence, between motion and inaction. He will later sense that there may be shapes within the light, and patterns within the noise.

One big moment occurs when a series of experiments demonstrates that when discomfort in the crotch is followed by crying, the crying may bring Mama, and Mama may bring a change of diapers.

You may well ask why, when a child cannot even walk or talk we even consider trying to teach him to read. Surely, a hard-headed ordering of priorities would suggest a concentration on getting him caught up with his peers, not a digression into an effort to push him ahead of his peers.

I can only say that within our experience children make the greatest progress when we take greatest advantage of every means at our command to engage their interest and provide them with fuel for their correlation experiments.

The visual, auditory and tactile pathways grow by use

and so consequently, does the brain grow.

There is a wealth of neurophysiological evidence to indicate that the brain grows by supplying it stimulation with increased frequency, intensity, and duration through the eyes, the ears, and the skin.

A young child's biggest problem is getting the where-withal to extend his experiments. When he'd like to crawl he is penned up. When he'd like to try putting buttons in his mouth and pins in the electric outlets, he finds these experiments denied him.

With normal children, this rage to learn is so over-powering we think nothing of responding with many a "Don't", "Not now", "Do be quiet", or "Later, perhaps" or "Can't you see Mother is busy now?"

With brain-injured children our main concern is lest the flame should flicker out, and we fan it by every means at our disposal.

Let me read you a letter from the mother of Rachel. She writes: "Since Rachel was so slow in talking we didn't dare hope for much from the reading. However, she took to it avidly -- at age 2 and 1/2 remember -- and was reading her first book within five weeks. In fact, she went so fast it worried me; I was afraid some undesirable consequence would

come from reading before talking. I therefore suspended the "reading game" entirely.

I needn't have worried. When I stopped reading to her, she started reading to me. Her speech improved right along with the reading, and she even worked out her own phonetics to the point where she was pronouncing words she had never heard. Her favorite reading now is the *Giant Golden Dictionary*. She is not yet 3 and 1/2 but she already knows all of its 1,030 words, and finds great satisfaction in studying their definition. She is also reading A.A. Milne, Robert Louis Stevenson, and Dr. Seuss."

Note: Here is Rachel avidly reading the dictionary at age 3. Her brother, by contrast, is a reading problem at age 8. He, too, might have found interest in words for words' sake at age 3; he was bright enough. From age 3 to 5 he watched the educational television programs by the hour until school, to him, promised to be an exciting world of molecules, galaxies, electricity, and doing entertaining things with numbers. When he finally got to the first grade, his reading lessons were inevitably a massive let-down, a crashing bore, so great was the gulf between his 6 year old interests and the content of primers that only a 3 year old could love.

In Tommy's case our basic problem was to provide input, input, and yet more input with which his brain could play the correlation game, so we were delighted to have *print* as one more element in our bag of tricks. We would point to his toe, so he could see it, we would pinch his toe so he could feel it, we would pronounce the word, "TOE" so he could hear it, and we would print the word, "TOE" in three-inch-high letters so he could read it.

It wasn't primarily a reading lesson, rather it was a correlation game, with the happy by-product of extended togetherness. Tommy couldn't yet talk -- but in short order he could point to his toe whether you said the word, or showed him the print. Furthermore, he could correctly choose between "TOE" and "TOMMY" if you showed the printed words and invited him to show which was which.

There are some lovely surprises in this early reading game -- devastatingly logical surprises when looked up with benefit of hindsight.

It was a great moment for everyone the first time Jonathan showed he could read the word "MUMMY" -- or if reading is too strong a term let's just say he could identify it. It was therefore a bit of a letdown when, a day later, the word "DADDY" was read to him -- and he triumphantly

read it back, except that he pronounced it "MUMMY". The confusion persisted for a discouragingly long time until in desperation his parents went on to the word "TOES". At that moment light dawned. It came suddenly clear to Jonathan that printed words, like human faces, differed one from another. From then on there was no stopping him.

I can't resist telling you also about Robert, age 3. Robert had been routinely talking English with his parents, and Spanish with the Puerto Rican maid. The day he learned to read the word "TABLE", he was so pleased with himself that he called to the maid to come admire his new accomplishment, and he read the word to her -- except that for her benefit he translated it and read it as "MESA".

In the light of all our experience to date it is so clear that brain-injured two and three year olds can read, love to read, and benefit enormously from this expansion of their horizons, that it is astonishing to look back and consider how long it took us to realize this. We had been working with brain-injured children for more than ten years before the children themselves taught us that for them early reading is not an added burden, it is an added resource.

It is fun for them to identify the seen or felt "TOE"

with the heard word, "TOE". It is even more fun, not more work, to identify both with the printed word "TOE".

If you compound the opportunities for correlation by introducing another language the delights and rewards of the game are compounded likewise.

A mother writes: "Just as my daughter turned four, we started your reading program and also began using a German baby-sitter. Within the same four months she learned to read 90 words of English, and also learned to speak and understand more German than I learned in three years of High School. My friends say she's a linguisitc genius, but I suspect the truth is simply that very young children are all linguistic geniuses. All they need is a chance."

Another parent writes: "Our pediatrician introduced us to your method, and we lost no time in applying it. At 18 months Aaron could read five words. At 30 months he could read 170 words in Hebrew and 60 words in English, and could also do easy addition and subtraction. We don't push him. We don't have to; he pushed us."

I suppose one reason we were slow to sense the advantages of teaching speech and reading together was out of an unexamined assumption that reading was a higher skill

than talking. Merely to state this assumption is to call it into question. After all, why should decoding print require any more of a child than decoding speech? The neurological processes are substantially identical.

It is obvious when you think about it that the five elements of the printed word "DADDY" differ from the five elements of the printed word "UNCLE" far more conclusively than the actual faces are likely to differ. Why should the child who can readily distinguish Daddy from Uncle by means of unbelievably subtle variations in their facial features have any problem telling the printed words apart?

It is also obvious when you think about it that printed words are usually far less equivocal than spoken words. They are far less likely to be blurred, or slurred, or run together, although, to the brain, small type is the equivalent of whispered speech.

With print it is usually also easier to take a second look if you need to, whereas a request to hear spoken words a second time often fails entirely to produce the requested direct repetition, and produces instead a restatement in different words that is no help at all in reviewing the original phrasing.

At The Institutes our advantage perhaps lay in the very

fact that our subjects were brain-injured. We often had to shout to make them hear. To the extent that raising our voices helped them hear, it seemed logical to suppose that raising the size of type might help them see. We enlarged the type -- and it was a very, very productive breakthrough.

Once children have discovered that there is meaning in type, they can very rapidly make the transition from large to small as maturation of the visual pathways takes place as a product of use. It greatly expedites that first breakthrough to begin with letters three inches high. Just how fast the process can go is perhaps dramatized by the following letter:

A mother writes: "We started our daughter at 12 months. By 17 months she was demanding new words almost faster than we could letter them -- at the rate of 12 to 14 a day. Now, at 33 months, she has read, *Green Eggs and Ham*, *Hop On Pop* -- and even the *New York Times*."

Quite apart from the fact that very young children take great joy in making speech-and-print correlations that would leave older children utterly bored, I am prepared to theorize that there may be yet another advantage in starting early, namely the advantage of letting the brain know from the start that it will eventually be called upon to store things in

threes, not just in twos.

The brain of the child who seems to be fighting the reading instruction in school may well be saying in effect, "Well, why in the world didn't they *tell* me to leave room in my system for print as well as speech? Here I have spent the last four years laboriously working out a system for easy two-way conversion of speech into meaning, or meaning into speech. *Now* they tell me I should have made it a three-way file embracing print. All I can do now is start a new three-way file to replace the old two-way file, but it'll be years before I get the new file to the point where I can safely stop looking up everything in both."

I am often asked whether premature introduction of reading won't prejudice the child's chances of making a good adjustment later on when he reaches his stage of "reading readiness". Of course, if I thought early reading was "premature" I wouldn't prescribe it, even for our brain-injured children where it could be argued that the chance might be worth taking.

At least as regards the brain-injured children I am most familiar with, I believe that reading readiness begins as early as hearing readiness.

However, this concern is voiced so often that it deserves the most thoughtful response possible. It starts, I

believe, in the observation that the human brain does continue to grow at an unmistakable, though diminishing rate, from birth to about age 8. It can be theorized that the capacity of the brain to function at its highest level might have to await the completion of this growth.

Work with the brain-injured tends to suggest quite another interpretation of this matter of the significance of the postnatal growth of the brain. Take Tommy's brain. In weight and circumference it had not increased at all from birth to two years. The mere passage of time hadn't done a thing to Tommy's brain, and he was on the verge of being classed as microcephalic. However, once we got through to him, and found ways to restore in him the normal rage to learn, and once we began to give him enriched imput well beyond all norms, not only his information but also his head-size started to grow at a rate well beyond all norms.

There is overwhelmingly persuasive validation in our case histories for the thesis that the brain, like a muscle, grows in response to the demands placed on it, not in preparation for them. The brain may be the only container of which it can be said that the more you put into it, the more it will hold. Readiness is created, not come to.

In any case, the assumption that reading is a higher

skill than hearing or talking or walking, and should await a more advance development of the brain does not, in our experience, stand up. It is not reading that sets man apart from the animals -- it is language. Reading is but one form of language, and the skill of understanding print in no way asks more of the brain than the skill of understanding speech.

There is only one reason why children, brain-injured or otherwise, don't learn to read as early as they learn to talk, namely lack of opportunity. Our society gives them speech in context as a matter of course; we even help them "get it" by raising our voices for their benefit, enunciating more carefully, repeating ourselves, making up rhymes, etc. Until television came along, print was largely locked up in books, or was so small as to escape notice.

What with every tiny tot now singing out on sight every brand name he has ever seen on television, there is no longer doubt that early reading just naturally goes hand in hand with early opportunity to read.

No one doubts that age 2 is an elegant age at which to learn a first, or even a second language. No teacher, no matter how skilled, ever taught any language, to any

one, of any age, anywhere near as effectively as the typical 2 year old teaches his mother tongue to himself -- or for that matter his grandmother's tongue as a second language. He even works out the grammar and syntax, and can give lessons in correct usage to any adult, who did not have as good a teacher, namely himself at age 2.

While the child is learning to cope with the spoken language -- a language utterly foreign to him when he starts -- and learning to penetrate all the irregularities of the spoken language, whether spoken, whispered, shouted, slurred, or run together -- how could it be more than child's play for him to go the last mile and learn to read also? With all the spelling irregularities of the English language, they are as nothing to the irregularities of the English language as it is spoken.

It is interesting to speculate on just why *very* young children seem to have this innate linguistic competence that will only diminish with each passing year.

I am tempted to credit part of their language competence to their single-minded concentration on language. They give it full time. Later they will think of language as a means to an end; at ages two and three, language is an end in itself. Later they will be pressed for time; at ages two

and three they are pressed for the wherewithal to fill their time.

Another hypothesis also attracts me though on this point I confess that I rely less on experience than on hunch. I think I sense an underlying neurological principle here: I think the processes of evolution and natural selection may have worked things out so that young creatures still under mother's care tend at first to accept rather uncritically whatever she teaches them, and only acquire the faculty to dissent after they have moved out from under mother's guidance and need the protection of independent judgment. This might account for the degree to which very young children play back every nuance of pronunciation exactly as they hear it, whereas later they'll unconsciously take a second look at pronunciations which aren't quite like Mother's.

In an appearance before a group of Space Scientists, I was once asked to give an example of this early, uncritical, uneradicable acceptance of information. I responded by inviting my listeners to give me the very first word that flashed into their minds in response to the question, "What is the moon made of?"

In closing let me say that although I have set forth

one method of teaching early reading in my book, *How To Teach Your Baby To Read*, I do not hold that this is the only effective method. I think there are probably many methods that will work -- if only you start early enough.

I have been asked whether I know of cases where harm has come from early reading. Often the actual question is whether harm can come from "pushing" a child into early reading. I may say I have never seen or heard of any harm coming from early reading. I think some harm *might* come if there was too much "pushing" on the part of the parent; fortunately children have very effective ways of letting you know when you are pushing too hard.

I have always liked the story of the young lady who was asked by her anguished mother why, oh why she had queered her chances of getting accepted at an exclusive private kindergarten by giving the wrong answer when the school psychologist asked her whether she was a girl or a boy. She responded disdainfully, "A stupid question deserves a stupid answer."

I am sometimes asked whether I have ever seen evidence to suggest that a child might hurt his eyes by attempting to read print before his eyes were ready for it. No, I have never seen such evidence. As I have said,

I favor starting with letters three inches high, but that is not to prevent eyestrain, whatever that may mean, but simply to make it possible for the child's immature visual pathways to deal with it until dealing with it matures his visual pathways.

I am sometimes asked how I can be so sure that the ideal age for learning reading is identical with the ideal age for learning speech. I am asked whether I can cite any controlled studies supporting my belief that reading should be considered a neurological function, just like hearing and speaking, and not an academic function at all.

I wish I could respond to such questions by reporting that within our 6,000 case histories we managed to isolate 1,000 pairs of identical twins, identically brain-injured, and had half of them reading fluently before they entered school, and allowed the other half no opportunity to learn reading until enrolled in school. I wish I could say that we then followed both groups for 40 years and determined that the early readers scored higher scholastically, rose higher economically, and produced far fewer misfits, ne'er-dowells, and criminals. Well, of course, we haven't had 40 years, we haven't encountered any pairs of identically injured, identical twins, and if we had, I very much doubt whether we could have persuaded any parent to deprive one

twin of the joys of early reading, if it was clear that the other twin was thriving on it. As a further problem, I doubt we could get agreement even within this group on how to define success.

I'd like to turn the question around and challenge those who are so worried about the possible adverse side-effects of early reading to produce the studies on which they rely.

Mostly they seem to rely on a study made in 1927 in which it was found that the first graders who did the best in reading were those who had made the highest ratings in a school entrance test aimed at measuring mental age. Some interpreted this as meaning that if children entering the first grade with a mental age of 7 did better at reading than children entering the first grade with a mental age of 6, then perhaps it would follow that the lower group would be well advised to start a year later.

If this be science, give me hypothesis and conjecture every time. It leaves entirely out of account the liklihood that the tests were measuring reading aptitude rather than mental age. It ignores the possibility that whatever the tests were measuring, whether mental age or reading aptitude, those who got the highest ratings might have been those with some extra measure of preschool exposure to books

and reading. It *starts* from the premise (rather than tests the premise) that reading instruction should start in the school rather than earlier.

In terms of controlled studies, the best we have are those conducted by Dolores Durkin in the Oakland Public Schools. She identified the first graders who were reading when they first enrolled, and she followed them through six grades to see whether they took any harm from reading early. She found no evidence of adverse consequences, and much evidence of favorable consequences. She found, what is more, that those who started ahead - stayed ahead.

Although our work at The Institutes does not satisfy the requirements of a controlled study, I am personally satisfied that we are on fairly safe ground in drawing certain basic conclusions. One is that children -- ours anyway -- can best learn to read in exactly the same way they learn spoken language. That is to say, they can learn to attach meaning to the printed words they see in exactly the same way they learn to attach meaning to the spoken words they hear. Neurologically these are almost identical processes. If there is a difference, then perhaps reading can be learned somewhat more easily, and at a somewhat earlier age, granted equal opportunity.

I am further satisfied that there are unqualified advantages to learning reading and speech at the same time instead of deferring reading until school-entering age.

Because I have no controlled studies to offer, let me offer instead a few more isolated reports of successful early reading, selected from the many hundreds of similar letters in The Institutes' files.

A mother writes:

"None of my friends believe Suzy could really read books at age two and a half -- until they heard her. Then all, without exception, decided to try it with their own children, and all are having successful results. I am fully convinced that it is far easier to teach a very young child to read, than to wait until age five."

A school headmaster writes:

"At the Waterloo Primary School, we recently admitted a 5 year old who was already reading at the level of a 9 or 10 year old. I feel she has a great advantage over the others, but we are going to have an interesting time meeting the challenge she presents to us...."

A father writes:

"At age three and a half my daughter's favorite game is pretending she is a teacher and reading to her dolls. In

just over a year on the program she can read 25 books."

Another mother writes:

"Once our son finally began to talk, he had a lot to say about things that had happened earlier, so I am sure you are right about children taking things in long before they can play them back."

Another father writes:

"You will be pleased to know that your method works with Mongoloids, too. Just 3 months ago, we began it with a boy of 6 years, and already he can read 24 words easily. What's more, the reading has greatly improved his speech."

There is, of course, much, much more information in the files of The Institutes for the Achievement of Human Potential than could be summarized or even referred to in this Paper. Any investigator wanting to dig deeper into the cases I have cited would be most welcome to write us for further information.

Additional information is also to be found in the following four publications, each by one of the Directors of The Institutes for the Achievement of Human Potential.

Brain-Injured Children
by Evan W. Thomas, M.D. (Chas.C.Thomas $7.00

Human Neurological Organization
by Edward B. LeWinn, M.D. (Chas.C.Thomas $8.50)

A New Start For The Child With Reading Problems
by Carl H. Delacato (McKay $5.95)

How To Teach Your Baby To Read
by Glenn Doman (Random House $5.95)