AXIOMS AND FUNDAMENTALS ABOUT DATA

A lecture given on
11 November 1950

An early transcript of this lecture was found which showed that there was a gap in the only tape recordings we have been able to locate. We have used that transcript to fill in the missing section of the lecture.

The Anatomy of Knowledge

I want to give you some axioms about data. Understand that knowledge is composed of data. You can have, of course, the half-felt-out, intuitive data that can't be precisely defined, but this doesn't mean that these are not themselves data. The effort of man is to as closely and precisely understand every datum as he can. He takes various routes toward this understanding.

One should never despise any route of understanding. The engineer makes a very serious blunder when he underestimates and refuses to have any concourse with mysticism or metaphysics. He thinks largely in terms of scientific thought. He does not want to have a great deal or anything to do with philosophy, if possible. He is lost in a wilderness of words. He doesn't understand what lies behind these words, but he has been told at school that certain fields in philosophy barred scientific knowledge. Therefore he is antagonistic.

He has been told, for instance, that Ohm's law was held up by metaphysics for many years, and that Piazzi's discovery of the eighth planet unfortunately coincided with the publication of one of Hegel's metaphysical works which proved that due to the perfection of the number 7 there could be no more than seven planets. So Piazzi's actual observation of the eighth planet was thrown aside at that time in favor of Hegel's metaphysical dissertation.

He looks at this turmoil in the field and assigns his distaste and antagonism to labels.

The field of philosophy is merely the field of the inexactly known, the unknown, and the broad, unending horizon toward which man continues to travel in an effort to know. Just because a datum cannot be precisely defined is no reason to throw it away. Just because it is inexactly known is no reason to discount it.

So we find out that the principles, for instance, used by the mystics in the twelfth century are very useful along certain lines of evaluation. These are routes of knowing, not bars to knowledge.

The people who bar knowledge by using various routes and then saying that because you are not traveling along this route you cannot know are committing the same crime that the engineer commits when he says he will have no concourse with mysticism, metaphysics or philosophy. The engineer doesn't realise, for instance, that everything he is doing today stems from the sixteenth century when a philosopher by the name of Francis Bacon codified science, and that the definition of science as made in 1872 by Herbert Spencer is very precise and workable, and that the engineer actually works with this. That definition is "A science is a unified body of knowledge." Understood in that definition is that it is a unified body of knowledge which is oriented by axioms.

The word science means "true." What the engineer is dealing with are things which he can sense, measure or experience. The instant he steps over into the field of mathematics he goes straight into the teeth of philosophy. You can't deal with mathematics without dealing in the field of philosophy. The engineer says philosophy is bad and mathematics are good, yet they are both talking about the same thing.

His contest may very well be with Platonic reasonings as opposed to mathematical reasoning. However, there is nothing weirder or more abstract, actually, than mathematical reasoning.

Leave it to a mathematician to get both feet over into the unknown and get stuck there! Then he tries to pull back and get into the real world again, but he has lost contact, and he has a terrible time doing it. Then he invents something called quantum mechanics and introduces a large number of "bugger factors" and somehow or other gets an answer, but he doesn't know how he is doing it. If he would just step back into the real world and approach the problem again, quantum mechanics would probably become as simple as geometry. But because he keeps taking off from an unknown position further into the unknown without consolidating or backing up into a known position first, he has a hard time of it.

Philosophy has always had this same hard time. There is nothing so absurd in the real world as those things which are found in the books of philosophy. There is also nothing as sensible in the world as what is found in the books of philosophy. There is nothing in the world so workable as what can be found in the field of science. There is also nothing in the world so unworkable as what can be found in the field of science. These statements can be made on almost any field and battleground of learning. If one is seeking knowledge, he should never despise a source of knowledge, but he may often practice this principle: "Certain bodies of knowledge have not, in the past, led to a solution of the problem in which I am interested. I shall therefore, willy-nilly, move off the path of my reasoning these bodies of knowledge which have led nowhere." That is a highly arbitrary action, actually, but it clears the field.

People say, "The phlogiston theory of heat never led anyplace, so we will just move anything related to that off the field, and therefore we will be able to think more clearly about this."

Let's go up into a wider sphere. "Has religion produced anything that I can use in my field of search?" If his answer is no, then we can let him move all of religion off his field of search and go on searching. He will find himself suddenly confronted with many more fields than that of religion, and his field of search will be clarified at that moment.

Or, supposing he said, "I have never found my answer in science, and I am searching. Let me remove from the field and course of my thought and search the whole body of science."

That is the principle of compartmentation, which is very useful. You move off your field of vision large bodies of knowledge which have not, heretofore, contributed to the solution of your problem. Men do that all the time.

Men also keep squarely before them great bodies of knowledge which have never led anywhere. But this is a fortunate thing. It means those bodies of knowledge will be preserved, and sooner or later maybe somebody can use them.

Man assembles and accumulates knowledge like a pack rat. Every single scrap, datum and empty cartridge shell that he can pick up along the track, he clutches to his bosom and stores somewhere in his library.

You might say the greatest enemies of the human race have been those men who have destroyed knowledge, or who have destroyed bodies of knowledge—the burners of books. Julius Caesar might possibly have some spot in history, no matter how minute, despite the fact that he cut off the right hands of fifty thousand Gauls; that wouldn't necessarily stain a man's history forevermore. But he put a torch to the library at Alexandria and destroyed at that moment the only existing storehouse of several civilitations. What was in the library of Alexandria (which I believe was destroyed five times in all) we can't say. We can hardly guess. Knowledge was there which comes to us now only on a by-route, sort of on a rumor basis.

Let's take the Tarot. The Tarot is a deck of cards. It contains the formal deck of cards and then there are 26 other cards. These other cards are picture cards of one sort or another. They have very interesting signs and symbols on them. You look at the Tarot and you are suddenly impressed with the fact that it is a philosophic machine to produce answers in some fashion. Men have been trying to unravel the mystery of the Tarot for some thousands of years. It is probably around four or five thousand years old.

It has, for instance, the symbol of the triangle, the circle and a dot. It's the problem of the microcosm and the macrocosm. It's the principle of the internal and external universes, objective and subjective knowledge and so forth.

One day I was fooling around with some of these old principles and I suddenly took a look at that triangle. I had two things that were related. I knew that communication was somehow related to affinity. All of a sudden a third point fell into view: reality. A piece of knowledge! Communication, affinity, reality—a very useful little triangle.

The triangle has been kicking around in the Tarot for a long time. I have had some strange and obtuse definitions connected to it, but it is a piece of knowledge.

The whole Tarot was probably in the library at Alexandria. But this deck of cards comes to us solely because it was used by gypsies in fortune telling, and in Egypt by fortune tellers. That is a strange route to get knowledge from.

And yet man has come forward along his track, and he has brought his knowledge forward with him. We are a great civilization today because we can communicate knowledge readily and rapidly via the printed word and other means. A civilisation progresses somewhat in ratio to its ability to communicate.

Knowledge, then, is very valuable. It is actually the very thing of which survival is made. It is the basic building block of why we are alive. Knowledge, therefore, should be understood for what it is.

Let us take one of man's endeavors in the past—his effort to understand the subject of God or the Prime Mover Unmoved, the Creator, from whence came all this. Let's look at man's effort to find something, and let's see if there might not possibly be some sort of a misconcept in his sequence that always prevented him from meeting up, squarely enough to satisfy everyone, with this entity which existed.

We find out that man has been prone to an error in reasoning. He has gone up as far as he could go along any line of thought, and has then assigned to that point and position on the line of thought a new unity. And he has said, "Now, you see, everything proceeds from here."

The physicist goes along that line of thought. The chemist goes along that line of thought. They get just about so far and then they run into an unsolvable situation and say, "This was created by God."

That's fine, but each time they go further we notice that this problem keeps moving back.

Children often ask the question "Who made God?" Religion is always open to this question and therefore has not been as solidly ensconced in this society as it might have been.

On inspection one finds out that a unity disobeys certain axioms as far as knowing is concerned. There is definitely something missing about this unity. In the first place, every datum is as valuable as it explains other data.

For instance, let's move back along the line somewhere and pick up a basic mathematical equation—the Pythagorean theorem. It explains a lot about surveying, so we say the Pythagorean theorem is a very valuable datum. It is as valuable as it explains other data.

A datum can be evaluated only in terms of other data. In other words, no datum can be evaluated by itself.

No datum is valuable until it has been evaluated. That is self-evident.

A glass is a datum. It is a thing all by itself. What do we do with it? We know it is a glass or a holder of something, and that it contains water and one can drink out of it. It might have an aesthetic value, too. There might be a spot of cheerful color on it; so it has a value. But it hasn't any value unless it has some of these qualities; therefore it is immediately related to other things.

But let's pick up the datum psi. I don't think you are impressed. In other words, this datum has got to be in communication with other data in order for you to understand anything about it at all. I could say it is a Greek letter, to which you might reply, "That's very nice, so the Greeks had letters."

But now I say psi is the number you multiply two by to get four. You would say that was interesting, because you are interested in mathematics. "We multiply two by psi and we get four."That's fine. It's not very valuable because it doesn't go very far. We go back to our first axiom again. It doesn't relate to a lot of other data. It relates to the fact that psi can now only be two. So why do we have psi? It isn't very far related. It's just an obtusity that has been thrown into the picture. Psi, all by itself, means nothing. Unrelated to other data it is not valuable. It is not understood. It doesn't predict anything. It's isolated. It doesn't communicate with you; you can't communicate with it. Therefore it has no value.

Now, if I reached down and held up a rattlesnake and threw it into your lap, immediately you would decide that that was a very valuable datum. That is very intimately related to survival right now and it is an interesting datum. It is not an intellectual datum, but it is certainly one that you have to understand and appreciate. That is the stuff of which survival is made.

If you get into an automobile and go driving off down the highway at 60 miles an hour, you are placing an enormous amount of faith in the data of a lot of people, aren't you? But you are in communication with and have been around that for a long time, and you have a lot of data with regard to automobiles. You probably wouldn't realize how much data you have on an automobile until you started checking it through.

The automobile is pretty valuable to the community because it has a use, but its use is dependent upon the fact that it is related to all kinds of valuable things in the society. If you suddenly picked up all the automobiles in the United States today, moved them aside as a datum and said they don't exist anymore, it would be pretty tough on the United States for a while.

Or, let's get a little more basic. The automobile depends upon the internal combustion engine. If we took the internal combustion engine out of this society the lights would go out right now, the trains would stop running, people would not get where they were going, and the freight, letters and communications would be interrupted throughout the country.

So we start noticing that every datum has something to do with communication. For instance, if the internal combustion engine went out it would interrupt travel, which is a form of communication, and so on. So data seems to be valuable to the degree that it communicates. Whether it is a route or an object, there is something about it that we can get into communication with, one way or the other. If it is a painful datum or object, we want to get out of communication with it, or knock it out of the body of data. All these things are interrelated on an enormous network.

I mentioned earlier that every time man got up to an imponderable he suddenly said, "Well, there's one above that, and everything stems from that cause, and you had better be good because everything stems from it. That's the end of that problem."Only it was never the end of the problem and nobody was ever satisfied.

We find out that by suddenly posting one datum and saying that everything proceeds from it, we couldn't possibly understand the datum because there is another axiom: A datum can only

be evaluated in terms of data of comparable magnitude. In other words, don't try to evaluate a mountain by evaluating a grain of sand. One evaluates mountains in terms of mountains.

What is the order of magnitude of a datum? That is very important.

We wouldn't say, for instance, that if all the tape recorders in the country were suddenly taken away, the society would be in as bad a state as if all the internal combustion engines were taken away. As a matter of fact, you could take the tape recorders out, and so what? So the tape recorders are out! They are not data of comparable magnitude.

So let's not try to understand communication by this. There are other ways.

Supposing we took all the pogo sticks out of the United States and we took all the internal combustion engines out. You couldn't say that you understood all the internal combustion engines if you understood a pogo stick. In other words, the datum pogo stick cannot be evaluated by the datum internal combustion engine in this society. This is the difficulty that people have when they get into savage countries and try to communicate with the people.

I was trying to teach a class, one time, of little Chamorrol boys and girls. I think they were in about the third grade, and they were supposed to be in the process of being taught English. I was about sixteen, and it was territory that had been thoroughly chewed up in the process of the last war. These little children had been ordered by the government to wear one article of clothing, so they wore only shirts. The shirts came down just above the navel. Some of them got real flashy when they were rich and wore only shoes.

These children were pretty cute. I tried to teach them a bit about English and arithmetic, and something about hygiene and a little bit about the rest of the world. On the first few subjects I could get along just fine, but as soon as I struck that last one, that was tough. I tried to relate every datum I gave them to data which they had to hand, but naturally they didn't have to hand data of comparable magnitude to the rest of the world.

It was easy to go back to when I was a child and was reading about how the Germans were attacking and the French were retreating, and the like. I knew at that time, as far as my conscious life was concerned, one valley. It was a big valley, about 50 miles in diameter. I actually knew more world than most children do at that age because I could look about 75 miles through the clear mountain air of Montana and see the Bitterroot Range. That was a pretty big world. But I was thoroughly convinced that just beyond the Bitterroot Range raged the whole war! That was the rest of the world. All I had to compare it with was the valley, and naturally, if I compared the rest of the world with the valley, then the rest of the world must be just about the size of the valley. It was very understandable.

Trying to relay information to these little children was very similar. Once I tried to tell them about a skyscraper. At that time I think the biggest one we had was the Woolworth Building. One little boy figured on it for a long time. I came in early one morning thinking he had forgotten about this problem long since, but there he stood on a stool at the blackboard drawing huts to the height necessary to make the 73 stories of the Woolworth Building. He had gotten up there to about 25 huts. He was building them all with stilts, as these were the buildings he had seen. He got up along the line and finally decided that these confounded huts piled up this way were going to fall over, and so, obviously, the thing could not be done and I was a liar.

I had a lot of trouble with these children. They had no data of comparable magnitude.

Similarly, in the past, as people have gotten up to the entity of the Prime Mover Unmoved, they have promptly said, "Well, that's it, boys,"and then walked off from the whole problem, giving no one a datum of comparable magnitude with which to evaluate the Prime Mover Unmoved. It wasn't the fact that the problem kept on going back, it was the fact that nobody set up the comparable datum.

For instance, everybody understood that survive was evaluated against not surviving, but they understood it without examining it. I understood it without examining it for a long time and then I found out that survive was sitting alongside another datum which said succumb. There had to be a datum of comparable magnitude: live/die. Of course, those happen to be opposite faces on the same coin, but they are still data of comparable magnitude. So you could understand what would happen if you didn't survive. You could also see what would happen if you didn't succumb, and checking the two against each other clarified a lot of things.

The odd part of it is that the further one goes into data and knowledge, the greater simplicity he discovers, because he is going in toward data which evaluates wider and wider bodies of data. He is searching for and discovering new, valuable information. And of course he always wants to find information a little more valuable than he had before. In order to be more valuable, that information has to embrace more of the data of the search, and the data becomes simpler and simpler just from that axiom. It also always has to have alongside of it data of comparable magnitude. So, a datum is as valuable as it relates to and evaluates other data, and is as understandable as it compares or is compared to data of comparable magnitude.

In other words, to really get a good look at the Prime Mover Unmoved situation, we would probably have to have five or ten data instead of just two. Actually there are two. Going back into early mysticism, we find out what the second one is: the devil. It's always been there, just like succumb.

There are lots of explanations for the devil. They say he is the little god, and the new god coming in always supplants the old religion's god and calls him the devil. Unfortunately these two data happen to be of comparable magnitude.

We go back to the early days of the magician and look over his data. He had lots of valuable data. He didn't quite know what to do with a lot of it but it certainly was interesting. This is not the stage prestidigitator; he is merely the debased successor. The early magicians were philosophers.

They said every angel has two faces, a white one and a black one. The white face is good and the black face is evil, and any time a god or a man is set upon an eminence he always has two faces—a white one and a black one. It is all right to say "God is good,"but then somebody immediately says, "I am the god of vengeance,"and you have the white face and the black face again. So, there's "God is good"and then there's the devil.

Just because they say hell is below is no reason to say it is not a datum of comparable magnitude. It isn't a creative magnitude; it is a destructive magnitude. And we get the principle on which these things have been operating satisfactorily for man for a long time: construction and destruction— good and evil—right and wrong. God is the symbol of survival forever. The devil is the symbol of succumb.

We have got these two data now and we can understand one to the other. If we had about five more data in the same rank, we would be able to understand the subject a lot better. So the best thing to do is to go up the level two or three steps and then come down the level again and predict down the level about three more data, and then we would be able to understand it. We won't be able to understand the new pair very well except against each other, but with them we may be able to predict a wider spread down below and so get our five on the good-bad/God-devil equation.

In other words, you have to keep climbing upstairs in twos, not in ones. Man has been trying to go up in ones. Then he finds out he can't get any further. He can't get any further because he hasn't put two there. Then he has to get a higher postulate in order to put four or five more there. So he gets more data of comparable magnitude.

This is very interesting on an educational line. Very few teachers in the past have ever gone along the line of thought that they had to find the data of the greatest magnitude in their subject

from which all else derived and that the whole subject had to be precisely aligned along this line. In other words, we had to have at least two data of comparable magnitude at the beginning of this, and then we had to have interrelated and predicted data falling into the lower and lower echelons and the greater and greater complexities of the subject. It has to proceed from a simplicity to a complexity; it can't proceed from a complexity to a simplicity.

The trouble which you have with cases is because cases proceed up the ladder instead of down it. It is very easy to run a clear. It is rather complicated to run a release, and it usually gets quite arduous when you run a person who has never had any processing.

There you are entering the whole problem from the level of complexity and trying to proceed toward simplicity, and it is a tough run; but in view of the fact that you know what the simplicity is and you know what makes it a complexity, you are a lot better off than you otherwise would be.

If we could turn this thing around and arrange to have nothing but clears at the beginning, it would be a very simple problem.

Fortunately, educational lines don't run this way. One never has to proceed from a complexity to a simplicity unless it is for the purposes of demonstration.

The first thing stated in any subject should be its purpose. What is it for? That would be its simplicity. For instance, "This is the subject of dancing. One studies it because people like to see people dance, and you would probably like to dance and we all like dancing. There's nothing wrong with dancing that we can find out so far, but even if there is we're going to go ahead and teach you dancing anyhow."In other words, one makes a statement like that at the beginning.

All educational subjects should start out with purpose, and this purpose should be very carefully delineated against the real world of the person who is doing the study. What we are trying to teach the person couldn't be taught to him thoroughly unless he could evaluate it against his own real world. So the first study in any teaching should be, what is the real world of the student we are teaching? And I'm afraid that very, very few professors know this. They have not made a good, thorough study of the real world of a child. They have had some ideas on the subject, but once they have studied it they have immediately said, "It's delusion."

Of course it's delusion to the instructor because he doesn't see the child's real world. But he has to take solemnly into account that real world of a child if he wants to teach the child, and he actually has to accept this as a real world if he expects this child to learn anything.

For instance, I had to accept the real world of these little Chamorro children (the ones who built up the enormous pile of nipal shacks to make the Woolworth Building) before I could explain to them anything about anything. And as soon as I did and evaluated everything from that quarter, the whole problem finally resolved. I got them convinced eventually that there were trains and various things simply by building it up out of oxcart wheels and all sorts of other items. I just took their society apart, found the comparable component parts in it, tried to build these component parts up to a comparable magnitude and let it run, and these children got a pretty good idea of what the world was like. They brightened up on it quite a bit to the point where they would open a book and see a picture of a skyscraper and all of a sudden they had it right there.

It was interesting that the level of understanding of these children did not include the recognition of an outline as being a picture of a real object. You would never suspect it, living in this society. For instance, if you showed somebody a photograph they would say, "Yep, there's Bill Doakes."Not these kids. It was simply a square of white paper. I would show them a picture of themselves and they would say, "Uh-huh, it's a fish, isn't it?"Yet I could show them a mirror and they knew that right away. We don't recognize that in this society we have built up a terrific artificiality on the subject of outline. We have an enormous code of

communication. Look over cartoons, for example. Those children would not have been able to understand a comic strip.

You have to know what you are looking at, and when you look at children and see them slugging away, you can recognize clearly where people have failed to evaluate the real world of a child. And you certainly couldn't enter any information into this child that he could use unless you knew the real world you would have to work with there. This real world may include a hundred Indians lying dead on the front lawn, or the possibility that at one fell swoop one can become Roy Rogers, Hopalong Cassidy or Captain Midnight, or that one can take an old apple box and have there a roaring fire, or a beautiful, ready-to-serve, perfectly edible dinner which can be tasted. You are dealing with a broad real world there. These children have got tremendous factors with which to evaluate; but what one doesn't normally evaluate with them are their emotional values, which are also very important. When one doesn't find out what these values are, he isn't able to communicate with children very well. For instance, the last place in the world you put a child if you want to teach him anything is in a closed room. The one place that you must not put a child is in confinement. Just run a little experiment: Have a child sit on your lap and simply put your arms around him loosely; he will sit there for maybe half an hour, then lock your hands around him. It will act as an immediate barrier.

Life is not to be trapped by space or limited in position in time, and children are very alive. So if you confine a child in a room under restraint, can you expect him to learn anything? No wonder children get to be 15 years of age and can't even write intelligible letters. I think that practically any child could probably learn everything he learns in school by the age of 10, if properly instructed. It doesn't require any great amount of brains on his part. You would just have to keep showing him what it was.

There is another factor that you must not avoid in looking this over and that is that the path of learning must not be particularly smooth. The analytical mind is so composed as to overcome obstacles toward known goals. The individual is not aided if you do all of his leading for him. You can't lead him; you can't drive him. The business of being led or driven is native in himself, and if you keep your hands off it he will continue along the line. Any time anyone tries to lead or drive him excessively, the ability within himself to surge toward goals is interrupted.

When one tries very hard to encourage a child as to the value of some study—tries to oversell him an idea—it is quite destructive because he is liable to find out later it wasn't that good. The only thing you can do is tell him the truth, as near as you know it, and fit it into the framework of his own understanding. This applies to the university student as well as to the kindergarten child. Tell him as nearly as you know, by his own frame of reference, what it is he is going toward as far as you have investigated the subject, and then leave it strictly up to him whether or not he is going to go there.

I wrote an essay one time under command in a university, and the name of the essay was "My Actual Opinion of University Education."Unfortunately the professor was dealing with a fellow who hadn't gone to high school. I had gotten into university on a Board of Regents, so the academic world was a strange, new one to me and I had a completely fresh look. I had arrived after considerable traveling and being on my own. People had generally addressed me as Mister, not as "Hubbard,"or "you,"and I rather objected to being suddenly massed up in a sheep pen. It looked to me like there were bars around the place.

At the end of the first year I was asked to write this essay, which was the grade essay of the English course. Rhetoric was the name of the course. The dean had taught this course personally, and he had made the remark that the longest sentence in the English language was 264 words and that this was a very fine piece of writing. So I looked it up. What a fraud! The thing was full of semicolons and colons, there were several and's and many but's, and it was a very poor example of English. It didn't even flow.

I said, "Well, a fellow ought to be able to do better than this,"so I wrote a 500-word sentence and it had one and, one but, no semicolons and no colons in it. I scanned it all back again,

verified that it made sense and handed it in. The only trouble with it was that its subject was what I actually thought about a university! And I was called up at the end of the final lecture and told that unless I completely rewrote this theme I would not be credited with the course.

I had said what I thought, and what I had said was that a student was not permitted to think what he thought in a university and that his selfdeterminism was insufficient to enable him to get from the university the information which he would need in the continuance of his own life. Of course, when you write a 500-word sentence it starts to build up with impact! So I had to write another theme, and what I wrote consisted of about two paragraphs that said, "I like universities. I think they are wonderful. I think people who teach in universities are very fine people. I see the cat. The cat is black."I handed it in and they gave me an A.

Later on I tried to get back the first theme—I didn't have a copy of it—and I found out that it had probably been destroyed. I considered this a jump of my author rights and wondered what had happened to it. Five years later I heard from William Allan Wilbur, who had been the dean of the Columbian College at George Washington University and had received that theme. He had been retired and had seen my name in a magazine. He wrote me a letter saying, "About the only thing in my entire university career of which I was ashamed was having to call you up because of that theme."And he went on for about five closely spaced pages, unburdening his conscience and telling me that things had to be that way in the university. Was I enlightened! I wrote him a long letter.

This man had a mind that could actually, by itself, fly free as a bird. He was a pretty good writer. He was a good thinker. He was quite a man of the world actually, but fitted into the university framework he had had to act along certain lines. He had not acted as William Allan Wilbur; he had been filling a slot. I was appalled. I have looked since at universities and haven't found that this is uncommon, although I have found that some western universities and one in Chicago have begun to adopt new and more flexible means of educating people.

But the university is actually far too late to reform education. It should not even be reformed in kindergarten or the first grade. Education should be reformed as the baby begins to learn. It is clear back that early. By the time he goes to kindergarten he has already attained an enormous body of knowledge. He can speak the language. The primary tenets of body handling are already there. What he needs, of course, is basic education given to him actually along the axioms which I have been giving to you in this lecture. What is the purpose? Why does one do this? It has to be oriented for him against his frame of reference and his frame of reference is a pretty hard one to match.

He learns mainly by mimicry. Mimicry is number one on the learning agenda. Man's ability to mimic teaches him more than any other single factor.

You ask somebody how to fire an arrow out of a bow and he says, "Well, you just take the arrow in your right hand and the bow in your left hand and you present it before you in a horizontal position, and then you plant your feet one slightly advanced of the other with the right foot at a 45-degree angle from the left foot at a distance of 18 inches...."It won't work. You don't quite mesh on this one right away. So what he does is say, "Well, that's very simple. You just take the bow and you go back like this."You watch him for a little while and go over it with him, and if you are a good mimic and not otherwise impeded you will not only be able to hold the bow properly but you will be able to hit the mark accurately.

We have introduced enough aberrations into the progress of learning to interrupt natural mimicry. We have undermined people's self-confidence in many ways. That self-confidence must not continue to be interrupted, and the first place it is interrupted is in the home, in the child's efforts to mimic. Children will mimic anything. Well, they had certainly better have something to mimic. The conduct of people around the child and the models the child has are terrifically important. People, understanding the child is learning by mimicry, should take time out in order to give the child something to mimic. You will find the education of the child increasing by leaps and bounds if you do this, because his only frame of reference is to mimic.

He wants to be a grown-up, and he is going to try to act like a grown-up. So you have to start giving him a grown-up to act like. Then when he starts getting into formalized education you again have to set things to his frame of reference; you have to give him a good and adequate purpose for it and you have to show him what lies before him without beating him into it or driving him toward it. If he will carry along and work on this level, you will have at the end of that run of the university a thoroughly educated person.

I am afraid the difference in education which people can get is very wide. And I'm also afraid that at this time the education which is given in grade school, high school and the university is very thoroughly destructive toward the initiative and ability of human beings.

We graduated 280,000 bachelors of art two years ago, which is a lot of people, and the effect will be of some benefit to the society because these people are going to get in there and pitch on what native skills they have. But supposing we had graduated 280,000 people who were not bachelors of art but accomplished artists in their own fields. This society within the generation would change its whole face and complexion to something far better than we have now. The end and goal of any society as it addresses the problem of education is to raise the ability, the initiative and the cultural level, and with all these the survival level, of that society. And when a society forgets any one of these things it is destroying itself by its own educational mediums.