

I, Thou, and It

A proper and serious study of childhood would raise questions, I think, about one tendency widespread among us. Reference to it is there by implication in the previous essay with its suggestion that we send "emissaries to childhood." But of course that is only half the need; the other is to recognize that we will learn in the process only what we are prepared to observe and accept. Being repelled by the typical formality and sterility of our institutional treatment of children, many of us react by seeking and advocating patterns of association which are arranged for easy two-way communication, warm and loving. If that is half the story, it is a half which needs redefinition when the whole story is told. Long before Bettelheim, Immanuel Kant had given profound support to the proposition that, in human affairs generally, "love is not enough." The more basic gift is not love but respect, respect for others as ends in themselves, as actual and potential artisans of their own learnings and doings, of their own lives; and as thus uniquely contributing, in turn, to the learnings and doings of others.

Respect for the young is not a passive, hands-off attitude. It invites our own offering of resources, it moves us toward the furtherance of their lives and thus even, at times, toward remonstrance or intervention. Respect resembles love in its implicit aim of furtherance, but love without respect can blind and bind. Love is private and unbidden, whereas respect is implicit in all moral relations with others.

To have respect for children is more than recognizing their potentialities in the abstract, it is also to seek out and value their accomplishments—however small these may appear by the normal standards of adults. But if we follow this track of thinking one thing stands out. We must provide for children those kinds of environments which elicit their interests and talents and which deepen their engagement in practice and thought. An environment of "loving" adults who are themselves alienated from the world around them is an educational vacuum. Adults involved in the world of man and nature bring that world with them to children, bounded and made safe to be sure, but not

thereby losing its richness and promise of novelty. It was this emphasis which made me insist upon the third pronoun in the title, the impersonal "It" alongside the "I" and "Thou." Adults and children, like adults with each other, can associate well only in worthy interests and pursuits, only through a community of subject-matter and engagement which extends beyond the circle of their intimacy.

The attitude of deprecating subject-matter, and of deprecating curriculum as a guide to the providing of worthy subject-matter, reflects therefore the half-truth badly used.

Such is the background. As to the foreground of the following essay, some readers will astutely recognize in it a principled opposition to a widely popular belief in the efficacy of certain patented techniques of group association and therapy which are levered upon the art of inducing personal "confrontation," or some equivalent form of what I have called "artificial intimacy." Some of my friends disagree about Group Dynamics not so much in theory as in practice. They may agree that good human association must of course be premised upon common concerns and commitments with respect to what is "out there," something not "I" and not "Thou." But even without such commitment, they say, it works.

I think their attitude is rather like that expressed in a story about the physicist Niels Bohr. When a friend saw a horseshoe over the door of Bohr's country cabin, he said in mock astonishment, "Surely you don't believe in that old superstition!" "No," said Bohr, "but they say it works even if you don't believe in it."

I, Thou, and It

(1967)

I want to talk about children's understanding in the context of a proper education, more specifically of a good school. My topic, therefore, is the relationship between the teacher and the child and a third thing in the picture which has to be there and which completes the triangle of my title.

This is a relationship that has been much talked about, but truncated too often. People have made analogies between the teacher-

child relationship and many other sorts of relationships. For example, in older times people said, "What this child needs is good hard work and discipline," and that sounds rather like a parent-child relationship, doesn't it? Or they said, more recently, "The child needs love." That also sounds rather like a parent-child relationship. I'm sure that neither of these statements is completely false, but it seems to me they're both very unsatisfactory and that the relationship between the teacher and the child is something quite unique that isn't exactly paralleled by any other kind of human relationship. It's interesting to explore what is involved in it.

I know one rather good teacher who says he doesn't like children. He says this, I'm sure, with a rather special meaning of the word "like." He doesn't like children to be bewildered, at loose ends, not learning, and therefore he tries to get them over this as soon as possible. I mention him because I think the attitude of love, which is the parental attitude, isn't really the appropriate one. Perhaps the word "respect" might be more appropriate. I don't want to deny a very important element of affection for children in the make-up of good teachers, but the essence of the relationship is not that. It is a personal relationship, but it's not that kind of personal relationship. I want to talk about this in the context of the kind of thing we've been investigating in recent years, in the context of a kind of schooling we are interested in exploring further, marked by the more frequent and more abundant use of concrete materials by children in schools, and by their greater freedom of choice within this enriched world. I'd like to talk about how the third corner of the triangle affects the relations between the other two corners, how the "It" enters into the pattern of mutual interest and exchange between the teacher and the child. Being an incurable academic philosopher, I'd like to start on a very large scale and talk about human beings—of which children are presumably rather typical examples.

There's a tradition in philosophy which always comes to my mind when I'm thinking about this kind of question and which seems to be a more significant tradition than some others. It's a tradition which is expressed by saying, in one way or another, that people don't amount to very much except in terms of their involvement in what is outside and beyond them. A human being is a localized physical body, but you can't see him as a *person* unless you see him in his working relationships with the world around him. The more you cut

off these working relationships, the more you put him in a box, figuratively or literally, the more you diminish him. Finally, when you've narrowed him down to nothing more than the surface of the skin and what's inside, without allowing him any kind of relationship with the world around him, you don't have very much left.

The ancient Hindu philosophers expressed this definition of human nature by using the metaphor of the mirror. In the *Baghavad Gita*, the Hindu scripture, there is a marvelous image of the soul which is said to be "the reflection of the rose in a glass." Like most religious philosophy, this one is concerned with the problems of death and consolation. The theory of immortality in this philosophy is expressed by saying that when death occurs, you take away the mirror—but the rose is still there. This image seems to me a very powerful one. It's not the same as the Christian idea of the soul, of course, but it emphasizes the thing I want to talk about, which is that you can't dissociate the person from the world he lives and functions in and that you can somehow measure the person by the degree of his involvement in that world. The soul is not contained *within* the body but outside, in the theater of its commitments.

The most precise expression of this idea that I know of in our literature is by a famous English poet. I want to quote it because it says something rather nicely about the relationship of two human beings, and the great It, the world. This is in *Troilus and Cressida*, where *It* is a famous Hellenic enterprise. There was a time when Achilles was having some difficulties about the siege of Troy and people were trying to buck him up. At one point Ulysses comes out. It's part of the play where nothing much is going to happen for a few minutes. Sometimes in Shakespeare when nothing is going to happen, you have an exchange of bawdy jokes for the boys in the pit and sometimes you have a bit of relevant philosophizing. In the play this bit of philosophizing is relevant to Ulysses' effort to goad Achilles into action; but it has a universal relevance as well:

Ulysses

Writes me that man—how dearly ever parted,
How much in having, or without or in—
Cannot make boast to have that which he hath,

A strange fellow here

Nor feels not what he owes, but by reflection;
As when his virtues shining upon others
Heat them, and they retort that heat again
To the first giver.

Achilles

This is not strange, Ulysses.

The beauty that is borne here in the face
The bearer knows not, but commends itself
To others' eyes; nor doth the eye itself—
That most pure spirit of sense—behold itself,
Not going from itself; but eye to eye opposed
Salutes each other with each other's form;
For speculation turns not to itself
Till it hath travell'd and is mirror'd there
Where it may see itself. This is not strange at all.

Ulysses

I do not strain at the position—
It is familiar—but at the author's drift;
Who, in his circumstance, expressly proves
That no man is the lord of anything,—
Though in and of him there be much consisting—
Till he communicate his parts to others.
Nor doth he of himself know them for aught
Till he behold them formed in th'applause
Where th'are extended; who, like an arch, reverb'rate
The voice again or, like a gate of steel
Fronting the sun, receives and renders back
His figure and his heat.

(*Tudor Text, Player's Edition, Collins.*)

No Ajax, no Achilles even, can be the lord of anything, much less know his own worth, save through resonance with others engrossed in those same matters. No child, I wish to say, can gain competence and knowledge, or know himself as competent and as a knower, save through communication with others involved with him in his enterprises. Without a Thou, there is no I evolving. Without an It there is no content for the context, no figure and no heat, but only an affair of mirrors confronting each other.

Children are members of the same species as adults, but they are also quite a distinct subspecies and we want to be careful about not exaggerating the differences and not forgetting them, either. It seems clear to me that there are many complicated, difficult things they learn or can learn, and such learning occurs in an environment where there are other human beings who serve, so to speak, as a part of the learning process. Long before there were such things as schools, which are rather recent institutions in the history of our kind, there were teachers. There were adults who lived in the village and who responded to the signals that children know very well how to emit in order to get attention from adults. These adults managed, quite spontaneously and without benefit of the theory of instruction, to be teachers.

I really need a kind of electronic analogy here for what goes on in a child's mind. Think of circuits that have to be completed. Signals go out along one bundle of channels, something happens, and signals come back along another bundle of channels; and there's some sort of feedback involved. Children are not always able to sort out all of this feedback for themselves. The adult's function, in the child's learning, is to provide a kind of external loop, to provide a selective feedback from the child's own choice and action. The child's involvement gets some response from an adult and this in turn is made available to the child. The child is learning about himself through his joint effects on the non-human and the human world around him.

The function of the teacher, then, is to respond diagnostically and helpfully to a child's behavior, to make what he considers to be an appropriate response, a response which the child needs to complete the process he's engaged in at a given moment. Now, this function of the teacher isn't going to go on forever: it's going to terminate at some time in the future. What we can say, I think, and what we clearly ought to provide for, is that the child should learn how to internalize the function which the adult has been providing. So, in a sense, you become educated when you become your own teacher. If being educated meant no longer needing a teacher—a definition I would recommend—it would mean that you had been presented with models of teaching, or people playing this external role, and that you have learned how the role was played and how to play it for

yourself. At that point you would declare your independence of instruction as such and you would be your own teacher. What we all hope, of course, is that as the formal, institutional part of education is finished, its most conspicuous and valuable product will be seen to be the child's ability to educate himself. If this doesn't happen, it doesn't make sense to say that the processes we try to initiate in school are going to be carried on when people leave school.

The image I want, then, is really the image Shakespeare is working with. You grow as a human being by the incorporation of conjoint information from the natural world *and* of things which only other human beings are able to provide for in your education.

I sometimes think that working in the style we like to work in—which is much farther along in English primary schools, I'm sorry to say, than in American schools—we forget the unique importance of the human role. We tend to say "Oh well, if children just have a good rich, manipulable and responsive environment, then everything will take care of itself." When you visit a class which is operating in this way, with a teacher who has a good bag of tricks, you're often impressed that the teacher doesn't seem to be very necessary. He can leave the room and nobody notices it. If *you* don't have that bag of tricks, you always rather marvel at what goes into it. After everything is accomplished it all looks as though it's very spontaneous. But, of course, that's a dangerous illusion. It's true only in those periods—in good schools frequent periods—when children don't need the external loop. When they do need it and there's no one around to contribute the adult resonance, then they're not always able to carry on the process of investigation, of inquiry and exploration, of learning, because they need help over a hump that they can't surmount through their own resources. If help isn't available, the inquiry will taper off, and that particular episode, at least, will have failed to accomplish what it otherwise might have.

Now, I'm speaking as one very much in favor of richness and diversity in the environment, and of teaching which allows a group of children to diversify their activities and which—far more than we usually think proper—keeps out of their hair. What seems very clear to me—and I think this is a descriptive, factual statement, not praising or blaming—is that if you operate a school, as we in America almost entirely do, in such a style that the children are

rather passively sitting in neat rows and columns and manipulating you into believing that they're being attentive because they're not making any trouble, then you won't get very much information about them. Not getting much information about them, you won't be a very good diagnostician of what they need. Not being a good diagnostician, you will be a poor teacher. The child's overt involvement in a rather self-directed way, using the big muscles and not just the small ones, is most important to the teacher in providing an input of information wide in range and variety. It is input which potentially has much more heft than what you can possibly get from the merely verbal or written responses of a child to questions put to him or tasks set for him. When we fail in this diagnostic role we begin to worry about "assessment."

I think this is fairly obvious. It doesn't say that you *will* but that you *can* get more significant diagnostic information about children, and can refine your behavior as a teacher far beyond the point of what's possible when every child is being made to perform in a rather uniform pattern. But of course you will not get the information, or will not use it, if you are just sweetly permissive and limp, if you don't provide the external feedback loop when you think it is needed. We know children never do behave uniformly even when they're supposed to. When it appears they are, it's just because they've learned the trick of pleasing you—or displeasing you if they're all on strike!—and then you aren't able to make the needed discrimination.

But I think the real importance of teacher-intervention comes out in situations where a child is not involved in very many things, is not responsive to anything you provide. That child may be a problem; that child who doesn't give you much information, who is tight and constrained, often called "good." But you get little suggestions or inklings of interest and involvement, you get hunches about what might prove absorbing to him. If you have enough of these hunches and enough persistence you find *something* that works and when you do you have laid the basis for a new relationship between yourself and that child, and this is the thing that is really important.

The rest is good and important and not too hard to describe: when children are being diverse in what they're doing, selective in what they're doing; when you're giving them genuine alternatives—then

you are bound to get much more knowledge of them from reading the language of their behavior. Of course, you certainly aren't going to succeed all the time with every child in this diagnostic and planning process. There are going to be several misses for every hit, but you just say, "Well, let's keep on missing and the more we miss the more we'll hit." The importance of this in the "I-Thou" relationship between the teacher and the child is that the child learns something about the adult which we can describe with words like "confidence," "trust" and "respect." You have done something for the child which he could not do for himself, and he knows it. He's become involved in something new which has proved engrossing to him. If he thus learns that he has a competence he didn't know he had, then you have been a very crucial figure in his life. You have provided that external loop, that external feedback, which he couldn't provide for himself. He then values the provisioner with the provision.

What is the feeling you have toward a person who does this for you? It needn't be what we call love, but it certainly is what we call respect. You value another person because he is uniquely useful to you in helping you on with your own life. "Love" is, perhaps, a perfectly good word, too, but it has a great variety of meanings and has been vulgarized, not least by psychological theory.

The relationship that develops with different children will be different just because they are different children. When *you* give a child a range from which to make choices, the choices *he* makes in turn give you the basis for deciding what should be done next, what the provisioning should be for him. That is *your* decision, it's dependent on *your* goals, it's something *you* are responsible for—not in an authoritarian way but you do have to make a decision and it's your decision, not the child's. If it's a decision to let him alone you are just as responsible for it as if it's a decision to intervene.

The investment in the child's life that is made in this way by the adult, the teacher in this case, is something that adds to and in a way transforms the interest the child develops spontaneously. If, as sometimes happens, a child gets particularly interested in a variation on a soap bubble theme that you've already given him, you can just happen to put nearby some other things that might not at first seem related to soap bubbles—some geometrical wire cubes, tetrahedra, helices, and wire with a soldering iron. The resulting soap films are

almost bound to catch the fancy of many human beings, including children. What have they got? Well, they've got a certain formal geometrical elegance, they've got color; when you look at the films in the right kind of light you see all those marvelous interference colors. Such a trap is bristling with invitations and questions. Some children will sample it and walk on; but some will be hooked by it, will get very involved with it. Now, this kind of involvement is terribly important, I think. It's aesthetic, or it's mathematical, or it's scientific. It's all of these potentially, and none of them exclusively. The teacher has made possible this relation between the child and "It," even if this is just by having "It" in the room; and for the child even this brings the teacher as a person, a "Thou," into the picture. For the child this is not merely something which is fun to play with, which is exciting and colorful and has associations with many other sorts of things in his experience: it's also a basis for communication with the teacher on a new level, and with a new dignity.

Until the child is going on his own the teacher can't treat him as a person who is going on his own, cannot let him be mirrored there, where he may see himself as investigator or craftsman. Until he is an autonomous human being who is thinking his own thoughts and making his own unique, individual kinds of self-expression out of them, there isn't anything for the teacher to respect, except a potentiality. So the first act in teaching, it seems to me, the first goal, necessary to all others, is to encourage this kind of engrossment. Then the child comes alive for the teacher as well as the teacher for the child. They have a common theme for discussion, they are involved together in the world.

I had always been awkward in certain kinds of situations with young children. I didn't know them very well and I'd sort of forgotten that I'd once been one, as we mostly do. I remember being very impressed by the way some people, in an encounter with a young child, would seem automatically to gain acceptance while other people, in apparently very friendly encounters with the same child, would produce real withdrawal and, if they persisted, fear and even terror. Such was the well-meaning adult who wanted to befriend the child—I and Thou—in a vacuum. It's traumatic, and I think we all know what it feels like. I came to realize (I learned with a good teacher) that one of the very important factors in this kind of

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situation is that there be some third thing which is of interest to the child *and* to the adult, in which they can join in outward projection. Only this creates a possible stable bond of communication, of shared concern.

My most self-conscious experience of this kind of thing was when a few years ago I found myself with two very small tykes who had gone with me and my wife to the hospital to get their mother, who had just had a third baby. The father was ill and there was already some anxiety. With Frances Hawkins they were fine; indeed it was she who had earlier been my teacher in this art. They were perfectly happy with us two but they had never been with me alone. Suddenly the nurse announced in a firm voice that children could not go beyond this point, so my wife had to go in and we three had to stay. It was one of those moments when you could have had a fairly lively scene on your hands. Not being an adept, I thought quite consciously of the triangular principle. There had to be some third thing that wasn't "I" and the two children, otherwise we were all going to be laid waste. And there wasn't anything! I looked around and there was a bare hospital corridor. But on one wall there was a collection of photographs of some recent banquet that had been given for a donor, so in desperation I just picked them up, rushed over to it, and said, "Look!" That's a sort of confession, because I'm sure many of you would know how to handle this kind of situation: for me it was a great triumph and it was a demonstration, if an oddly mechanical one, of a consciously held principle. And it worked.

It seems to me that this kind of episode, which is in itself trivial and superficial, can symbolize a lot that is important in terms of the teacher-child relationship; namely, the common interest, the common involvement in subject-matter! Now of course, you never really deceive a child in important matters, so this interest can't long be feigned, as it was in my story. If you don't find something interesting, and try to feign an interest you don't have, the investment won't last. But if there is that common interest it may last and may evolve. You need to be capable of noticing what the child's eyes notice and capable of interpreting the words and acts by which he tries to communicate with you. It may not be in adult English, so the reception of these signals requires experience and close attention.

Visualize a long transparent corked plastic tube with water and other things in it, as fancy may dictate. Many years ago I would have

thought that this was rather trivial, rather silly, and would have said, "What's there to be learned from that?" To tell you the truth, I honestly still don't know, there is so much! We can use a lot of words in physics that have something to do with it; or we can talk about color and motion and other things of some aesthetic importance. By now I've seen enough children involved in this particular curious apparatus to be quite convinced that there's a great deal in it—and I don't mean just this particular tube but many similar artifacts, as well as samples of the natural world. Such things can serve as an extraordinary kind of bond. The child is in some sense functioning to incorporate the world; he's trying to assimilate his environment. This includes his social environment, of course, but it also includes the inanimate environment; it also includes the resources of the daily world around him, which he's capable of seeing for the most part with far fresher eyes than ours. The richer this adult-provided contact, therefore, the more firm is the bond that is established between the human beings who are involved.

Finally, I'd like to mention something which is perhaps of special interest and which takes me into psychological theory. It has to do with how human beings come to attain the sense of objectivity, the sense of reality, with how they come to get a stable, reliable vision of the world around them and how, without losing their capacity for fantasy, they are able to make clear discriminations between what they know, what they have learned, what they merely believe, what they imagine, and so on. It has to do with how they are able to get straight the orders and kinds of belief and credibility. This is one of the most important accomplishments of a human being.

It seems to me that for some children and not for others this capacity for fitting things together into a coherent whole, into a coherent pattern, comes first mostly in terms of their relations with the human world, while for other children it comes first mostly in their relations with the inanimate world.

The capacity for synthesis, for building a stable framework within which many episodes of experience can be put together coherently, comes with the transition from autistic behavior to exploratory behavior. The first is guided by a schedule which is surely inborn, and is connected with satisfaction of definite infant needs. The second has a different style, and is not purposive in the same way, not aimed at a predetermined end-state. Its satisfaction, its rein-

forcement as a way of functioning, comes along the way and not at the end; in competence acquired, not in satiation. Both modes of behavior are elaborated through experience, but exploratory behavior is not bound and limited by a schedule of needs—needs which must, to begin with, have the highest priority. A child's first major synthetic achievements in exploratory learning may come in relation to the human world, but they may come equally, and perhaps more readily, in his exploration of the things of his surrounding physical environment, and of their responsiveness to his testing and trying. In either case, or so it seems to me, the exploratory motivation, and its reinforcement, is of a different kind from the libidinous, aimed as the latter is at incorporation and possession. And the child's development will be limited and distorted if it does not, by turns, explore *both* the personal and the non-personal aspects of his environment; but explore them, not exploit them for a known end. Most psychologists, in my reading and my more extensive arguing with them, tend to say that the roots of human motivation are interpersonal. They say that the fundamental dynamics of the child's relation to the rest of the world as he grows up stem from his relation to his mother, his relation to other close figures around him, and that these will be the impelling forces in his life. It is, of course, in such terms that Freud built up his whole systematic theory and although perhaps there aren't many very orthodox Freudians around nowadays this key feature of the theory persists, I think—the feeling that the only important formative things in life are other human beings. And if people pay attention to the non-human world—it may include animals and plants as well as the physical environment, enriched to contain bubble tubes and soap film—one tends to trace this to some desire to exploit the human world: for example, the child does something because he thinks it pleases you or because he thinks it displeases you, or because he's escaping you—but never because he wants wholeheartedly to do what he's doing. In other words, there's been a systematic tendency to devalue children's thing-oriented interests as against their person-oriented interests. It is assumed that the latter are basic, the former derivative. All I would like to say is that I think the interest in *things* is a perfectly real, perfectly independent and autonomous interest which is there in young children just as genuinely as the interest in persons is there.

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And some children are *only* able to develop humanly by first coming to grips in an exploratory and involved way with the inanimate world.

We've certainly seen examples of children who very early have got on to the tricks which I suppose in some sense babies are born with but which infants can elaborate as they grow older, tricks for getting what they want from persons by planning how they shall behave. It's exploiting, and some very young children are already skillful at it. If you know such children as a teacher you'll know they're smarter than you are because they've put a lot more investment into this kind of thing than you have. You have to be very shrewd to cope with them.

One thing such a child cannot do is to get wholeheartedly involved in anything else; he has to be watching all the time to see what the adults and the other children think about it. But if you can set enough traps for him, if you can keep exposing him to temptations, if he sees other children involved and not paying any attention to the teacher, he's left out in the cold. So the temptations of bubbles or clay or sand or whatever it is are reinforced by the fact that other children aren't playing his kind of game. If such a child once forgets his game, because he *does* get involved in shaping some inanimate raw material, in something that's just there to be explored, played with, investigated, tried out, then he has had an experience which is liberating, that can free him from the kind of game-playing which he's got so expert at. He comes, after all, from a species that is called *homo faber*. If he doesn't get free of manipulating persons somewhere in his life, that life is going to be a sad one. In the extreme case perhaps it will even be a psychotic one. Children of this extreme sort are a special case, but being extreme, in a way they tell us a lot about what is involved in the three-cornered relationship of my title. They seek to get and to keep, but cannot yet even begin to give. For the verb *to give* has two objects and only the indirect one is personal. The direct object must be something treasured which is not I, and not Thou.

One final remark. It seems to me that many of us, whether our background was in science or not, have learned something about ourselves from working with children in this way that we've begun to explore. We've begun to see the things of the physical and biological

world through children's eyes rather more than we were able to before, and have discovered and enjoyed a lot that is there that we were not aware of before. We don't any longer feel satisfied with the kind of adult grasp that we had of the very subject matter that we've been teaching; we find it more problematic, more full of surprises, and less and less a matter of the textbook order.

One of the nicest stories of this kind that I know comes from a young physicist friend who was very learned. He had just got his Ph.D. and of course he understood everything. (The Ph.D. has been called "the certificate of omniscience.") My wife was asking him to explain something to her about two coupled pendulums. He said, "Well, now, you can see that there's a conservation of . . . Well, there's really a conservation of angle here." She looked at him. "Well, you see, in the transfer of energy from one pendulum to the other there is . . ." and so on and so on. And she said, "No, I don't mean that. I want you to notice this and tell me what's happening." Finally, he looked at the pendulums and he saw what she was asking. He looked at *it*, and he looked at *her*, and he grinned and said, "Well, I know the right words but I don't understand it either." This confession, wrung from a potential teacher, I've always valued very much. It proves that we're all in it together.

Messing About in Science

There is a lesson for me in the fact that the essay which follows has by a factor of ten been more widely read, at least among teachers, than any of the others. The lesson is that one should try to recognize, in all discourse about education, what Philip Morrison calls "the logic of the concrete." Everyone knows that a readable essay needs a specific focus: a piece of chalk, a candle flame, a personal experience reflected upon. The essay has such a focus. But what counts is not the taste of sugar or the slipperiness of the capsule that takes down the otherwise unsavory pill or abstraction.

When we communicate together in the context of our work the particulars we are engaged with enter into the discourse, so to speak, as willing witnesses. Such things help us avoid the debasement of the language-coin and recall us to honest experience. The predatory hydra in his life space of a cubic millimeter, the salamander in his burrow, the rock which floats and the pendulum which willy-nilly does its thing, all these are guarantors in writing of what is otherwise not easy to come by, namely clear-cut meaning, the sense that you speak from within a shared ambient.

When it comes to writing one can, of course, only suggest this ambient. One cannot literally occupy it with a reader. The work on pendulums reported here was my first work, at all sustained, in elementary school classrooms (fifth grade). Eleanor Duckworth and I shared this trial and discussed it much between times. It was a relative success, I think, though not unqualified. I still remember one boy we could not involve except in "bombings" with those delightful spheres, steel or glass, on their string supports. It was he who reminded me that I was, after all, a not very experienced teacher of the young. A more experienced teacher would have worked hard to change the setting for that one, to find a pathway along which he could move from anger to accomplishment.

The one thing in "Messing About" which was not part of my experience, but conjectural, now seems to me the most dubious. It covers with a sort of formula—that of the need to prepare "work cards" for children who are ready

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