The aged can be seen to share certain characteristics of the ill that arise from an interaction between our society and the aging process. Important social forces in this process are the age-stratification into which we have slipped and an analytical mode of thought we have acquired that says that wholes are best understood by breaking them into their parts. Educational changes that might help reduce the problem are suggested to: re-introduce the abstraction called time, promote an understanding of process, reduce age stratification.

On Educational Changes for the Field of Aging

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Aging as an Illness

There are those who say that aging is an illness and that the aged, by the fact of their age, are ill. Many of us find that hard to accept and oppose that thought by pointing out how many old people are fully functional and useful. Such opposition, by pointing out exceptions, seems almost to support the contention of aging as illness. Because the sick are treated differently from the well, it makes a vast difference whether those who deal with aging are dealing with an illness or dealing with a group of people defined by their place in the scheme of growth and development. It seems reasonable, therefore, that we begin this discussion of education by an examination of the concept of illness.

The very sick are different from the well—they live in a world shrunken by their loss of concern with the larger world around them. Disconnected, if you will, from the world of the well. The loss of connection with the larger world arises from several sources. There are physical disconnections. The hospital bed is rather isolated and does not stand in the mainstream of life. Further, we know our world by our senses, and illness may directly impair our ability to see, or smell, or hear. Disconnection, however, is not merely physical, but social and emotional as well. The sick see few people, fewer as the illness deepens and they are shunned by the well. Thus disconnected from the outer world physically and socially, the sick person retreats into the new world of illness. This new world is not altogether bad—no longer peopled by present reality, it may be given over to the simpler delights of memory, fantasy, and inner images. So disconnection—physical, social and emotional—is one of the elements of illness. But the aged are also often disconnected and if that is one element of illness are they not, at least in that sense, ill?

Another characteristic of the ill is that they have lost their sense of personal invulnerability. Reality constantly threatens our sense of invulnerability. We know the body is frail and that men die. But we protect ourselves from that immobilizing knowledge withan awe-inspiring belief in our own indestructibility. If that were not true, would you cross a street? Illness directly threatens that sense of personal invulnerability and may even shatter it.

The process of aging itself threatens the sense of personal invulnerability as the elderly see the very real evidence of their loss of physical capability. Thus, if loss of the sense of personal invulnerability is part of illness, then in this sense also are not the aged ill?

Another feature of the sick is that they lose

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the sense of the sovereignty of reason—the feeling that events and their causes can be understood.

Normal thought continually strives to understand the universe. In those situations where understanding is insufficient, rather than disclose the gap in understanding, one simply stops thinking about them. In illness, thought also operates to understand the illness, but the situation is different from casual thought. The illness process is beyond the sick person's control and consequently it will not just go away and let him stop thinking. Rather, the continual march of events that are so vitally important in a personal sense demands continued thought. As thought continues to attempt to comprehend things for which knowledge is simply insufficient, gaps in the process of reasoning appear. Emotion begins to fill the defects in understanding until, as the process proceeds, rationality has largely been replaced by emotionality. Further, we begin to attach magical significance to events that occur beyond the edges of knowledge and reason.

In a more subtle way the aged also share this characteristic of the ill, the loss of the sovereignty of reason. We shall explain more fully later on.

Finally, it is characteristic of the ill person that he no longer controls his world or destiny as he did before. He does not control; he is controlled. Here again, it is not difficult to see the similarity between aging and illness.

Thus in both the aging and the sick there occurs: a disconnection from the larger world, a loss of the sense of personal invulnerability, loss of confidence in the completeness of reason, a loss of the feeling of control over the world and, with all this, the sinking into dependency.

The Impact of Society

Obviously in the aged as in the ill these changes occur to a varying degree. In the sick person, the changes vary with the degree of illness; and the degree of illness varies not only objectively but with the perception of illness. In the elderly also the presence and severity of these features is only due in part to the ineluctable process of decay, but in part also to the world in which we all live. Let us see how the aged may be forced into the role of the sick by the operation of cultural factors. One of the reasons that the world shrinks for the elderly is that their intimates die, leaving them increasingly isolated from the larger society. But the young also lose their intimates, if not through death then through divorce and mobility and diversity of interests. The young, however, urge themselves on to new associations. But for the elderly, the choice of friends and partners shrinks as time goes on, so that loss through death decreases the chance of new friendships and love. That seems perfectly obvious except that it is *only obvious in a cultural sense*. The pool of possible associates no more shrinks by deaths than it swells by births, unless it is assumed that associates are meant to be only in the same age group. And, unless I am mistaken, that is the assumption. But that is a cultural, not a biological assumption. In other words, we live in an age-graded culture in which there is little intergenerational mixing. Anthropoligists have described societies, like the Nyakyusa (Wilson, 1963) which are so age-graded and age-segregated that different generations live in different villages. On the other hand, the extended family of our past, with all generations living together, was not age-graded.

However, it is in seeing how the elderly lose the sense of the completeness of understanding that we comprehend the importance and subtlety of age-grading and the influence of society.

Here the physiology of aging is of less importance than the intellectual milieu. As we age we must acquire knowledge whether we wish to or not. So many seasons have passed, so many troubles, so much pain and loss, so many pleasures, and from all, a harvest of information. As in other areas, some people do more with the information than others, but the residue is immense. *The sovereignty of reason is maintained, however, only if the knowledge continues to explain the universe.* And there lies the problem. Our modern universe keeps changing we are told. The world changes so much from day to day that the aged find their vast array of experential knowledge inadequate and reason fails. If that is true, what choice is there but to retreat to a smaller universe for which knowledge and reason are sufficient? We will return to this later.

With retreat comes further disconnection and further loss of the sense of invulnerability and so they go, each reinforcing the other, driving the old man into deeper physical dependency, completely without control of his larger world, and controlling only the manageable world of phantasy and memory into which he may sink.

We have seen how the aged share certain characteristics of the sick, and more importantly, how it is the society around them that helps convert these from potential to actual destructive forces. We have seen further how at least

in part it is the fact that we are an age-graded culture that is responsible. We have sort of slipped into this age stratification—it is not a conscious, well-known, or so to speak, volitional choice on our society's part (as it is in some other cultures). We may possibly find its genesis in many parts of our life, from changes in family structure to mass transportation.

The Role of the Aged

But our problem is an educational one and since education is a process by which we change thinking, it seems reasonable to go back to one of the factors we examined previously that helped make the aged like the ill. The loss of the sense of the completeness of reason.

We said that this came about because the huge body of experiential knowledge acquired in growing older was inadequate to explain a changing universe. But, *is it really true*? The accusation is frequently made that old people just do not understand today's world because of the rapidity of change. And it is true that much of the technology is incomprehensible as are many of the resultant social changes and implications. But the elderly are certainly not the only ones whose understanding fails. In a certain sense it is *necessary* to accuse the elders of not understanding in order to allow change to take place. Because if they *do* understand, then their rules would still apply and if the old rules still apply there will be no change. So at least in the absolute sense of being at home in today, reason fails the old. However, the present has never been the primary domain of the aged. Rather they are, classically, the residuary of the past, the representatives of the previous future, and the proof of the value and necessity of enduring human relationships. To some in the present period in our world, the aged represent an embarrassment in all three functions. Recently Trilling (1971) discussed the present trend toward extirpation of the past from the consciousness of modern man. He pointed with distress to the belief that "the new methods, new processes, new forms of living of scientific and industrial society have no sanction in the past and no roots in it." And with the removal of the necessity for a past goes one of the functions of the aged.

The role of the elderly as symbols of the future is a little less obvious but nonetheless real. In the movie "The Graduate" an important and recurrent scene occurs in which the modern hero, Benjamin, floats futureless in his father's swimming pool surrounded by affluence. The house and affluence, the symbols of his father's success, are irrelevant to him as he visualizes himself without a future. He is, in fact, *in* the future of his father's past. It would have been his own future if the world was stable, values unchanging, and he successful. The old, then, are the future in a stable world. But we are assured from all sides that the future, in any recognizable form, is also dead. So another function of the aged is gone.

Finally, as proof of the value and necessity of enduring human relationships, the old are also dispensable; along with marriage, the family, and child care. Indeed, all institutions that imply that people really need each other over the long haul are under attack. It is unimportant that for the large majority of us the family and all that it implies seem not as dead as we are told. Therefore, the classic functions of the aged are borne away on the winds of social change.

The Casting Out of Time

It is not necessary to dwell on the implications of all these changes, but it is important to the task of educating those concerned with the aged to go a little deeper into the roots of these things that the aged do for the rest of us.

In a certain sense all three functions are derivative from the fact that growth is an integrative process—a whole made up by the successive combination of parts—and growth cannot be considered apart from either the time over which it occurs, or the parts.

The recent trend toward the extirpation of both the past and the future can be viewed as the casting out of time. The loss of the abstract concept of time has the most profound educational and intellectual implications.

Briefly, as Piaget (1971) has shown us, the concept of time is the last of the physical abstractions to be acquired in normal child development. Previously the child dwells in a world in which space is used instead of time. There is evidence that in the unconscious, also, time is represented by space (Schick, 1971). The loss of time-sense and its replacement by spatiality is also seen in the regression accompanying severe illness and in senility. Thinking in spatial terms has basic differences from thinking in temporal terms.

The most important property of time is its directionality. As Reichenbach (1958) has pointed out, it is because of this feature that time, and time alone, is the dimension of causal chains. In space, events or objects are proximate

or non-proximate but separate and cannot be seen as distinct states of the same object, as they would be in a time line. In other words, direction and connection are inherent in time and optional in space.

More simply put, it is impossible to understand complex causal relationships when thought is primarily in terms of space. As pointed out before, growth and aging are integrative processes and cannot be studied or understood apart from time. So our first need is to put the abstraction "time" back in the educational process. That has an absurd sound—not like putting more biochemistry in the curriculum. But in the ease with which we conceive of putting biochemistry in the course content and the difficulty of similarly conceiving of time, we see part of the problem.

The Influence of Science in Our Thinking About Time

Let us look for a moment at why the most technologically and scientifically sophisticated society ever to exist has apparently decided to give up the abstraction—time. Can we accept as fact that in the warfare of Science with Theology, as White (1960) called it in the 1890s, science won and has reigned for several generations. And that despite rebelliousness here and there, science has shaped the very essence of our thinking, much as religion shaped men's minds in centuries past. The basic function of science, as Bergson (1949) has said, is analysis. And in the analysis science uses symbols. Science concerns itself with the elements of things, reduces the complex to the simple, examines individual parts. It is, to use a contemporary word, reductionist. Science does all these things based on the thesis that when every thing is taken apart and examined from every angle, the whole, from which the parts came, will be understood.

We are not used to equating science and theology, but such an equation is hard to avoid if we want to understand why we think as we do. They must be equated to see that our method of thinking, the basic way in which we approach the world, is not born anew when we awaken each day. Rather there are certain core precepts that are in our minds, almost unshakable, from which our view of problems starts and which determine our approach. Another way to put it would be to say that our brain's computer is programmed that way. We may not like the analogy but it is true. However, generally the computer cannot change its own programming, but we can, even if with difficulty.

With that basic scientific precept—of analysis and breaking into parts—in mind it is easier to see why the abstraction—"time" might be dealt wth differently nowadays.

The essence of present scientific analysis—it is not inevitably so, but it's generally true now—is that things are, so to speak, held still when they are analyzed. Even when time is employed, with a stopwatch, for example, it is not time being examined, but rather a symbolic expression of time. That is because, quite simply, time does not stop when you press the stopwatch, only the stopwatch does.

Science has been the reigning religion for these generations because it has been successful in explaining a great many things that couldn't be explained before. But there are some things in which it has not done very well, and understanding the totality of growth and aging is one of them.

Further fascinating things could be said about the dimension of time but for our purposes let it suffice to say that an understanding of time suffers from the breaking down of problems into their parts.

Antireductionism

We are not alone in coming to these conclusions and there has grown up, in recent years, among some scientists, a way of thinking called anti-reductionist, which attempts to solve some of the deficiencies of understanding created by methods of analysis which break things into their parts.

Such newer holistic approaches would seem more appropriate to the problem of aging. So, in addition to putting the dimension of time back into our educational system, it seems necessary to also put back an emphasis on holism and totalities.

We may seem to be a long way from where we started out, with a description of the characteristics of the ill, but we really are not. There, we saw that the aged have, so to speak, acquired those characteristics from the interaction of society and their aging process. In so doing, society was blamed in what seemed a platitude. We were able to narrow the problem down to two derivative problems; age stratification and a basic precept of thought that most of us entertain, that wholes are best understood by break ing them into parts. The matter of thought is the domain of the educational process.

Some Suggested Changes

What changes can be brought about in the education process that would better prepare

students for work with the aged? The changes I am going to suggest are not dramatic nor difficult to achieve. There is no desire to remove the basic thought model of analysis but rather to enlarge its horizons.

The object of the changes is to accomplish three goals: 1. re-introduce the abstraction called time; 2. promote understanding of process, toward which end analysis is only one tool; 3. reduce age stratification.

One can quickly see that those three goals are not easily separable and that things which encourage one will encourage the others. Toward these ends the following concrete steps are suggested. First, the addition of philosophy and the history of science to the required curriculum.

The purpose of teaching philosophy is twofold. First to show that there are certain problems that are not only of current interest, but have occupied men's minds for centuries and that in that sense the world is stable. Some of these problems—of good and evil, the nature of being and fulfillment, the ethics of caring, the meaning of death—to name a few, are of very real moment to the aged because for them these problems often can no longer be hidden by externals. But they are of equal moment to the student. The teaching of philosophy will help make visible a commonality of interest which exists whether made visible or not.

The teaching of philosophy also serves a second purpose and that is to show how differently men have thought about the problems of science. The philosophers of science can still teach men to think and to see basic ways in which men have looked at problems in the past.

The function of teaching the history of science is simple. Often students act as though the history of science started the day they were born and that anything before that is paleolithic. Many are surprised to see the history of present scientific advances unfolding with the blind alleys and false starts revealed. It can be comforting to know yourself a part of a larger pursuit of mankind.

The second change in the educational structure concerns departmentalization. The various disciplines, anthropology, biochemistry, nutrition, social psychology, and so forth, teach not only an abstract truth but a way of seeing the world—and it is the same world for each of them. Every one of us needs a way of looking at the problems before us and every way has something unique to offer. A point is reached in development, however, when that special way of seeing the world becomes a blindness to all other views. Thus the disciplines should be merged into an administrative structure whose primary concern is not an individual discipline but a broad problem such as aging. Such structures exist and are feasible. But is not aging only a part of the larger problem of growth and development? It would seem more meaningful if the new administrative learning structure covered the whole process of growth of which aging is merely a part. Such a larger unit would help remove the unconscious age stratification we saw before to be part of our difficulty as well as helping relieve some of the personal burden of those who work exclusively with the aging.

I am not suggesting the elimination of classical departments, they serve necessary functions, *but rather the creation of new problem oriented programs for training and research.*

The third suggestion is that educational programs dealing with aging have ongoing contact with the aged. That accomplishes several goals. First, it quickly teaches a student whether he is doing what he wants to do, or at least provides the practical experience necessary for a realistic career or speciality choice. Second, it gives an invaluable opportunity to test what he has been taught against reality. Finally, and equally important, it helps teach the unwritten content of any profession—the ethics and values that determine behavior and underly responsibility in the profession.

Bringing the real world into the teaching setting is quite popular now and can and has been done in many ways.

But whatever method is employed, let those whose vocation will be the aged, be with the aged.

I have two further suggestions. Reading seems to be a disappearing learning tool. In medicine, at least, people no longer sit down and read. They scan, read summaries, glance at abstracts, but rarely really sit down and read. By using those abbreviated techniques great quantities of material can be consumed. Unfortunately, little time can be given to thinking about the content. The use of television, tape recordings, and other teaching devices assume increasing importance in education. While these newer techniques can give time for reflection. In the process of reflection, the value of judgment, intuition, and insight can be fostered for the invaluable scientific research tools that they are. The television image is transient, a book is permanent. The ideas can be revisited. A library is a place

where past and present meet. It may be objected that reading is too slow; and if, for an individual, that is correct, then teach him to read rapidly. Another objection may be that there are so many facts to be learned that there is no time for slower techniques or more reflective teachings. I would suggest that it is precisely in those settings where there is a plethora of information that broad conceptual training is most necessary, providing the matrix into which the facts fit.

Finally, I suggest that tradition be re-injected into the educational process. Tradition implies school and group loyalties—ties to something emotional and intellectual that is larger than the individual. A sense of intellectual belonging and roots that urges men to accomplishments and creativity greater than they knew they had within them.

A picture of the colleges of Oxford and Cambridge comes to mind. With that picture comes the caricature of school tie and social class but lost in the caricature is the tremendous productivity that came from those traditional institutions.

A Review of the Suggestions

Those are the suggestions: the introduction of philosophy and history of science into the curriculum; a de-emphasis on classical discipline-based departmental structure and the creation of problem-oriented departments; early and continued close contact with the reality of the aging process; the encouragement of reflective reading with emphasis on judgment, intuition and insight; and finally, the re-building of intellectual loyalty, tradition, and pride.

All these changes are directed toward the recapture of the abstract sense of time and the development of new, non-reductionistic modes of analysis and understanding that are essential to an appreciation of integrated problems such as aging.

How undramatic are the suggested changes—even perhaps a step backward.

How can one propose such seemingly conservative reforms in the world of "future shock" and rapid and unending change? Change, we are told, is the order of the day and a host of popular books vie with each other in telling us the extent. It is undeniably true that our material world has changed remarkably and that perhaps unbelievable changes are still to come. But, with some trepidation at the heresy, I believe the apocalypse is an illusion. Men live now where they have always lived—within themselves and in their relationships to others. When they are cut they still bleed and when they are hurt they still cry. What hurt them the most in the past arose from their private lives and so it remains. The externals are flashy and visible and changing, the private world has changed little.

Even if that were not so, how does one best prepare for change, if not by learning to think and understand? By learning to see in what is new its relationship to what is old so that each situation does not find one without the intellectual and emotional tools necessary to integrate new experience.

We may have seemed a long way from future shock and educational reform when we started out with the characteristics of the sick. But look again. The sick are disconnected from and have lost control of their larger world. The sick have lost the sense of the invulnerability of their bodies and lost the sense of the sovereignty of reason. We say by those characteristics, that aging is illness, largely forced by the surrounding society. Using those same characteristics is it not true that a world seen as composed only of change, having no relationship to the past and no belief in the future, makes sick men of us all.

The purpose of the educational changes suggested is to provide the tools that will allow greater understanding of aging for those who give service as well as those who do research. To develop not only refined analytic conceptions in the classical sense but encourage the judgment, intuition, and insight necessary to comprehend a process that occurs over a lifetime. But those are the very same tools necessary to stay alive and creative over a lifetime, and providing those tools is the ultimate function of education.

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