

# Can a Specialist Be an Educated

*As part of the program at a March meeting of the Houston alumni club, three University professors offered answers to this question. Portions of their tape-recorded remarks have been specially adapted for publication in Sooner Magazine*

## Dr. John R. Morris

Since early in this century there has been mounting concern among many educators that increasing specialization in higher education was robbing our young people of the broad cultural education rooted in the spiritual, artistic, and literary values of the past. The concern has it that our colleges and universities are producing highly trained but poorly educated people. Granted we need specialists, the argument goes, but we also need to conserve the philosophical, political, and social values of the past. Jefferson has said that no other sure foundation can be devised for the preservation of freedom and happiness. Quite clearly he saw the aim of education as one of transmitting the values and ideas of Western civilization. Traditionally, an educated man was one trained in literature and languages, notably, and at one time necessarily, in Latin and Greek.

An American education developed, largely out of European education; it began to give way to what was considered to be more practical education. That is, education with a vocational orientation. University programs were divided into two rather distinct areas. One was typically called "general education," the other "specialization." It was general education that was the principal heir to the old classical tradition which has become known in this country as the liberal arts. It was in this area of education that the student, so to speak, became humanized. He received the experiences of the race before him, and he encountered the spiritual legacy from literature, philosophy, and art. It was the general education that made him an educated man; it was the specialization that made him

a lawyer, an engineer, or a man of commerce and industry.

When new kinds of knowledge began to develop and began to make insistent demands upon the educated man's time, as our society became more complex, more and more expert knowledge was required to confront it intelligently. Some had always considered the humanities to be a luxury, and now some began to see it as a waste. Now it began to be a little compartment, along with the natural sciences and the social sciences, and specialization courses required more and more time. This state of affairs brought loud opposition from those who viewed the humanities as providing a conservative function for society, preserving the old values and acting as a force against radical departure.

This protest was very clearly and very emphatically stated by Walter Lippmann in an address to the National Association for the Advancement of Science about 25 years ago. He said that during the past 40 or 50 years, those who are responsible for education have progressively removed from the curriculum of study the Western culture which produced the modern democratic state; that the schools and colleges have, therefore, been sending out into the world men who no longer understand the creative principle of the society in which they must live; that deprived of their cultural tradition, the newly educated Western men no longer possess in the form and substance of their own minds and spirits, the ideas, the premises, the rationale, the logic, the method, the values, or the deposited wisdom which are the genius of the development of Western civilization; and that the prevailing education is destined, if it continues, to destroy Western civilization and is in fact destroying it.

*The panel members whose views on education and specialization appear in the above article are (from left) Drs. Morris, Roller, Feaver.*



# Man?

Now this is an extreme statement. And viewed from the vantage point of the 60's many would say it is more alarming than realistic. But in spirit and substance, differing perhaps in degree, the same concerns exist today. Today, however, a new dimension has been added to the problem. While the scientists and engineers have perhaps been the most constant targets of the protagonists of the liberal tradition, it became increasingly apparent even in the infancy of the atomic age that the non-scientist could not be at home in his civilization without a solid foundation in the world of science. Specialization in history or government, or education or law could be meaningful only if it included an awareness of the great scientific advancements of the recent past. By 1958 there were many statements like the one by Eugene Rebenowich of the University of Illinois, who said that with the violent conflicts which the drastic political, racial, and social changes of our time inevitably generate "we need for our own survival and that of mankind as a whole, an open-minded leadership, men who will not only understand the great national and social movements and revolutionary ideas now abroad in the world, but also appreciate the impact of new science and technology on human affairs. If democracy is to be real and not

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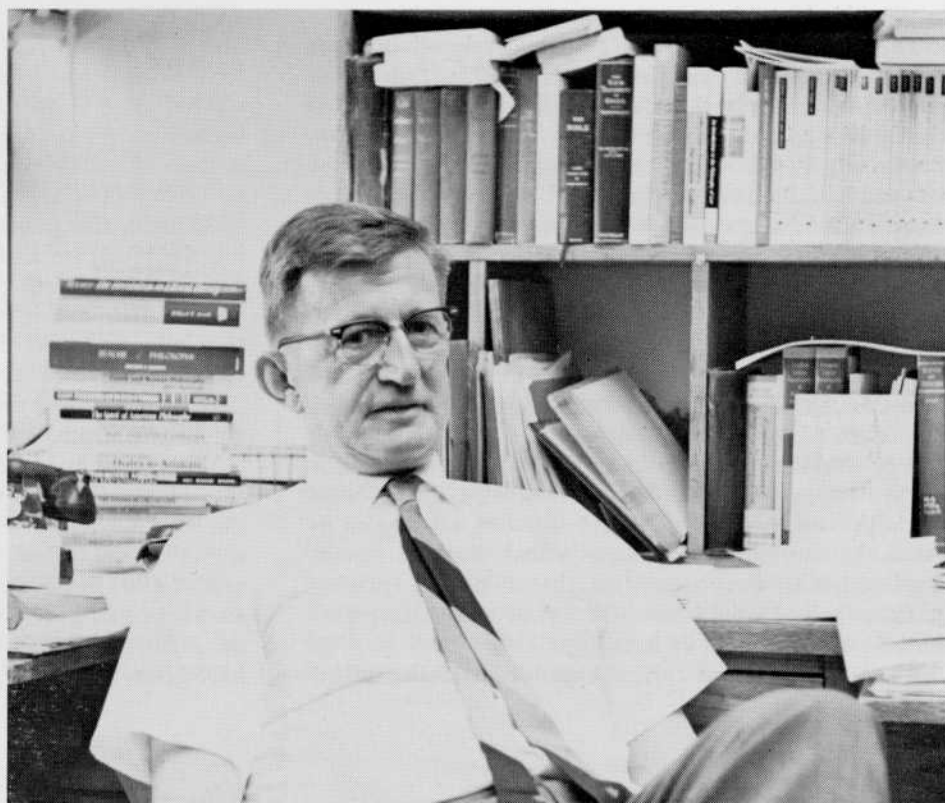
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a sham in the coming scientific age, we shall need a public opinion and a political leadership able to exercise sound judgment in situations involving scientific or technical facts."

So there are both sides of the coin. The humanities for everyone, science for everyone—the basic plea for general education. The argument does not reduce itself to one of the arts versus the sciences, but more precisely it is a question of whether we can provide the general education in both the arts and the sciences while providing the vocational specialization which is also the obligation of education. Only if we can, can we produce people capable of intelligent leadership.

I should like to close my opening remarks with an additional personal comment. The whole purpose of breadth in education is not to equip our young people with encyclopedic knowledge, but rather it is to mold personalities, to help individuals to be open to experiences, to be open to the world, and to be open to the needs of their fellow man. And in this regard there seems to me to be little doubt that we can and must provide our college students with a broadly based education. But I feel that in our zeal to realize these educational aims, we must guard against the kind of educational chauvinism which asserts that this is the only kind of quality education.

The prejudice that it is only the specialist with a broadly based background in the arts and sciences who is adequate to live in contemporary society is merely a prejudice. We suffer now, I think, because of the belief that excellence can be achieved in only certain types of curricula and subject matter. At the secondary school level, it is the college





preparatory program; at the collegiate level, it is the traditional arts and sciences. Vocational training programs in this regard continually suffer for having no status among educators who disregard the fact that the best possible education occurs when the interests and abilities of our young people are carefully matched with quality programs to prepare them for useful and rewarding lives. We must honor work in all useful areas if we are to attract qualified students and teachers to those areas. If we do not, we will not be producing what our society needs. As John Gardner, the Secretary of Health, Education and Welfare, has pointed out, "We must have plumbers and philosophers and unless we provide quality education for both, neither our pipes nor our ideas will hold water." Is it not a prejudice that excellence can only be achieved in producing broadly educated people?

At a time when post-high school education is becoming a reality for a majority of our young people, it seems to me that no single standard or no single purpose can dominate education. An educated man is one who has actualized his own individual talents in ways which permit him to assume a role of dignity and competency in a complex society. And it is education that ought to be helping him do just this.

### *Dr. Duane H. D. Roller*

I find myself appalled by two things. First, when I get on my feet, the bell is not supposed to ring for 50 minutes and here that bell threatens to ring in ten; second, I find that I am in fairly general agreement with my colleague, Dean Morris, which I think shakes me even more.

Certainly the answer to the question "Can a specialist be an educated man?" is "yes." And the reason the answer is yes is that we all know specialists who are educated men no matter how you define the term. If one, however, asks, "Is our educational system producing large numbers of specialists who are not educated men or who are not broadly educated?", I think the answer also has to be yes, and I think there are very clear historical reasons as to why this is and how it came about.

The European educational system developed in three stages, or, one might say, in three levels. First, education to provide reading, writing, and arithmetic—the bases for simply living in the world; second, the arts education—the broad, liberal education leading to the bachelor of arts and initially based on the seven liberal arts; and third, the specialized education at the graduate level. In addition, to be sure, there was vocational education in the craft tradition, using the apprentice system within the guilds, which I'm not going to discuss.

When a person went to graduate school, it was presumed that he had a Bachelor of Arts degree. That is, that he had been through that part of the system which was intended to produce a broadly educated man. At first the only thing that he could specialize in in graduate school was one of the professions: law, theology, or medicine. Later other specialties were added so that today one can major in practically anything in graduate school. But the system developed with the assumption that a person entering graduate school would have the broad education represented by the Bachelor of Arts.

When the European culture expanded into the Orient

and into the Western hemisphere, it took with it its educational system. And as the European culture altered to fit the new environments in these other countries, the educational system became altered also. In some places, such as Japan, the European culture had to take account of the local population: there were too many people to simply push into a corner somewhere. Here we did not have that problem, and we were essentially able to attack a raw, undeveloped region. To be sure, after the American Revolution, Philadelphia and Boston were European towns, just as after the Russian Revolution, Moscow was a European town. But there was a lot west of Philadelphia and there was a lot east of Moscow. And in the process of trying to develop this it became clear that the most serious problem faced by these emergent nations was the attempt to control the environment, which is a somewhat long way of saying "engineering."

These technological problems were very immediate, and we are still not far from this frontier. My grandfather came to Texas in a covered wagon. He became a section foreman on the T. P. Railroad. He was not the least bit interested in, say, Plato's conception of reality. Rather he was interested in ties, ballast, and rails. Under the pressure of such attitudes our educational system began to produce specialists at the expense of the old liberal arts education. And, as Dean Morris suggested, the arts faculties fought back. One of the things they accomplished was that if a university graduate is not going to be educated (in the eyes of the Arts faculty), then he's going to call himself a Bachelor of Science instead of a Bachelor of Arts, but even the curriculum for the Bachelor of Arts degree moved steadily toward the practical. If you can find a Bachelor of Arts and want to amuse yourself, ask him what the seven liberal arts are.

In brief, the center section in this three-fold educational pattern, the part between grade school and graduate school that once gave a broad education has been very drastically altered and encroached upon from both sides—at least in such places as Australia, Russia, the United States and so on, in the face of very severe pressures which made it seem necessary to turn out specialists equipped to tackle the technological problems. My grandfather's son, my uncle, wanted to go to college. But why? Because he wanted to become an engineer. He wasn't interested in Plato's conception of reality either. He didn't want a liberal education. He wanted a practical education in engineering.

So under this pressure of environment and of conquering the West, we have altered our culture. We have by now produced a rather considerable number of generations of specialists, and it is these specialists who form the culture, who make the decisions. They look upon things in terms of their own specialized education.

How many times people have said to me, "What good is a course in history? What can you do with it?"

What have we gotten out of this altering of our educational system? We've gotten a great deal. We have become the most advanced technological nation in the world by specializing in technology. We are on our way to the Moon, and all of us live in the most incredible luxury. No Roman emperor could have dreamed of the kind of luxury we take for granted. That is what specialization and technology have given to us. And, frankly, I like it. I enjoy luxurious



living, and I would not want to make any suggestions that would involve giving it up.

Has it cost us anything? Yes, it has. And here is where the subject becomes interesting. It has cost us first of all because we haven't just specialized in engineering: we have specialized in other fields as well. I know historians who think that history students shouldn't take anything but history courses, musicians who think music students should study only music. Furthermore, we have even specialized in what we are going to specialize in; we have tended to drop out of the educational system those useless things such as Greek and Latin that composed the liberal arts program.

Again one might ask, "What difference does it make? Who needs Greek? What good is it?"

Let me give you a single example, from my own field, the history of science, to illustrate the problems this attitude has brought about. The first thing that catches the eye of any historian of science looking at the United States is that the United States does not produce scientists. When we make a list of outstanding scientists we get names such as Albert Einstein, Neils Bohr, Charles Robert Darwin, and Gregor Mendel: there aren't any Americans on the list. This is intriguing. Why is it? It is because science has only appeared in cultures that are interested in the broad view of things, cultures that are interested in the liberal arts and fine arts, cultures that are interested in beauty. It is no accident that Isaac Newton and William Shakespeare lived in the same century in the same country. It is no accident that Galileo Galilei's father was a composer who helped invent the opera. It is no accident that the only Persian physicist anyone has ever heard of is named Omar Khayyam, who acquired a certain fame for his poetry as well.

These things go together. To be sure, we have tended to obscure this a little bit by redefining science to include technology. As a consequence, we can point to Henry Ford, Luther Burbank, and Thomas Edison, men of very great achievement, and say, "There are our American scientists." But redefining it doesn't change the situation: we do not produce people like Bohr and Einstein in this country. Again one may say, "Does this matter?" Well, it is a matter open to argument, but today technology is based on scientific knowledge. And it seems to me that this lack of science is therefore of importance to a technological nation.

I also think that it is of importance that we are so poverty stricken in the opera, the theater, and the fine arts in general. So it seems to me that we do need an increase in breadth of education. Crudely speaking, we need a return to that undergraduate education of the liberal arts. I don't mean to suggest that it should be what it was 100 years ago, but we need to start producing people who have this breadth of education, simply because we would then be better off. But it should be done without giving up the specialization on top of the liberal arts education.

Can it be done? There are a lot of people concerned with trying to do it all the time. The only difficulty is it involves changing our culture. That is not easy, and pat solutions will not work. I suppose most of you know the story, probably apocryphal, about Euclid and King Ptolemy. Ptolemy is said to have called Euclid in and said to him that he understood mathematics was something worth knowing.

However he, Ptolemy, was a king and a busy man and didn't have time to take the course. Would Euclid give him the special short course for kings, the one where you learn mathematics without time or effort? And Euclid is reported to have replied: There is no royal road to geometry. Kings have to trod the same path as everyone else if they are going to get to geometry.

There is no shortcut to changing a culture or changing the way it looks at itself.

## *Dr. J. Clayton Feaver*

I like this question and I am delighted it was selected for discussion. I hear it debated in many circles. It is certainly an alive issue currently. It evokes all sorts of response, pro and con, hot and cold, fluid and dry, Republican and Democrat—I'm not sure how that last couplet got into my notes. And the question fascinates me; it also bewilders me. Why is it asked and by so many people and in so many circles? The answer, it seems to me, is quite obvious, and I'm not going to give a philosophical answer, as Dr. Roller did, a sort of a "yo" answer—yes and no. I'm going to give an unambiguous "yes" answer, and say that the answer is manifestly yes. That yes, specialists can be educated, and more than that, they are.

The evidence is right here at hand. Doctors Cross, Roller, Morris right here on this panel are specialists, and they are educated gentlemen. A whole bevy of people at this very pleasurable dinner-discussion group are specialists and educated and got their start and/or shove at the University of Oklahoma. A lot of people back in the United States are also educated and specialists, so I'm going to take the stance that the proof of the pudding is in the eating. I'm reminded of the question asked William James: "Do you believe in infant baptism?" "Believe in it?" replied James. "Why, lady, I've seen it." Now, of course, not every specialist of every sort perhaps is educated, and not every educated person perhaps is a specialist. These opening words, incidentally, are just by way of introduction, Mr. Moderator, and they have nothing to do with my eleven minutes.

I'm wanting to lead off with three statements from three specialists of quite different backgrounds, all of them educated men. I think that all three of these statements relate to the problem. The first is from a Britisher who did much of his most effective teaching and writing at Harvard, Alfred North Whitehead. Early in the century, in 1916, he predicted, "In the conditions of modern life, the rule is absolute: the race which does not value trained intelligence is doomed." This prediction has been realized. In 1967, trained intelligence and its product, knowledge, is the key to survival and certainly the key to more equitable living, depending, of course, on how we use it. The second statement is, "A truly educated person is trained to match his intelligence with his feelings in a disciplined whole. He cannot deny or subordinate either his brain or his heart because each is essential to the effective functioning of the other." This statement is from Kenneth B. Brown, professor of psychology at the College of the City of New York, also the director of the Social Dynamics Research Institute there. The third quotation is from Marshall McLuhan, a communications expert: "With the electric tech-

nology, the new kinds of instant interdependence and interprocess that take over production also enter the market in social organizations. Our education has long ago acquired the fragmentary and piecemeal character of mechanism. It is now under increasing pressure to acquire the depth and interrelation that are indispensable in the all-at-once world of electric organization. Paradoxically, automation makes liberal education mandatory.”

With these three statements in mind, I’m wanting now to voice two personal biases. By bias, I mean a strong disposition of thought. Bias number one: Depth and breadth, specialization and liberal education are correlates, complementaries, playmates; they belong together. Or to use a slightly different language, depth is in direct proportion to breadth, and the contrary. There are, it seems to me, several rather obvious reasons for this. They all relate, more or less I think, to recent development in cybernetics. One reason is that men today live, it seems to me, basically, not in the twentieth century or even the Western World, but in what Chardin might speak of as the invisible envelope of thought—a sort of psychic envelope that surrounds the globe. He lives in a luminous kind of intelligence that controls, directs, guides the future of the planet. To be sure, some men and women are oblivious to this. Some ignore it, some turn it off. Some, though, tune in on it, and either do or do not like it; either do or do not do something about it.

When people do tune in, especially those who find it fun and who want to make something of it, education, it seems to me, takes on a new dimension. Education is largely where the action is. Electricity is, in a sense, responsible for this, for electricity has brought the world together and brought it together in two respects, especially. (A) It permits us to be aware of events simultaneously, and (B) it permits us to participate together in an experiment. The point I would stress is that much education occurs within the experiment or within the action.

The third reason for my bias that breadth and depth go together is that the knowledge industry, as someone has spoken of it, or the multiversity is the setting in which global education on a mass scale will go on for the rest of this century and maybe even longer. Harvard and MIT illustrate the point. Recently a friend of mine drove me out Route 128 in the Boston-Cambridge area to see the companies and industries that have grown up around the MIT-Harvard complex. And I noted that here literally and spectacularly it is the technical and liberal type institution, both at once, that feeds directly into government, business and industry, arts and crafts, and so on.

The fourth reason for my number one bias is the conviction that anything that may with sense be called humanist, as far as we can see in the future, must cope with the information revolution, a revolution which has to do, for one thing, with a fantastic flow of particles of fact—and the facts are legion—and a revolution which has to do with the question of world views or world images in the light which to organize, relate, interpret, evaluate, and make significant use of. It’s seeming to me that we are being forced to look at particulars in the light of our schemes or systems for interpretation and use.

In a word, I am saying that the knowledge explosion is at hand. We all may plug into it. Those tuned in can no longer be spectators alone. The experiment is here and now and means involvement. Relevant schemes for interpretation are a must. World views are possible only where there is world vision—only when we look out, beyond, over, as well as inside and deep. And, thus, I repeat my number on bias. Depth and breadth belong together.

And so bias number two. It’s seeming to me that the chances for more effective correlation or better understanding of the relation of specialization or depth training, and liberal education, or breadth training, are much better in 1967 than in 1927 when I was studying pre-war physics, or in 1727 with the death of Newton, or in 347 B.C. in the heyday of Aristotle and with the death of Plato. And it seems to me that there are two very obvious reasons for this. Number one: Because of man’s extension of man in the microscope, telephone, TV, space travel, the computer, and so on. Recently on the East Coast, and we could do this at OU if we had the equipment, and we could have the equipment if we had the funds. (laughter) Yes, that’s in my—no, that’s not in my notes but every once in a while I have a fruitful idea. The point is that recently on the East Coast we asked for all of the relevant material on a problem at 9:45 in the morning, went out to coffee, returned at 10:20 the same morning and the material was before us. Incidentally, research will no longer mean looking for lost books and articles. But that is not the point I want to make. The point I want to make is that persons from three specialties spent the rest of that day and the next worrying about the social implications of this material.

The second reason why more effective relations between the specialist and the educated man are possible in 1967 as compared with an earlier time, it seems to me, is the new world view or world image that is taking shape. We have moved from the mechanical world view of the 17th and 18th centuries. We are moving from the organic and process views of late 19th and early 20th centuries to what some are calling a cybernetic world picture.

Now I don’t know what to make of this last picture. I don’t know for sure what it means. But it does seem to me that three developments seem to have paved the way for the appearance of this new view. One, the development of probability theory and physics; two, the development of non-euclidean geometry, and three, the development of symbolic logic as it relates to mathematics. The third, no doubt, is a correlation, in some respects, with the second. But whether I understand what these developments mean or not, it does seem to me clear that in this new view, we seem to be asked to consider order and randomness together, unity and diversity together, whole and open together, breadth and depth, and no doubt many depths together, to the end that we, men, build, invent, create the way the world will be tomorrow. And I would accent that we *create* it. Thus my concluding comment: The correlation of specialization and liberal education can be, for it happens. It is increasingly important, currently mandatory—McLuhan’s words. It needs to be nurtured and progressively achieved. Our colleges and universities should take the lead in its nurture and development. END