

"WHAT ARE SCHOOLS FOR?"

I trust you were aware--when you asked to have me as a speaker--that you were inviting a severe critic of our schools and could therefore not expect to hear much that would cheer the spirit or flatter your sensibilities.

I did not become a critic of American education by choice. Its deficiencies impressed themselves forcibly upon me because of the work I had to do. The task assigned me a quarter of a century ago--to develop nuclear propulsion for the Navy--could be accomplished only with the help of educated talent of high caliber. Well educated men, thoroughly grounded in the fundamentals of their specialized fields, were needed for the scientific and engineering job of designing and supervising construction, as well as for the naval job of operating our nuclear ships. These men would of course--like myself--have to learn nuclear technology on the job, for it did not yet exist; we had to develop it ourselves. The fundamental grounding however was indispensable, and it was just this that I found sadly lacking. Few among those anxious to join our program had any solid foundation in mathematics, science, engineering or, for that matter, the liberal arts, despite long years of schooling and top grades. I could find the requisite intelligence and interest, but before this could be brought to bear on our technical problems, I had to set up schools to teach what in any proper educational system should have been learned in high school and college. Mine was not a unique experience. Others also find it necessary to provide remedial instruction for employees before training them for specific technical jobs.

Thousands of engineers, officers, and men have passed through our schools. We pick them with utmost care among those ranking at the top of their college classes, yet we find few, very few, whose good minds have had anything approximating the kind of education that would have been suitable to their capacities. In my terms, nearly all were under-achievers when we took them on--chiefly because they had never before encountered the kind of intellectual challenge that would have motivated them to stretch their minds. It became obvious to me that American education does not provide adequately for the special needs of our talented youth, and that something ought to be done to make it more responsive.

When an engineer like myself--or a scientist, a mathematician, a medical man--looks for ideas on how the performance of his profession might be improved, he is never bound by national frontiers. Like everyone else, he would naturally like to believe that his country ranks first in the field of his special expertise. But if it does not, he will not hesitate to adopt better methods or procedures, no matter where they have been developed.

To examine whether the school systems of other advanced countries did better by their children than ours, whether something might be learned from them, seemed to me a sensible thing to do. I find it difficult to understand why American educationists are so bitterly opposed to such comparisons; educators elsewhere show considerable interest in what is being done educationally throughout the rest of the world.

Whenever I broached the matter, the stock reply was that ours were "the best schools in the world." This is an excellent public relations technique since it takes the wind out of the case a critic might make against American education. Foreign

school systems, our educators assured me, were of no relevance for us, for we alone educated all our children while foreign schools educated only an elite. How then could one compare their aristocratic system with our common schooling? I could get no aid on my inquiries from educational officialdom in this country though fortunately foreign schoolmen were most helpful, patient and kind. I was made to feel that I was meddling in matters that were none of my business.

But I am a stubborn man. The education of our children has always seemed to me the most important business of every citizen of this country. One of the glories of our free society is that public agencies are accountable to the American people.

So I went ahead anyway and spent a dozen or so years of such leisure time as I could find in a 70-hour work week looking into European school systems--English, Dutch, Swiss, Russian, in particular. I found that all of them made better provision than we for the education of their abler students. I was chiefly interested in comparing achievements here and abroad among young people who had the ability and the necessary drive to pursue studies above the elementary level, but it was at once evident that European school systems also do better by their average and below average students. Moreover, contrary to all I had been told, schooling abroad, to the highest levels was open to all, free of charge. In terms of time and money invested--the time of teachers and students, and the money of taxpayers, all were far more efficient than our school system--three years of schooling abroad comparing roughly to four here, as measured by actual time devoted to class instruction.

To take but one instance of greater efficiency, every European child learns to read and write, except the most severely retarded; an illiterate person is a Seven Day Wonder. Here, alas, he is not. Difficult as it was to come by hard facts, literacy

statistics being generally fudged, I knew full well that considerable illiteracy lingered on in this country. We hide the fact by arbitrarily declaring anyone literate who has completed five years of schooling. Thus the census shows a 2.4% illiteracy rate--far above that of Europe and Japan, and far below the true situation in this country. Recently, the Office of Education admitted that there were 24 million "functional" illiterates or about 12% of our population, but there is evidence that even this figure underestimates the situation. Moreover, to call the inability to read or write a simple sentence "functional" illiteracy may take the sting out of a word that by rights has no place in a civilized country.

I have yet to see so much as a single statement conceding that this illiteracy rate sets us off from other civilized countries, that it may have something to do with the way we go about educating our children, and that--just conceivably--we might consider investigating why it is that English, German, French, Swiss, Japanese children master the three "Rs" and much history, natural science, perhaps even a foreign language besides, during the 7 to 9 years of free compulsory elementary education--for generations the minimum schooling for everyone in those countries. Instead of investigating how they go about educating all their children to literacy and numeracy, we keep on spending more and more billions of tax dollars on costly experiments, research projects, gimmicks and the like. I gather that more than half the Federal educational subsidies go into things of this kind. The futility of most of these projects has been well documented in a careful study by Dr. Roger A. Freeman, recently a special White House Assistant and an influential force in the educational field. His study^{is} in the

Congressional Record of April 24, 1969. ^{ll} Freeman points out that all the vast data we have on education deals with input--capital cost of buildings, number of gymnasiums, number of children per class, number of children taking driver training, annual cost per child, etc. We alone have no reliable information on educational output --what the children learn.

In other countries, the introduction of universal, free, compulsory elementary schooling automatically wiped out illiteracy. Our educationists have blown up the simple business of learning to read into an extraordinarily difficult and complex task, and thrown much of the blame for their own failure on parents and society. European and Japanese--and Russian--children learn to read and write even when they come from the poorest segments of the population--and poverty abroad is a good deal grimmer and more widespread than here. They learn the three "R's" even though there are no books in their homes and their hardworking parents have no time to read them bed-time stories or help do their arithmetic homework! They are carried through the elementary schools without costly "compensatory" pre-school programs reaching ever farther back towards infancy.

It is nothing short of fantastic that currently the whole nation is being urged to join the campaign and help the schools win for every American child the "right to read" by 1980 or thereabouts--180 years after Iceland became wholly literate, 120 years after Germany and 60 years after Japan reached

that goal! Our schools, we are told, need the support of the media, the entertainment world, the sports world, the publishers, and business; there must be programs training students and mothers to serve as volunteer part-time teachers--I am quoting statements emanating from the highest HEW echelons. And this despite the fact that last year we invested more than 70 billion dollars in education. This works out to more than \$900 per child per annum. Since 1952--in but 19 years--the schools' revenues rose from under 6 to over 30 billion dollars, a rate twice as fast as school enrollment and prices combined. To give you a basis for comparison, during that same period defense expenditures barely kept up with rising prices. Or to put it differently, while the defense share of all governmental expenditures--federal, state, local--went up 57%, that for education went up 489%! In a report to the Joint Economic Committee of the Congress last October, Dr. Freeman brought out the astonishing fact that "with only 6% of the world's population, and between 1/4 and 1/3 of developed resources, the people of the United States are now investing in education almost as much--and possibly as much--as all of the other nations combined." I think he is justified in his conclusion that "nothing testifies more eloquently to the American faith in education than the priority which the people have granted it, in financial terms." So much for the current accusations by the schoolmen that illiteracy is a failure, not of the educational system but of society at large.

The slogan one hears so much nowadays is that the goal of the 1970's must be to win for every American child the "right to read", as if barricades had to be stormed to wrest this right from wicked enemies, to be handed-- like a trophy--to the anxiously waiting American child. This slogan, to my mind reveals the basic flaw in the thinking of American educationists which is chiefly responsible for the failure of our schools. It is a flaw that goes back to the take-over of the school system by Dewey and the progressives, for whom education was a species of "consumer good" to be shared out equally, rather than earned by individual effort. It was at this point that American education took the wrong turn and forgot what schools are really for. This is why I believe it useful to examine this question; this is why I have chosen it as the title of my speech.

Why do we and all other advanced nations maintain expensive educational establishments? Necessity, is the answer, sheer necessity. Formal schooling, from elementary to university education, is concomitant with civilization. So much so, that without it primitive people cannot catch up with the civilized world. With it any society, any individual, has the means for rapid advancement.

A civilized society needs an educated people. If it neglects its schools or distorts the purpose of public education for ends other than genuine schooling it will decline. The technological apparatus may remain intact in appearance, but inwardly there is a return to primitivism.

Of course, in some ways it is a strange idea that society, not the parent, should be responsible for getting children into school and for paying to have them educated. Since time immemorial the education of their offspring has been a parental responsibility. Begetting children imposed the duty not only to feed, clothe, house them, and take care of their health, but also to prepare them for life by training them for the tasks of adulthood. The compelling reason why the financial burden of schooling has been shifted from the parent to his fellow citizens is that social progress raises educational requirements, and most ~~families~~ families cannot meet these requirements by their own efforts. Let me elaborate:

In primitive societies children are educated by untrained adults--parents, relatives, & neighbors. In the language of American progressive education, they "learn by doing," by working alongside adults. Their classroom is the home, the workshop, the community. This casual ad hoc education suffices when to succeed in life one needs only modest competencies lying almost wholly in the sphere of physical prowess and manual skill; these a child can acquire by a sort of informal apprenticeship to the adults about him. But as society progresses, the competencies people need shift from the physical and manual to the intellectual. New occupations arise which require more intensive, more theoretical training than can be obtained through apprenticeship alone. Rarely are parents able to meet the higher educational requirements, since these call for systematic study under expert instruction, in other words formal schooling.

Let me illustrate this by showing what happens to education when there is a shift from oral to written communication. The transition may be the result of contact with a literate civilization, but normally it occurs because a society's intellectual wealth has grown to proportions that can only be contained and preserved in written records.

Whatever the cause, the impact of this cultural advance is far greater than that of the most spectacular modern technical innovations, for instance, the change-over from human and animal to jet propelled transportation. It is greater because a man used to the former can step into a jet plane without further ado, while the shift from oral to written communication means that he must transform himself if he is to avoid being harmed by social progress. Unless he promptly acquires a new intellectual skill--ability to read--he will in future be barred from his own heritage; a disadvantage no one suffered when society was at the stage where the wisdom of the past could be transmitted by word of mouth.

Parents, as a rule, cannot teach their children to read or do not have the time to do so. A serious deficiency in parental ability to educate thus appears the direct result of cultural advancement from oral to written communication. ~~With~~ With further progress, deficiencies multiply; intellectual skills increasingly become indispensable. These skills can be ~~ax~~ acquired only through formal schooling, schooling that is beyond the financial reach

of most parents. Thus, children now are set apart early in life: for a minority, parents can buy the gift of literacy; the majority must go without. The resultant inequality affects human beings more deeply, more adversely than inequality of wealth. No lack of material possessions equals the deprivation caused by having an impoverished mind. It freezes a person in place. The literate, the well-educated move forward, leaving him ever farther behind. The vicious circle closes: poverty bars the child from schooling; lack of schooling ~~xx~~ bars him from sharing in the intellectual riches of his society; ignorance perpetuates poverty, and so on.

Only universal free schooling can break the circle. Society rarely provides it out of pure generosity; some additional factor is needed to give the necessary impetus. The factor which first brought action was religious: Bible reading is so essential a part of Protestantism that universal literacy is indispensable in a Protestant country.

They have a saying in Europe that "the Reformation was the cradle of popular education." It is an historic fact that publicly financed school systems first made their appearance in Continental states whose princes followed Luther's urging to provide universal schooling. To do so, he argued, was their bounden duty as Protestant heads of state. Catholic princes soon followed the Protestants. If nothing else, the intense rivalry between Catholic and Protestant states would have made this imperative. The first public

school system appeared in 1559, the first compulsory attendance law in 1607. A large area of Europe was on its way to universal literacy when Prussia made elementary education compulsory in 1717.

At the end of the 18th century a new consideration reinforced interest in public education. With standing armies replacing mercenary troops and factory workers replacing handicraftsmen, the state stood to benefit by universal elementary education. Literate and, to use a British term, numerate soldiers and workers would enhance the state's power and prosperity, thus making the outlay for public education well worth the money.

The nation that has the schools rules the world, said Bismarck. In his time, Germany had the world's best system of public ~~education~~ education; free at the elementary level, inexpensive at higher levels. Thousands of American college graduates matriculated in German universities to obtain the graduate professional education then unavailable in America. Not until late in the 19th century did the range of American education extend beyond bachelor degree level. For that matter, we also lagged behind Germany and other Continental states in establishing universal free and compulsory elementary schooling. The Puritans brought with them the European parish school, but we did not begin in earnest to establish state systems of common schooling until mid-19th century. The last state law requiring attendance was passed in 1920, two centuries after Prussia's 1717 act. As late as 1929, ^{the} compulsory school attendance period was shorter here than abroad, one state being content with three years!

Popular legend notwithstanding, public education is neither a uniquely American nor a specifically democratic phenomenon. Like the schools themselves--all of them, from kindergarten to university, it was invented by Europe, not by the United States. And vexing as it is to have to admit this, not by parliamentary or democratic countries but by absolute monarchs.

True, in providing education at public expense we were moved by the noble aim of wanting every child to have access to the best education we could provide; for us it was the need of the child that propelled action, not some political consideration. That we did not act as promptly upon our idealistic motive as did the Continental autocrats on their practical ones does not detract from the worth of our motives; it only proves that good intentions do not guarantee good results.

To get back to the question of my discourse, "what are schools for", the answer, I submit, is to supplement parental education where the normal family's competence ends; that is, where the educational objectives cannot be obtained in any other way than by systematic study under expert instruction. Formal schooling, proceeding in logical sequence from elementary through secondary to university level, is to my mind the greatest of all inventions of that extraordinarily inventive civilization which had its cradle in the small, resources-poor Continent of Europe. From this center, a wealth of ideas, institutions and techniques has spread throughout the world; none as valuable

as the concept of formal schooling. For it is this marvelous instrumentality which gives every new generation a headstart by offering it the chance to benefit from the accumulated knowledge, wisdom, and skill of the past.

It can never be more than the offer of a chance, however. To realize the chance, each individual must grasp the opportunity and win through by his own mental efforts. The chance may be offered free of charge by socializing the cost of education--as is substantially the case in all advanced countries, though less so with us because of the high cost of college. But since children vary enormously, both in the ability and the desire to seize this chance, equality in ~~edix~~ education is an unattainable goal. Contrary to progressive dogma, education cannot be distributed share and share alike as if it were a "consumer good."

Progressive education was the first manifestation of the invasion of American life by the social sciences at the turn of the century. Before that, we had a school system somewhat less rigorous, less well developed, but otherwise not unlike that of Europe. Students could enter schools above the elementary level only upon giving proof of certain academic achievements. Even in my youth, high schools still taught basically the same subjects as the lower middle schools abroad, and colleges corresponded to the upper grades of the academic secondary schools ending with the European baccalaureat--won after 12 years instead of 16 years as with us. We have never liked to "overwork" our children. It was the advent of the progressive educationists that brought fundamental changes.

The social sciences concern themselves chiefly with group behavior, group needs and are therefore singularly susceptible to doctrinaire egalitarianism. They tend to treat children--in the name of equality and democracy--as an undifferentiated mass that must be kept together in class--whatever the cost may be to the children--not because this would best enable each child to advance as fast as his ability and efforts allow, but for purely political reasons. Kant's admirable dogma that no man should be made the instrument of another's purposes is daily violated throughout our schools--for "man" in the context of Kant's imperative surely includes children. Whenever we experiment with the schools, do we ask ourselves, is this "innovation" good for our children?

Being committed to a "sociological ethic" based on dogmatic egalitarianism, the 'progressives' were not content with the equality of opportunity that came with tuition-free high schools, land grant colleges and state universities. For once financial barriers had been abolished, it became evident that only a minority had the capacity or the determination to master the academic subjects which had hitherto made up the content of post-elementary education. That children should be barred from higher education and denied prestigious academic degrees merely because they could not meet traditional standards was unacceptable to the progressives. They were emotionally committed to the belief that every child had a "right" to the best education; or, perhaps more accurately, that no child had a right to an education than was better

than the education available to all. They were also convinced that education to be "democratic" must also be comprehensive, at the least through the first 12 years.

One suspects they well knew that children vary in their innate mental capacities, but their desire for "social justice" was so strong they were determined to arrange things in such a way that at least at school actual inequalities were neutralized; hidden, as it were, and their effect mitigated so as to build up the self-confidence of the child of low ability. Their compassion, oddly enough, was rarely extended to the talented child whose educational needs are grossly neglected when comprehensiveness is pushed beyond the elementary grades. They were therefore totally opposed to the European solution of the inequality problem, which was to provide separate secondary schools adjusted to different aptitudes and educational goals.

In recent years, the "sociological ethic" has permeated almost every American institution. It has led to court decisions forbidding separate tracks based on scholastic ability within comprehensive schools, on the grounds that they violate the equal rights guarantees of the Constitution. Whether the average or below average or above average child learns anything when forced into widely heterogeneous classes seems to interest them not at all. Compulsory "togetherness" takes precedence over the educational needs of our children. We are in danger of becoming a meanly envious society if we

cannot tolerate excellence. It is, always was, and always will be a rare human quality. Truly, we lose sight entirely of the purpose of formal schooling when we sacrifice academic content for the sake of enforced togetherness in mutual boredom, the inevitable result of comprehensiveness carried beyond the point when children no longer can study academic subjects together--around age 10 to 11; when we hand out paper degrees and replace sequential curricula with a smorgasbord of easy nonacademic subjects from which each child is invited to choose what it would like to study; when educational officialdom proclaims that there is no hierarchy among school subjects, homemaking being as valuable as history, driver training as valuable as mathematics, shop as valuable as foreign languages. Why should any child then choose a difficult and challenging subject?

The freedom given children to plan their own course of study is part of the progressive belief that schools must be child-centered--a fantastic concept when you think it ~~th~~ through. How can a child, born ignorant, know what it needs to learn? How can we leave him to his own devices and refuse him the loving guidance that trains and educates him for adulthood? By what tortured thinking have progressives come to believe that democracy in the classroom ought to turn the teacher from an instructor who imparts knowledge to the ignorant into a "resources" person who is merely a senior comrade in a group engaged in studying what the children have agreed would be fun to study?

How could an intelligent man like Dewey declare that the school must, "in the first place, itself be a community of life in all which that implies", and that "the measure of worth" of schools "is the extent to which they are animated by a social spirit"? A school cannot do its job if it is to be made a replica of the community with the children themselves exercising their "democratic" rights to determine how it is to be run and by whom.

Some of the ~~KREE~~ reports in the press of the new "free" or "experimental" schools raise the question why they could not be replaced by a community playground with a few mothers recruited to provide toys, gadgets, and noon meals. Other reports, depicting classrooms where each child operates his own "teaching machine," with the teacher at a center switchboard on call when crises arise, remind one of nothing so much as industrial assembly lines with each individual isolated with his particular gadget, and no learning going on through the interplay of words and ideas between students and teacher-- to me the very essence of good education. And all this costly nonsense just so that children might not separate when their educational paths take them naturally into different directions. Does anyone really believe that such comprehensive education will in adult life bind rich man, poor man, beggar man, thief, doctor, lawyer, and Indian chief into a warm togetherness of shared educational experience?

The kind of dogmatic egalitarianism that goes beyond securing equality before the law, equality vis-a-vis the Government and equality of opportunity, ultimately leads to a reversion to primitivism.

Rarely have the ideas dominating education been so wholly at odds with the needs of society than at this moment and in this country. Life in America depends on the smooth functioning of a complex science-based technology. The routine management of this technology is difficult enough. Far more difficult is the crucially important task of devising new ways to bring modern technology into harmony with nature. This demands long-range prognostication of the effects of new techniques both on Man himself and on the environment. Only intelligent people, with a broadly liberal education and special professional expertise are able to perform these functions, and only an intelligently planned and competently managed educational system will provide us with enough of them. To discover children with the qualities of mind, will, and character for these categories of competence, and to educate them to this end in the manner most suited to their special talents is, or ought to be, the primary responsibility of our costly public school system--the costliest in the world and the least productive in quality education in the world.

True professionals must have high intelligence, strong motivation, and be willing to undergo a very long period of general and special schooling. We

will discourage many if we continue to prolong their training period needlessly by keeping them cooped up for long years in comprehensive schools that waste roughly four of their best learning years. The intellectual and vocational requirements for semi-professionals and skilled technicians--of whom we currently have far too few--are somewhat less stringent but still well above what our comprehensive schools provide, so that they too must bear the cost of the egalitarian dogmas of the progressive educationists. And the paradox in all this is that we don't even succeed with the least able as well as do the Europeans.

Unless there are enough people having the competencies of professionals, semi-professionals and skilled technicians, the level of life, health, comfort and security will drop for everyone. There has never been a time when the great mass of society has been so dependent on the services of our ablest, most rigorously trained people; nor, conversely, a time when the highly intelligent could live so well without going through the time consuming and difficult learning process that turns them into scientists, engineers, doctors, etc. It is therefore suicidal for a modern nation to neglect the special schooling needed to develop the capacities of its abler children.

Progressive education with its egalitarian ideology, its ineffective methods and diffuse goals--now in force for half a century--has dismally failed to develop the capacities most needed at present levels of civilization and technology.

We must know how our children compare with children in countries at comparative stages of civilization. Yet every effort to make objective comparison tests is fought tooth and nail by the educational establishment. It is understandable that they do not want tests that might reflect adversely on our school system. But can we doubt the ultimate outcome if we continue to follow ineffective educational methods and goals--in particular the delusion that in a democracy all children must move through school together at the pace set by the dead average--while other countries bring out the varied capabilities of their children. Disaster may not come in this generation, but do we not care what happens to the next?