

EDUCATION AND NATIONAL SECURITY

23 November 1959

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COLONEL FLYNN: The Secretary of Health, Education, and Welfare was called to an emergency meeting of the President this morning, and he regrets that he cannot be with us. I might add that this meeting is not to discuss the cranberry crop.

However, we are indeed very fortunate to have an able and eminent member of the Secretary's staff with us this morning in his stead, one who has devoted his illustrious career to the field of education, both at home and abroad.

Since 1952 he has visited more than 50 countries. He is especially interested in the role of education in combatting hunger and illiteracy in the underdeveloped countries. In April of 1958 he visited schools and other educational institutions in the Soviet Union. He made preliminary arrangements for reciprocal visits of American and Russian educators, and he initiated an exchange of American and Russian educational materials.

It is a pleasure indeed to introduce to you Dr. Oliver J. Caldwell, the Assistant Commissioner for International Education and the Director of the Division of International Education of the Department of Health, Education, and Welfare. Dr. Caldwell.

DR. CALDWELL: General Mundy, Gentlemen: Last week there was a meeting in New York which was attended by representatives of the major groups which have recently been in the Soviet Union in an effort to discover just how education is being used as an instrument of national economic, social, and political policy by the Communist leadership in Moscow. This was a very interesting meeting, because, since my initial visit in April 1958, there have been several hundred educators representing almost every imaginable viewpoint and almost every imaginable aspect of education, who have visited Soviet schools and who have come back and who have made a variety of reports.

Sometimes these reports have not agreed with each other. Generally they have. This was an effort in New York, at the Carnegie Institute headquarters, to discover if there was any kind of consensus

concerning the reality of any menace to our way of life to be found in Soviet education.

I was, unfortunately, able to attend only one meeting, but we had not only consensus but apparent unanimity on a number of points. Therefore today, fortunately, I can report to you not merely on the basis of research within our own office but on the basis of the observations of a great many people.

We were **unanimous**, at least in the meeting which I attended, on the following **points**:

1. That the new man which Lenin and other Communist philosophers have described is in fact in the process of being created. Dr. Counts was of the opinion that the process had gone a great deal further than some of the rest of us were willing to admit.

2. That the instrumentality for the creation of the new man is Soviet education.

3. That the achievements of Soviet education to date do in fact represent an extremely grave danger to the free world.

Now I should like to comment on four points, if I may. First, exactly what is it which the Soviet Union is trying to do through its system of education? Second, precisely how are they going about it? Third, how is this different from Western concepts of education? Fourth, what, possibly, does this mean to us?

At this juncture I want sincerely to apologize. I am in no sense an expert on Soviet education. I have been pushed into a series of rather regrettable situations, from my own standpoint, because I am in a field where so few know so little about such an important subject. But in all sincerity, much research needs to be done before we can speak with any real assurance. Much of that research is now being done in the U.S. Office of Education. We have a large mass of original material not available anywhere else. We have a research staff working on it. We are beginning to come up with some answers.

On the first point: What are they actually trying to do? Here I'd like to go back to some discussions which I took part in at the Academy

of Science in Moscow, when I asked that question: What are you in fact trying to do? I knew that theoretically they are trying to create a new man and they believe that, by changing man's environment, they can create a new kind of socialist animal. I also was aware that Krupskaya, Lenin, and others, including educational philosophers in Tsarist days, had made pronouncements which are the basis of present Soviet educational activities.

The answer I got from Afanassenko, the Minister of Education, was this: "We believe the minds of our children are the greatest single resource of the socialist state. Secondly, the principal duty of the socialist state is to make it possible for each of these minds to make a maximum contribution to the welfare of the collective." That is the underlying basic principle of Soviet education.

I then tried to find out from them how they propose to go about achieving this objective. My remarks are based on our own American research and observations, and also on Soviet statements.

First, I must define some differences in opinion between the Western and the Communist worlds regarding the nature of the child's mind. We believe that children have varying intelligence, varying potentialities, that they vary all the way from almost a zero of mere consciousness to genius. We try to fit education to the child's apparent potential.

Soviet philosophers believe that there are only two kinds of children, those who are normal and those who are not normal. They believe that any effort to differentiate between the abilities of children is a fraud. They believe that our intelligence tests are a fraud. They say that through intelligence and aptitude tests we are attempting to establish a philosophical justification for a class system.

This means in practice that they believe that every normal child is entitled to precisely the same kind of initial learning, up to a cut-off point, and from that point on the child then differentiates to serve the state. Those children who are clearly incapable of carrying this universal educational load are defectives, and they have to go into special institutions for the defective.

I suppose most of you are acquainted with what the normal Soviet child learns. They all learn exactly the same thing, in elementary and secondary school, because their theory is that all of them are absolutely

equal, all of them have exactly equal capacities to learn everything from physics to music, that there is no difference whatsoever. I will outline for you basically what it is that they require the normal child to learn as a foundation before differentiation, which normally takes place after the 10th or 11th year.

The standard Soviet 10-year school, now in process of becoming an 11-year school, requires every child to study mathematics 10 years, through trigonometry, to study physics over a period of 6 years, chemistry for 5 years, biology and related sciences 4 years, and a year of astronomy. They also have 10 years of the Russian language and literature and 6 years of a foreign language for every child.

This system graduated in June, 1959, approximately 1.6 million boys and girls, all of whom had completed that curriculum. We graduated from our secondary schools 1.66 million. We are 60,000 ahead of them. On the other hand, with a larger population it would appear that it is only a matter of time until the Soviet production of secondary graduates surpasses ours.

I hope you will realize I am speaking purely from memory, and forgive minor discrepancies in my statistics.

Of this group of approximately equal numbers from their schools and from our schools, every one of their graduates, I repeat, had six years of a foreign language. According to Soviet publications, approximately 45 percent had chosen English as their second language. An undetermined number had, in fact, had 10 years of English, because certain experimental schools start foreign language instruction in the first year.

On the other hand, of our secondary graduates about one child out of seven had two years of a foreign language.

I hasten to add that they, themselves, are not overly pleased with the quality of their language teaching, and some of us feel their teaching of foreign languages leaves much to be desired. The quality of Soviet language training varies greatly, but for that matter, so does our own.

The other principal languages being taught are German, French, and some Spanish. I am speaking now, of course, of the elementary and secondary schools. They also teach a limited number of children

Hindi, Chinese, and Arabic. In Tashkent I visited a school where they were teaching Hindi, and I thought they were doing a fine job.

Why do they do this? This goes back to the basic concept that the mind of the child is to be developed for the use of the Soviet state. They have a determination that they shall have enough children trained to communicate with the rest of the world so that, no matter what emergency may arise, they will have enough experts fluent in the language of the country which they invade to be able to carry out necessary duties. They do not expect to work through interpreters. They seem to believe that working through an interpreter is contrary to security considerations and also contrary to commonsense.

I discussed this at some length with them. They told me, by the way--this was two years ago--that they felt that they had grossly neglected Latin America, that they intended to work in Latin America to an extent which they hadn't done in the past. Their first step toward a new political emphasis is to start the preparation of the people to carry out their wishes and implement their policies in a new area.

At the moment, of course, they are considerably handicapped, because, for example, when they sent recently a team of scientists to Calcutta, they had no scientists who could speak Hindi. Amusingly enough, those particular scientists got into trouble very quickly with Dr. Sen Gupta, who is the head of the technical school there. It is Communist educational theory that only people who are fluent in the language of an area should be sent there to represent the U.S.S.R. However, they appear at this time to lack specialists who also have the necessary language competence. I will comment no further on the contrast here between United States and Soviet policies in this field.

I believe we must do something about it. But in my estimation, one of the worst mistakes we could possibly make would be to try to out-Soviet the Soviets. We cannot imitate them in defending ourselves against them in this particular field.

I am deliberately telescoping my second and third points--what are they doing and what is the basic significance to us?--because I want to cut this as short as possible to save time for questions. I would like to report that we have recently released a study which was made in cooperation with Columbia University, in which we attempted to discover what, in fact, is the quantitative difference in the amount of knowledge acquired by the Soviet student of physics and the American student of

physics. This study was done by Dr. Corson, who, himself, is fluent in Russian, and who is a highly qualified physicist, with the cooperation of the physics people at Columbia. It was based on original materials, which we now have in our office. The conclusion was that they are two years ahead of our boys at every step of the way; when a student at the University of Moscow graduates in physics, he has the equivalent of a Ph. D. in physics from Columbia University, less the actual writing of a dissertation. Every one of their people has had a good start in physics, whereas approximately one out of seven, again, of our secondary graduates has had a year of physics. That year of physics, by the way, appears to be considerably more intensive than any single year in a Soviet school, because, in order to get everybody through, they have to push them like everything. Dullards apparently learn physics by going slowly, and by reviewing intensively each year what has been learned in the previous year. In the process, they do produce boys and girls who have what some of us believe is a startling general proficiency in this field, a proficiency which may have a profound effect on our national security.

Going back to the Academy of Science, I had there some extremely interesting and frank talks. I asked them what they really thought they were doing by concentrating so much on physics. I said, "Why, for example, do you teach physics for six years and chemistry over a period of five years and biology over a period of four years? Some people might argue that you should give more emphasis to biology, for example." Their answer was quite explicit: "Physics is the discipline of space. Physics is the art of space. The cosmos is the most important frontier which man now faces. Therefore we emphasize physics at the expense of everything else except mathematics, because, without mathematics, the physics becomes meaningless." I then asked this question: "Do you think it would be possible--when you speak of coexistence, for our two peoples to go forth together into space without rivalry and without carrying into space the seeds of hatred and of war?" There was quite a consultation about this, and I wrote the answer down as soon as I got back to my hotel. It was: "No. You are not going into space. We are going alone." I recall this statement with a great deal of interest, in view of subsequent developments.

Now, some have said that we should imitate Western European education and educate only the elite in the face of what the Soviet Union is doing. I am sure you all have seen statements to the effect that Western European education and Soviet education are the same thing. The fact is that between 6 and 20 percent of Western European children

go on into the academic secondary pattern, out of which comes leadership. We in this country are sending roughly 80 percent of our children above 15 years of age to school.

What, in fact, is happening in the U.S.S.R.? Here it is extremely difficult to make any really effective comparison, for this reason: They have a substantially wider variety of higher educational institutions than we have. They have the university, which gives a five-year undergraduate course instead of our four years. They have the institute, which is like our college. They have also the technicum, which is sometimes like a junior college, with a course of study extending from the 2 to the 3 years beyond the secondary level.

It is a very complicated situation, but at the moment nearly 2 percent of their population is in the higher education of the university-institute-upper technician level. In Western Europe two-tenths of 1 percent is in higher education--two-tenths of 1 percent against nearly 2 percent. The proportion of Soviet youth engaged in some kind of education beyond the secondary level appears to range between 5 and 10 times as large as the proportion of youth similarly engaged in England or France.

That much for allegation that the U.S.S.R. has adopted Western education. What they apparently have done is to try to apply Western European educational standards for the elite on a universal basis.

I would like to sum up how they are trying to achieve their objectives by saying that they have apparently developed an educational system which seeks to be both universal and functional. We have heard, I am afraid, a little too much concerning their achievements in science and mathematics and foreign languages. We tend to forget that their achievements are equally great in the humanities and in the arts insofar as they are not restricted by political considerations, and are deemed to enrich national life.

The child does not normally go to only one educational institution. He will go to school, and after school to a pioneer center, where he gets his electives. There are, to be sure, no elective courses in the lower level of the elementary and secondary schools. In one pioneer center I visited, there were 12,000 students studying 200 electives. One group of students were studying how to build bridges. They spent eight hours a week studying how to build bridges, and they had built a bridge. I am not enough of an engineer to tell you what kind of bridge

it was, but it was big enough for a man to walk across. It was 20 feet high and perhaps 50 feet long. It was built of large aluminum members, something like the toys which we have in this country, only maybe multiplied by 10 times. That was their elective.

On the other hand, 100 yards away was a ballet school, and near that was a school of music in which they were achieving a high degree of competence in a variety of musical instruments. One hundred yards in another direction was a full-fledged planetarium, operated by a professor of astronomy. Here a large number of children were studying astronomy. In still another direction was a beautiful geological collection, again under the direction of a competent man. I talked to two 15-year-old girls who had spent their vacation during the previous summer in an expedition on the edge of the White Sea, exploring that area for geological resources.

Now to sum it up, Soviet educational authorities are trying to be universal and also functional. And thirdly, their system of education is oriented directly at achieving the goals of Communist policy. That means that Soviet education changes, because it is subject to reorientation whenever the party policy itself may change.

It is very curious at the Academy of Science to watch the interplay of emotion between the pure professional and a man like, say, Veikshan, who, as a party functionary, is the director of one of the divisions of the Academy of Pedagogical Sciences. I had two long meetings in which Veikshan was chairman, and every time we reached an area which was a little offside, as far as the party was concerned, he would say, "Now, let us keep to the point," and then a smile would spread around, and some of these real pros would look at me and grin, as if to say, "You understand how it is. Please forgive us. We can't do anything about this."

Soviet communism seeks through education to create a new man so effective and so efficient as to snow us under. The same system is now being applied in Soviet China, with variations. We have achieved a limited breakthrough, as to what is going on in Communist China.

The statistics which I am about to quote are from Simpson, a British Professor at the University of Hong Kong. These are the best statistics we have. In 1949 there were 25 million people in school in Nationalist China out of a population in the neighborhood of 500 million. Last year there were 193 million in school; they climbed in 10 years

from 25 million to 193 million in all the various kinds of schools in Mainland China.

I would like to go back and recapitulate. In this country we have something under 50 million boys and girls and men and women in the educative process. In the Soviet Union they have almost identically the same number, all told, at the moment. More recent figures published by the "New York Times" indicate that in the 11th year of Communist control of Mainland China, about 220 million men, women, and children are being educated. That means that we have in Soviet China and the Soviet Union 270 million people being educated, as compared to 50 million in the United States. This means that your children and mine will be outnumbered better than 5-to-1 by people well-trained to build and operate rockets, and well-trained in all of the skills which are essential to the success of communism. They will be outnumbered more than 5-to-1 by the school production of the Soviet Union and Soviet China alone, excluding the satellites.

As to what we can do about it, frankly, I don't know. I have a very strong idea, but it is so revolutionary that I hesitate to say it even to such an audience as this. I think, frankly, that we are going to have to have a revolution in our concept of the function of education in our society. I think, we are going to have to recognize that education is not a luxury which people who are industrially developed can afford, but is, in fact, the foundation of industrial development and all that goes with it. My immediate superior, the Commissioner of Education, says that the most significant thing in this situation to him is that, of our gross national product, we are spending not more than 5 percent on education at every level. That includes, of course, the very important contributions being made by various industrial firms. At the same time, the corresponding figure in the U.S.S.R. is said to be 13 percent. What the percentage is in Communist China we do not know at this juncture. I am sure you are familiar with the recent Peking Decree, which seems so grandiose, but may not be so grandiose when you consider their apparent educational achievement at this point. The recent decree was that there shall be no illiteracy in five years. (It would be very simple for them to enforce that by killing off those who are illiterate.) And there shall be universal secondary education in 10 years, and universal higher education in 15 years.

To be sure, their concept of what constitutes higher education is not the kind of education you get at Harvard. It is completely functional. It relates to the solution of immediate priority needs. But, on the other

hand, it is a kind of education which can create an enormously powerful society.

What this means to us, is that we've got to change our concept of the function of education in our society. We've got to recognize, to begin with, that it is, in fact, the foundation of power. We've got to recognize the negative side of it, which is that we are very seriously threatened by any inflexibility in maintaining our present attitude toward education and our present educational structure.

We must, secondly, be prepared to make an immensely increased contribution to education out of our gross national product. Conant, in an article in this morning's paper, says that it must rise at least \$8 billion a year. His \$8 billion a year is an absolute minimum, because this would enable us to compete effectively in three basic fields: science, mathematics, and foreign languages. I repeat, we cannot win by playing their game. In my estimation we've got to concentrate on quality across the board.

The survival of the American, at least the survival of the American in the posture which he now has in the modern world, will require that he has both knowledge and wisdom. We've got to concentrate on educating every child, in whatever direction his skills may take him, to the ultimate capacity of his abilities. We must have quality. Otherwise America may be snowed under by the new Soviet man created by Communist education.

Thank you very much, gentlemen.

QUESTION: We heard you mention this morning the standards of education in the University of Moscow. I have heard many stories of Western European standards. What are we doing here to elevate the standards?

DR. CALDWELL: Not much.

STUDENT: I might ask, why?

DR. CALDWELL: Because we won't spend the money necessary. That, frankly, is the most honest answer I can give you. We talk, but we do very little, and we are stymied by apparent unwillingness to spend the necessary money. Conant this morning said it is going to cost at least \$8 billion a year more than we are now spending, and that would

limit the necessary improvement to only certain narrow fields. We are spending now roughly \$16 billion a year on education of every type in this country, but we are spending roughly \$28 billion a year on automobiles.

Now, if we are going to meet the challenge--and I am quoting Conant only--it will mean immediately a 50 percent increase in our support of education at every level. We are not even getting close to it. As a matter of fact, we are not even keeping pace with the growth of the population. We seem in many areas to fall farther behind rather than to gain any ground.

QUESTION: Doctor, last night I heard Dr. Conant on TV and he was fostering Federal control of education and a Secretary of Education, another Cabinet position for education alone. Will you comment on this, please?

DR. CALDWELL: Colonel, I am very sorry I can't. One does learn, after many hard knocks, a small degree of discretion.

QUESTION: You compared us with a total of the Soviet and the Chinese population in elementary, secondary, and higher education, at the rate of about 50 million to 270 million. You did not take into consideration our allies in stacking up this figure. Could you give us some relationships there?

DR. CALDWELL: I deliberately did not because under present circumstances our allies are negligible in this field. While there is a ferment going on, particularly in Great Britain and France, and there is a tendency toward change, the basic fact is that they are not even beginning to accept the idea that the human mind is the most precious resource of the modern state and that all human minds must be developed. They are making few steps in that direction. The nearest thing to a step in that direction is the establishment of new general high schools in the British Isles.

I deliberately left them out because, unless there is an educational revolution in those countries, much greater than any needed in this country, they will be increasingly negligible factors.

QUESTION: Each of us goes through our own experience. I have a son a senior at high school out here at B-CC, and I have not been particularly pleased with what is offered or with the attitude of the students.

This is a fairly high-caliber area. I think the students come from families such as mine or people in the NIH, a relatively high-income group. But, except for a few, oh, if you want to call them, eggheads, the kids don't particularly want to learn. They are perfectly happy with what they are doing now. In fact, they don't even try hard with what is offered them. I wonder--isn't this a really basic problem in our educational setup? If you get the \$8 billion to put into it, can you change the attitude, the social attitude, now, toward really pushing and learning?

DR. CALDWELL: I agree entirely. I have a child in George Mason High School in Falls Church and I have exactly the same reaction that you do. I will add this: I think there comes a time in most people's lives, or in many people's lives, if they have real intelligence, when they suddenly become inspired and suddenly develop a sense of dedication, and they suddenly blossom out.

Forgive me for again being personal, simply because it illustrates a point. My younger daughter went through that experience last summer and she is working so hard now it scares me. She's like a different person as compared to just a year ago.

I think that kind of thing does happen to Americans. I think it happened in the lives of probably most of the gentlemen here. Unfortunately, in our system of laissez-faire, and lack of stimulus, sometimes it doesn't happen. I think it frequently doesn't happen because of the basic inadequacy of teaching, which as a profession is just about the lowest paid in the whole United States. The fact is that construction people out in our developments here, in many cases are making more money than teachers in our schools. The profession of education has been so downgraded that some of the best people get out of it.

Again I can give you a practical example. There was a teacher of physics in our high school, an absolutely first-rate teacher, who was inspiring the children to do a terrific job. This was about three years ago. He was getting \$5,000 a year. Melpar offered him \$15,000. He had a family. He went to Melpar; he is irreplaceable.

In order to maintain our position we must reverence teaching to such an extent that a goodly proportion of our best brains will go into it. To me that is the first step, an absolute must. It is even more important than equipment.

QUESTION: Doctor, assuming the American public does wake up to this problem and we are able to instill in our children the necessary drive to participate and take advantage of the educational system offered, and looking at the facility cost, the cost of doing this job in the future, and the problem of really good teachers in numbers, is there anything being done in modernizing techniques of teaching, like making one teacher cover a greater number of students through the use of television, or, say, school buildings that are in existence to provide better utility and thereby not increase the cost, or by multiple-shift operation, and this type of thing? Is there anything being done along those lines?

DR. CALDWELL: Yes, a lot is being done, but I, frankly, think it is mostly a dead end. I can quote some more statistics. According to Soviet national figures, they have a teacher ratio of 17-to-1. According to our figures, we have 29-to-1. I think it would be a very dangerous expedient to try to rely on the kind of outs that you suggest. Basically nothing, really, can replace the relationship of the first-class teaching mind with the student. I do think that that relationship can be enormously intensified. I believe personally, in TV, for example, in teaching, and in an improvement in techniques.

But the point I am trying to make is that we are already so far behind in the pupil-teacher ratio that I think that we would be falling into a trap if we allowed anything to happen which would increase that ratio. I am morally convinced that the Soviet achievement is based on a much more favorable ratio, which means a much better relationship, a much closer relationship, between the teacher and the pupil. I saw many examples of it personally.

I recall two girls who obviously weren't very bright physics students, and they stayed after hours with the teacher, who was just working, working, working on these two people in order to bring them up to snuff. That kind of thing is possible only if you have a highly favorable ratio between pupils and teachers.

QUESTION: I have two questions. The first one concerns this universality of education in the Soviet Union. Surely I don't think you meant to imply that the standards of education in, let's say, Moscow are equivalent to those of some burg on the Irkutsk River. Would you care to comment on this? Second: What is the effect of the elimination of tuitions now in all the universities and institutes, and so forth? Is this going to improve the quality of students by bringing out the best and getting these to go to school?

DR. CALDWELL: Thank you for bringing out that point. The fact is education is not yet fully universal. It is an objective, and they are going very rapidly toward that goal. I want to make that very clear, I am not foolish enough to state that they have achieved it, but they are going very rapidly in that direction. Secondly, when it comes to standards, of course there are variations. On the other hand, I attended classes in a run-down, dirt school on a collective farm near Tashkent, myself. This was selected very much at random. I was interested in seeing the very close parallel of what was done there and done in Moscow. One way they are able to achieve some parity of standards is by a 25 percent salary bonus. Any teacher who will go out onto the farm will get 25 percent salary bonus. He also gets certain other fringe benefits. He does, in other words, very well. Even so, a lot of them don't want to do it.

Fourteen people representing the Office of Education, who have made surveys in the Soviet Union in the last 18 months, have traveled among them nearly 100,000 miles in the Union, and have been in several hundred schools in almost every imaginable area. They didn't get to Irkutsk. I hoped some of them would get out in the Far Eastern Republic, but it was not in their itineraries.

That does not mean that we feel that we know it all, by any means, but we feel that we have more than a fair cross section of information. We feel that there are built into the system certain techniques which are at least designed to maintain an even quality. One of the techniques for example, is in areas of remote population--for example, north of the Arctic Circle--to extend the internats, the boarding schools, where it is impractical to have children brought together for higher-standard training in local day schools. They are building an increasing number of boarding schools for them. We have visited a number of boarding schools in 12 different areas.

They are keenly aware of this problem. They are trying to solve it. They have not, yet. They don't believe themselves, that they have solved it.

Now, on tuition, this is a curious thing. I don't believe that there is free tuition in the U.S.S.R. I think it has been played up far too much. We have good reason to know that tuition is charged in the boarding schools up to 200 rubles a month for those who can pay. It doesn't matter whether they are the brightest kids in the village or not. If the family can pay it, they pay up to 200 rubles a month.

There are other areas also in which they do charge tuition. Where, apparently, they don't charge tuition, is in the higher education. Through the kindergarten right on up through the eleventh year, where they have an 11-year school, there may be tuition under certain circumstances. But when you come to higher education there apparently is no tuition at all, and that does make it possible for their brightest kids to go to school.

Perhaps you have in mind the often-quoted fact that out of last year's graduating class in this country 200,000 children with an I. Q. of 125 or better are not in college, mainly because they can't afford it. That does not normally happen in the U. S. S. R.

Also, according to the Bureau of the Census, a child who graduates from college will contribute \$163,000 more during his working lifetime to our economy than a child who does not graduate from college, a child who graduates only from high school. Therefore, using only census statistics, our next generation will lose more than \$30 billion because of our unwillingness to pay to educate the 200,000 out of last year's class alone. When you multiply that by 10 years, you come up with a frightening figure.

QUESTION: Doctor, going back to finances and our own educational system a minute, you brought out the fact that they want more money to educate our children. I think everyone wants more money for every program that ever was in existence. I wonder if that is our problem, or are we trying to set up an educational system on a luxury basis? For example, all the new schools, I believe, have electric pencil sharpeners. They built one out here recently with two floors and an escalator. I wonder if that is necessary for the present program.

DR. CALDWELL: No, I don't think it is necessary, but I'll tell you very frankly, if I may indulge in an indiscreet, frank, personal opinion, I think our real problem is that the American people are just plain chinchy in this business. You have electric pencil sharpeners and escalators in any factory you go into that needs them. Why do you shortchange your children? There isn't a new factory that I have visited recently that doesn't have air conditioning. Air conditioning is illegal in the schools out here. There has been, I think, far too much talk about frills and luxury, whereas the very people who criticize what they call frills and luxuries in educational establishments just couldn't live without them in their own industrial establishments.

Forgive me. That is, I know, an indiscreet statement.

QUESTION: Mentioning Dr. Conant and Federal aid to education brings to mind his illustrious successor, Dr. Pusey. Last Monday morning when he got together with the president of Yale, they essentially said that Harvard and Yale would not participate in this aid to the student program because of the certificate that was required to be signed on the part of the students. My point is, essentially, that it seems to me that sometimes we put barriers in the way, that may or may not be necessary. Although this seemed to be a reasonable requirement, it seems to me that maybe the universities haven't caught the fervor that you reflected this morning in terms of expanding the program. I wonder if you would care to comment on this, as one who was probably in on the requirement.

DR. CALDWELL: Well, again, being quite indiscreet, I think the requirement was somewhat of an insult to our students, but I think personally that a mole hill is being made into a sizable mountain. I would comment particularly on your statement that the universities do not seem to have acquired much fervor in their thinking. I think you are absolutely right. The real difficulty is the intrenchment of learning. For example, electronics has now become vitally important in national security, yet it is difficult to get a new subject like this into certain types of curricula. Why? Because there are intrenched interests there who fear that they would lose in prestige and students if things were taught differently or if new subjects were brought in.

In think one of the barriers to educating our people for survival is in the college classroom, because very, very drastic changes are going to have to be made in what is taught and how it is taught. The resistance is almost unbelievable. As a matter of fact, the president of my own college resigned because of this resistance. I don't know how to handle it. Perhaps we need an act of God of some kind to bring about a new light and new vision to the American educator. He certainly needs it, as do other Americans.

QUESTION: In comparing primary and secondary education in the U.S.S.R. and the U.S., in addition to the comparison of the number of graduates, I wonder if the standards are not very appropriate? I understand that in Russia there is essentially a national control of standards, whereas in this country we have maybe 37,000 standards, based on the 37,000 school boards. I wonder if you might comment on the desirability of national guide standards in this country.

DR. CALDWELL: Well, yes. Please understand I am not speaking for my Secretary. It does seem to me that there is going to have to be some equality of standards. We have a situation now in which we have 10 million adult functional illiterates in the United States--10 million functional illiterates. They are illiterate mainly because of varying standards and varying attitudes toward education. If any one of those people, regardless of his race, color, or creed, possesses within himself an outstanding potential in the field of physics, then his loss to our Nation is irreparable. Now, it seems quite reasonable to suppose that among those 10 million people there is a wide variety of talents which we simply cannot do without. Frankly, I do not see how we can survive until there is some kind of intellectual minimum which all schools must equal.

QUESTION: Sir, would you comment on the time that the Soviets spend in education? By this I mean hours per day and months per year.

DR. CALDWELL: Yes. The Soviet 10-year system covers exactly or almost exactly the same number of days in school in 10 years as our children do in 12 years, because the Soviet child, for elementary and secondary education, goes to school six days a week. However, his training during those six days a week is generally more intensive than is our training. He starts as a first-grader with four classes a day. He has a little black book and in that book must be written a grade every day in every subject. Furthermore, he must do at least 45 minutes of homework, and one of his parents must initial that book before he goes to school the next morning to certify that he did in fact put in a minimum of 45 minutes of homework.

To go on to high school, let's take for example the equivalent of a senior in a Soviet secondary school. That student at the age of 17 has six classes a day six days a week. That's 36 classes a week. He is required to do a minimum of three hours of homework every day. That gives him a nine-hour day, in effect. Although the periods are 45 or 50-minute periods, still it is basically a nine-hour day.

In addition to that, if he is a good little Komsomol or Pioneer, he is supposed to put in an additional two hours a day four days a week in the pioneer center on his electives. That gives him a 9-hour day for two days a week and an 11-hour day for four days a week.

In addition to that, he is supposed to get in at least an hour in sports.

Caldwell, I would like to go back for a moment to the electronics side of the house for just a moment, if you will, on the TV bill through. This bill has never yet been acted upon by the support of HEW. Each time he has asked they have and said they are getting along fine in this regard.

The second point is that in the training-aid department my figures indicate that the services alone use more of all forms of training aids than does the entire educational system of the United States.

Will you comment on that, sir?

DR. CALDWELL: On the first one I have only this comment to make. I do not make policies in my department. On the second one I would comment that I am a retired Reserve officer, and I have some personal acquaintance with training aids. Many of them are now being used. As a matter of fact, the National Defense Education Act is fostering the use of training aids particularly in the area of languages. A great many are being used. I would not attempt to whitewash the ignorance of some people, but I might add that they are not limited to the classroom.

QUESTION: I have two questions, doctor. First: Does the Federal Government have the authority under the present Constitution to dictate the curriculum to the States? The second question is: Since HEW recognizes the situation with regard to our education, can we expect that they will submit a budget and proposed legislation to do something about this to the Congress?

DR. CALDWELL: The answer, of course, is no to both questions. But I would like to point out that one of the least understood and the most befogged areas of our Government is the relation of the Federal Government to education. I think there has been more sheer balderdash written in education than about any other field. I would suggest that you read the First Land Act. You will discover there that one square mile out of every 36 of Federal land was set aside for education. If you follow on through you will find that the Federal Government has been intimately connected with education, at least since, I think, 1789. I don't understand why there is this fervent assumption that it is impure for the Federal Government to take any responsibility for the intelligence of its people but it is perfectly all right to provide Federal money to build highways.

The fact is the Federal Government does invest each year now in the neighborhood of between \$2 and \$3 billion in education, which is administered, I believe, by a variety of Federal agencies, with little or no coordination.

QUESTION: The figures you give for the student load of the Soviet Union are rather staggering, doctor. We also hear that their morale is very high and that there is a great desire for education. How do they do it? What form of indoctrination do they use on their people so that they are ready to eat that stuff up? Can we adopt some similar methods ourselves?

DR. CALDWELL: This is something which has disturbed me for a long while, Colonel, and I have a feeling that we perhaps don't believe sufficiently, ourselves. That is the adult, our generation. Perhaps our own faith is not sufficiently intense. Because we ourselves are lacking in faith, perhaps our children in turn don't have anything really to believe in. When they don't have anything to believe in, they in turn have no motivation. I am afraid basically that that situation has happened. If we were, for example, to launch nationally, some exciting program, at the highest levels, if we were to announce nationally that we were in a space race, that the winning of the space race depended on the participation of everybody, and that here were the processes which we would have to go through, the steps which we would follow, I think you would suddenly find terrific motivation among the kids. But, if they don't believe today, it is because their parents don't believe.

Secondly, I believe that good, hard work does in turn beget its own motivation. I think if our children are given enough to do, and if it is exciting enough, that it does beget a degree of motivation. But I think we've got to rededicate ourselves to what we believe, and we have to impart our rededication to our children before there will be any marked change.

STUDENT: Do you think there is place in the classroom, doctor, for the indoctrination type of periods which apparently the Russians have used right from the beginning?

DR. CALDWELL: I don't think it is a matter of indoctrination. I think it can be done purely on the basis of fact. I think that the history of the American people is a very exciting and creative story. I think there is enough in the story of the American people to excite any imagination. I believe that it can be done without indoctrination to the extent

that it can be based purely on fact and not on the basis of trying to instill any false set of standards. I think the indoctrination which the Soviet child, for example, goes through when he joins the pioneers is that he comes into a little shrine in which there is a picture of Lenin with roses in front of it, and he makes an oath to support with his life and all of his labors the revolution. That is indoctrination because it is instilling a false set of standards.

I repeat, I do not think we can win this struggle by trying to out-Russian the Russians. I think there is within our own framework, our own background, enough American mystery and beauty and exaltation to serve the purpose. Somehow or other we seem to have lost touch with our own past.

COLONEL FLYNN: Gentlemen, I talked to Dr. Caldwell for the first time yesterday afternoon at three o'clock and he had not yet seen the lecture scope. I want to thank you, Dr. Caldwell, for coming over here on such short notice and for covering this subject so ably. Your presentation has been one of the finest we have had on this platform during the academic year. Thank you very much, sir.

DR. CALDWELL: Thank you.

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