

auto *REIMER, Everett*
Feb 66-05 Our Schools Create Their Drop-outs *Draft Bill*
End part of conference

We have been talking about drop-outs as if there were something wrong with the children who leave school prematurely, or with their families. It is not that we blame them, necessarily. The family may be poor or the parents uneducated and this, in turn, may be the result of race, foreign birth, rural residence or other factors for which no one can be held responsible. Nevertheless, the attention remains upon the drop-out or his family. Whatever the deficiency or the reason for it the implicit assumption is that if, and only if, this deficiency is corrected will the drop-out problem be solved. The truth is more nearly the opposite. The school system creates the drop-outs and until the system is changed there will continue to be an excessive number of drop-outs, even if all the other programs to correct poverty and illness and racial discrimination succeed.

Perhaps the case can best be made by citing a school system which has less drop-outs than almost any other. The schools of Newton, Massachusetts have long been recognized as among the best we have. But Newton has a problem as a direct result of the excellence of its schools. Average students, the bulk of the Newton student body, who would easily do well in most school systems, elsewhere, are put under severe strain by the standards of the Newton system. The level of anxiety and frustration created in them is of serious concern to Newton's school administrators and parents. Not many students drop out, to be sure, before finishing high school. Community expectations are too high and parental pressures too strong for that. Drop-outs among Newton students occur mainly at the college level, as would be expected from the social and economic level of their homes.

But the Newton system illustrates that our school system is competitive, that its standards are relative, and that it deals out roughly equivalent shares of success and failure to students. If success can be equated with reward and failure with punishment, and if it is true that people persist in rewarded activities and shun those which

are punished, then we need no other explanation why some children stay in school and others drop out. By and large, those who stay are, of course, those who succeed and those who drop out are the failures. Nor should this surprize anyone, for the system was designed to work that way. European school systems are still quite blatant about this fact and our systems although considerably modified are, nevertheless, direct descendents.

When universal elementary education was in its infancy, only several generations ago, few people had any idea of extending it to secondary and college levels and only a few nations take such objectives seriously even now. It was taken for granted, when our present system was designed, that most rural children would go to school for only a few years, most worker's children for only a few more, and that only the exceptional child of farm or working class parents would go on to higher levels of schooling. Most countries very democratically provided that this should be possible, but the burden was on the child. If he could prove himself a success in a system designed to eliminate most of his peers he could go on. We have vastly liberalized our objectives and our expectations since then but we have not basically changed the system.

To the extent that we have changed it, the change has not been in the way rewards and punishments are meted out but in a relaxation of standards. We now keep more children longer in school than we used to by expecting less of them. This is not, of course, the whole story. We have increased the rewards and reduced the punishments of going to school for all children; by providing better teachers, buildings, transportation and other student services, and by providing a much greater variety of school activities. But we do not require of all students, as we used to, that they master certain disciplines in order to remain and progress in school. Thus a fairer statement is, that we keep more children in school now, for a longer time, by investing more in them, by requiring less of some of them, and by increasing the range of standards used to measure

their success or failure.

Nevertheless, academic success or failure retains a basic primacy in the school system, best illustrated perhaps by the fact that vocational courses, athletics, social fraternities and student politics do not extend significantly into graduate schools. It is the good student, in terms of the traditional standard, who finds it progressively easier to continue in the educational system; while the going gets tougher, as they advance, for those who meet only the newer, collateral standards of vocational, athletic, social or political skills. The central importance of the traditional standard lies in the apparently increasing relationship of higher degrees to better jobs and higher life-time earnings. The present competition to get into the better colleges makes it unnecessary to elaborate the point. Few parents or students are unaware of what it means to be above or below average in key subjects, regardless of how the details of grading systems and curricula are organized.

Since it is not the internal organization of the school system which gives significance to its rewards and punishments but the relationships of the school system to the larger society, it could be argued that the society must change before the school system can be effectively reorganized. Revolutionists would argue thus. Evolutionists can argue that the way to change the total society is to start with its constituent institutions. Even if this position is adopted, however, it remains necessary to look at the total system before considering how to reorganize the schools.

There would be no drop-out problem, obviously, if the world were not changing. It is because an increasing proportion of social roles require more years of education, that we speak of an excessive number of drop-outs. Universal education, at any level, implies universal participation in some set of social roles. There can be no doubt that the changes taking place in the world, today, tend to increase the number of roles which are common to all members of a

society and that even roles which are different tend to have more common elements than they used to have. Almost all workers in modern industry have to be literate. All parents, rural and urban, have to instruct their children in the facts of modern life. All voters have to understand a variety of issues. An increasing participation in all types of consumption, which was first made possible by our industrial society, has now become an apparent necessity for its economic health.

It is this increasingly universal participation in the modern world which makes an increasingly universal education necessary. But this is a very different world from the one in which the present system of education was founded. That was a world of scarcity and competition for scarce goods. Education was one of these goods, a very special one, a key to the production and consumption of other goods. The essential difficulty in changing the educational system is that many goods remain scarce and that men will continue for a long time to compete for them.

We in the United States, for example, would like to make completion of the elementary and secondary schools universal. This is to say, in other words, that we want everyone to have the goods, services and privileges which a typical high school graduate can earn. We are not, on the other hand, ready to send everyone thru college because we still regard many of the things which college graduates enjoy as too scarce to provide for everyone. Our dilemma is that high school graduation is the gateway to college. Because education remains competitive, at the college level, the levels which provide access to college also remain competitive.

One escape from this dilemma might be to anticipate future changes. Universal high school graduation was not a generally accepted objective twenty-five years ago and, if present trends continue, almost universal college education is only twenty-five years away. This, in turn, is only a little more than the time it takes to go from kindergarten thru college. In other words, we would

not need a competitive system for the children now being born, except to select candidates for graduate study.

Some people would argue, however, that the most vital educational resources are themselves scarce and that competition for them is the only way of assuring that they will be properly used. Unless the best teachers and facilities are reserved for the best students, we will fail to develop the excellence we need in our future leaders. So goes the argument. If competition were confined to the really scarce and relevant resources this argument might be granted, without admitting that the school system must remain competitive in the sense it now is. Only the personal time and attention of teachers are scarce. Their words and works can be recorded and reproduced. Certain physical locations and the traditions associated with them are unique, but few would argue that either these or the luxuries associated with some of our famous schools are highly relevant to superior intellectual work. Another argument might be that competition is required as a motive for outstanding intellectual effort. This could also be granted without admitting that competition in the schools has to be organized as it is today, rewarding the front runners and punishing the laggards. Competition can be between equals or between groups.

Another answer to the argument that competition is needed to motivate students might be an appeal to the facts. Even in highly competitive systems, such as the French elementary school, children do not appear to be as highly motivated as they are at play or at work. Paying people for what each one does appears, on the surface, to be more successful in producing sustained effort than rewarding the more successful half of a group and punishing, or at least failing to reward, the other half, as we do in school. At play, team competition, competition among equals, and the adjustment of expectations to abilities all seem to get better results than the kind of competition which characterizes the school system. The school system does, of course, also utilize these other patterns of

motivation but it uses them peripherally. Its most meaningful rewards are reserved for its best students, its punishments for its worst.

Punishment may seem an overharsh term for today's schools, but recent research shows that it is not. No other term can describe what happens to underprivileged children when they enter a typical school -- as this is revealed by direct observation of interactions between children and teachers. Everything these children do is wrong and has to be corrected. Long before they even try to learn to read and write, they must learn to wash their hands, comb their hair, wipe their nose, not to shout, not to swear, not to hit; the list is endless. By the time they learn these things they have also learned that school is a place where it is hard to be right and easy to be wrong. Unfortunately, in many cases, they never learn any different. By the time they learn to do something right there isn't much satisfaction in it, since others have learned it long before.

One way to avoid this result might be for children to enter school one at a time, the way people usually enter jobs. Every newcomer in a job also has a lot to learn but his mistakes are those of a newcomer and he is usually excused and helped to learn without losing face. By the time the next newcomer comes, he in turn can feel superior and help him learn.

Paying students for going to school is probably not feasible, at present, but surely, apart from pay, the schools could learn something about motivation from the way that work is organized. Even in unpaid volunteer work, everyone is assigned to something he can do and get some satisfaction out of doing. This of course, requires that people do different things but educators recognize, in principle, that most students ought to be doing different things most of the time. In practice, however, schools are organized in a way that almost requires members of the same class to do the same thing at the same time. Recent attempts to break away from this requirement are wide-spread but not very successful, since they have to counteract the basic organization of the school.

Schools were organized, as they are now, at time when teachers were the principal educational resource and also the principal source of instruction. Now that so many forms of recording and reproduction are available, the teacher is not only dispensable as the major source of instruction but is, actually, inefficiently used as such. The essential functions of the modern primary and secondary school teacher are to diagnose, organize, and evaluate results. This means that schools no longer have to be organized as they were when teachers were unique sources of knowledge, whose time had to be reserved for groups prepared to partake of this knowledge.

Thus, none of the reasons for organizing primary and secondary schools as they are now organized remain valid. Student attrition is no longer desired. Teachers no longer have to be rationed out to students who are ready for them. Competition for college entrance is a passing phase. The fact that some resources and some goods remain scarce and, therefore, objects of competition does not require that the entire educational system remain competitive, as it is today. Furthermore, we are increasingly aware of the costs of leaving the system as it is. There is scarcely any dissent from the proposition that education is the key to the elimination of poverty. The problem is that our educational system fails precisely with the poor. Our present approach, which is to cure poor children of the effects of poverty so that they can then succeed in our schools, results in a vicious circle. But this is a vicious circle of our own making; it constrains us only if we insist on leaving the educational system as it is.

Drop-outs are only the ultimate symptoms of what is wrong with the system. Take the now well known fact, that children one year retarded at the first grade level are, typically, three or four years retarded by the eighth grade. It is not necessary to regard this phenomenon as expressing a law of development. No other result could be expected under conditions which reward success and punish failure as our schools do. The same thing happens in the development of specialized athletic skills; initial differences in ability progressively increase. The

reason, as in the case of academic progress, is that rewards are reserved for winners and, thus, only better than average progress is rewarded. In the case of universally developed skills, such as walking and talking, incentives work in the opposite way; greater incentives are mobilized for those who are handicapped and slow in learning.

The results of retardation are particularly worth noting. Most children are not too hard to keep in school until they reach adolescence; and, even then, while the strains of adolescence affect all children, they result in a permanent drop-out from school only among the retarded. Children who have gotten far enough along to enjoy learning and who have learned that school can be rewarding are usually not overwhelmed by the temptations of adolescence. The retarded usually are, at least to the point of leaving school. If we are really serious about preventing drop-outs we must find a strategy which will bring each child far enough along and with enough of a history of satisfaction in the school situation to carry him thru the perils of adolescence.

It is not a matter of eliminating drop-outs at all costs. Actually our schools are as inefficient for advanced students as for the retarded and almost as wasteful, of both time and money, for the bulk of students in between. No one who has ever been in school can help but remember the hours of boredom and frustration; matched only, perhaps, by military service where people are also engaged in preparing for something which most of them hope will never happen. There are other instructive parallels. In the Army as in the school, because of similar group organization, most of the time is wasted waiting while one person learns what others already know or else are not ready to learn. All this is now increasingly recognized; that each person's rate and order of learning is unique gets no dissent-- except in practice. In practice it is discouraging to note, even in the new experimental schools, equipped for and committed to the idea of individual study, that most classes are conducted just as they always were, with one or two pupils out of thirty paying attention to the teachers exposition of the

lesson.

Part of the explanation lies in the tyranny of habit over both teachers and students, but only part of it. Most of the responsibility rests with the basic organization of schools; the assignment of students to grades and classes, the order in which curricula are required to be taught, the grading system, the basis of progression to other levels of schooling, etc. Granted there must be order and organization; the problem is that the old order prevails and stifles the new innovations. This is an inevitable problem of change but it is also the reason why the old order must be attacked and basic changes proposed; even though it may be recognized that change must start from where we are and proceed by steps to where we want to go.

Proposing the alternative is always the final test of any criticism, and perhaps an unfair one. Morris Cohen, famous philosophy professor of City College in New York, when accused by students of demolishing other philosophical systems without proposing one of his own is said to have replied, "And when Hercules cleaned out the Augean stables, what did he put in"? A clean barn will not, however, serve as a school system and something must be ventured, even at the risk of violating Cohen's canon.

This is as good a time as any to pay tribute to the many significant educational innovations which are occurring thruout the country and thruout the world. The ungraded school, team teaching, programed instruction (including the use of computers) pre-school programs, audio-visual equipment, work-study plans, individual study contracts; no list can be complete. Without this widespread ferment it would ^{BE} academic to speak of reorganizing the school system. The following suggestions can add only marginally to what is already being done. Most of them will not even be original. Their only virtue lies in focusing on the schools as a system in which students are rewarded or punished by success or failure.

It helps little to say that each student's success or failure should be his own, and that since all children learn each will then achieve some degree of

success and net reward. This is a generally agreed upon goal; the problem is how to achieve it.

One suggestion is that we try to re-integrate the functions of the school with those of the home and the place of work.

In the home each child is unique to a degree which is acceptedly difficult to achieve elsewhere. To the extent that parents recognize scholastic achievement, in terms of actual learning rather than grades, each child is likely to be rewarded for his own achievements, regardless of those of others. Parents Teachers Associations symbolize but do not seem to be achieving the objective of uniting the efforts of home and school. Too many teachers still feel that parental involvement complicates their work and too many parents remain only too glad to leave the job to the teacher. Besides, the parents who really need to come to the P.T.A., --the poor parents, --don't come. Some more individual and automatic linkage between school and home is needed, some arrangement which obliges all parents and teachers to do the things which the really responsible ones do voluntarily. Relationships between health clinics and homes might provide a partial model. Parents are obliged to learn and practice some of the skills of diagnosis and treatment of disease. Doctors and nurses in turn feel responsible to parents, rather than taking over their responsibilities. Another analogy from medicine may also serve. Specialists aside, parents and children are treated by the same doctors and nurses and with the same medicines. Perhaps adult and child education need to be brought into one integrated structure, with child education providing one of the subject matters for adult education.

School work and productive work also need to be reunited. If they could really be put back together, students could be paid for going to school. Not that this would be an ideal method of motivation, but it would certainly help solve many of today's problems. The various work-study combinations all have merits but also serious limitations, the greatest of which is that work and study remain separated even though combined. The really fruitful unions of work and study occur

in research, in teaching, and in art. Granted that few elementary or secondary students can do independent, socially valuable research. Neither, nowadays, can many college professors. The point is that most modern research is not an individual enterprise and that students could perform useful data gathering, data providing, and perhaps data processing functions, under direction, and learn at the same time. With respect to teaching it is not necessary to be so vague. There is an enormous amount of teaching which students could do, right in their present schools, even in their present classes, which would be valuable both to the learner and to the student teacher.

In fact, the most practical way to begin reorganizing the schools might be around the use of students in teaching roles. A proven model exists in the Lancastrian system, widely used in England while the elementary schools of that country^{were} expanding rapidly. In its historic form the model would probably not be acceptable since the monitor roles assigned to older children were limited and subject to abuse. Nevertheless, the system was relatively efficient and it should be possible to improve it pedagogically while retaining some of its efficiency. Improvements on the Lancastrian model would consist of creating more varied roles for students; perhaps not only teaching but also research and production roles. Since education and social organization are, themselves, the areas of human endeavor in which new knowledge is most urgently needed; these might be the initial areas of concentration, for the research and production carried on in the schools. Production could focus on the artifacts required for education and the research associated with it. This would provide a wide scope; it could include everything from a pen-wiper to a computer. Actually, books, records, films, tapes, pictures and other forms of recording information are the kinds of products more likely to be produced in most schools.

To move so quickly from the Lancastrian system, which worked well partly because it was simple, to an implied invasion by the schools of major areas of research and production is, obviously, to produce a very superficial road-map. If,

nevertheless, there is any value in such a sketch it lies in pointing out a valid starting point and a valid goal; which somewhat circumscribe the intermediate path. The starting point is valid because the feasibility and the advantages of using students in teaching roles have been demonstrated, and because more support than objection could be anticipated for modest, initial steps in this direction. Teachers would be glad to be relieved of onerous duties, most parents would be gratified to have their children learn to do something useful, while students, themselves, would probably be willing to exchange their present struggle with boredom for a greater but more rewarding effort.

The goal set forth above is valid because it promises to heal the sterile breach between "education" and "life". That a widening breach exists, between what goes on in and out of school, most people would agree, and also that this is bad. It is, after all, only one instance of the fractionation which we associate with industrial life; a challenge which must be faced everywhere but which there are special reasons for facing in education. One reason is that we would not be giving up the greater efficiency which is the usual quid pro quo of specialization, since our schools are not efficient at present. The other, perhaps more important, reasons is that an educational process unduly separated from other social processes prepares children to accept what they should not and need not accept as adults. Rupture of the organic bonds of the old traditional society is probably an inevitable result of industrialization, but this does not mean that the industrial society has to remain disintegrated. It will not remain so, nor is the reform of the educational system the only way to put it together, but this reform may be convenient way of getting large benefits at low costs.

There would be substantial, immediate gains, for example, in transferring the locus of actual vocational training, except in basic skills like typing, to the offices and shops where productive work is done. The curriculum could be expanded and brought up to date. The number and quality of teachers would vastly increase, the motivation of students would be multiplied, while out of pocket costs

would be reduced. Twenty years ago, when industry was still under the spell of the super-efficiency myth and the illusion of a plentiful supply of trained workers, such a suggestion might not have been welcome. Today, progressive employers would willingly take the lead and others would follow.

If there is a need to justify the preceding suggestion in terms of student motivation, it is necessary only to visualize the alternatives. In the one case a few students per office or shop, adjusting to an adult, work dominated atmosphere; in the other ^{an} atmosphere dominated by students competing for attention, grades, etc. There may be occasional classrooms where student attention is on work, on learning, but these are rare; not because good teachers are so rare but because the classroom situation fosters every motive which conflicts with attention to work. It is possible, of course, to reorganize the classroom situation, to make it more like that of the office or shop. This should actually be the first step towards integration of the school and the work place, because it can be taken by the school system without the cooperation of the industrial community. This cooperation will be easier to obtain once it can be demonstrated that students have learned how to work in school.

Charlie Chaplin's assembly line in *City Life* is obviously not our prototype of the work place. There are, admittedly, places of work which are worse environments for learning than the classroom, the chain-gang for example. But assembly lines are rapidly being automated and chain-gangs are going out of fashion. The modern shop or office, like the modern home, is rapidly becoming a complex, highly organized, potentially efficient work place, which depends for its efficiency not only upon a bewildering variety of efficient mechanisms and services but upon intelligent workers who know how to use and integrate the work of these components. These are good places for learning, partly because the learning is not merely of isolated bits and pieces, but also because bad performance by anyone tends to punish everyone in these situations and, thus, good performance by anyone tends to be rewarded by everyone. It is like playing on a team.

Automation offers another approach which might permit the schools to be reorganized in terms of truly individual study. Teaching machines, computers, all kinds of audiovisual equipment, diagnostic tests, etc. have been developed to the point where learning laboratories are no more far-fetched than moon rockets -- which we already have.

This is an easier way to reorganize instruction than trying to reintegrate schools with homes and workshops, but it ought to be a supplementary way and not an alternative. One danger is that automation will be adopted by the schools without any basic reorganization at all; in which case its benefits will be minimal. Motivation is the critical factor in education and mechanical aids can have only a limited direct effect on motivation. Used to individualize instruction, permitting each student to proceed at his own pace and to measure his own progress, automation could do a great deal to make education more efficient, especially for students who begin at a disadvantage. Nevertheless, machines have limitations as educational devices. One is that they are not very good for teaching people how to get along with each other, which is increasingly important in an industrial world. Our present schools are also very weak in this respect. Except for athletic teams and similar extra-curricular activities, they do not do much more, than teach children to tolerate each other. They succeed, on the other hand, in transmitting the snobbery of one generation to the next, undiminished if not increased. Nevertheless, even the socialization provided by our present system is greater than could be expected from automated learning laboratories.

People really learn to know and appreciate each other only when they are dependent upon one another; as they are in homes, on teams, and in productive organizations with specialized roles. This is one reason why more of the educational process ought to take place in homes and workshops and why schools should be organized as homes and workshops are. But learning how to live with and appreciate one another is only one reason for recommending this kind of organization. Another, is that this is the type of organization which offers the greatest

possibilities for rewarding the group-oriented activities of all members of a group, and thus offers the best prospects for a sustained high level of motivation for all participants.

Ideally, then, the internal organization of the school should combine the principle of individual work with the principle of team work. Externally, the school should have an explicitly worked out, but not static, division of responsibility with the home, on the one hand, and the workplace, on the other; including in the latter not only the marketplace but the political arena, and the other major institutions of the society.

It would be presumptuous as well as vain to attempt a detailed exposition of how the above ideal might be achieved. There are innumerable paths, some of which will be laboriously carried out, if the ideal is a valid one, by some of those who believe in it. A few apparent implications might be worth suggesting, but one point should first be made clear. This is not an all-or-none goal, which must be achieved before dividends become available. On the contrary, every suggested step toward this goal should be judged on its own merits, since it may be that only first steps, if any, will ever be taken.

An apparent implication of the above ideal is that schools should not be organized around homogeneous class groups but, on the contrary, around heterogeneous groups composed of persons able to play specialized, complementary roles. Many present non-grading approaches appear, thus, to be too conservative; they abandon age grouping but only in favor of ability grouping. A truly non-graded group should be made up of students of different levels of achievement, so that those who know more can help those who know less. Groups might also be formed of students who know different things rather than different amounts of the same thing; but with interchange rather than homogeneity as the objective.

Heterogeneous classes would have to have teaching, research or production roles for students. Team organization would seem to imply that students must have responsibilities other than those of learning.

Since teams become more efficient with experience, efficient team organization implies that individuals should enter and leave a class one at a time, and that the class should continue indefinitely as an organized entity. In most cases an individual would enter a class as a novice and would leave after having mastered the work of the class, to some pre-established level. Each individual would spend a different period of time, not prescribed in advance, in each class and would, thus, progress thru school at his own rate.

Classes would usually be organized around a skill or a subject matter field and the primary purpose of the class would be to make its members competent in the skill or subject matter. Alternatively, classes could sometimes be organized around research or production tasks, where these were deemed to be instructive.

One, and only one of many possible ways of organizing a class according to the above principles is described below. Take a primary class with one teacher and thirty students, ranging from age six to age nine. An average student would spend three years in this class and, thus, counting turnover, about one student would enter and leave the class each month. The class would be continuous with students and teachers taking individual vacations. The teacher would have several part time student assistants of high school and college age and, in addition, the older primary school children would have tutorial and other responsibilities. The curriculum would center around the development of language and number skills, with competence in reading and the basic arithmetic operations as the central criteria for completion of the class. All members of the class would share in the responsibility for the development of these skills in each member, and, equally, for the development of the habit and enjoyment of reading and working with mathematical concepts. The teacher would be primarily an organizer of activities, which assistants would carry out. Most of the teachers time would be spent in individual consultation with students and parents, diagnosing, evaluating, prescribing.

Members of the class would be motivated to develop the most efficient procedures for teaching basic skills, by making the time available for preferred activities depend upon the achievement of basic skill targets. Other educational objectives would share the time available after the basic skill targets were achieved; these objectives would also be reflected in the content of reading matter and mathematical problems. While records of individual achievement would be kept, only the class itself would be graded; the grade depending upon the average achievement levels attained, taking initial achievement, aptitude and other relevant measures into account and also taking account of the time and money spent.

Similarly organized classes at the upper elementary and the junior and senior high school levels would differ from the above description, mainly in that curriculum objectives would become more specialized and that students would be enrolled simultaneously in an increasing number of subject matter classes, as they now are. Teaching assistants as well as teachers would have to be selected with increasing emphasis on subject matter mastery. Teachers would deal progressively less with parents and progressively more with employers at the higher levels of schooling.

Repeating, again, that this is only one of many ways of reorganizing the schools, it can, nevertheless, legitimately be asked whether this organization would solve the drop-out problem and, if so, whether it would be worth it. It would, admittedly, not eliminate all drop-outs immediately. Some drop-outs appear to have their immediate cause in parents, personality, health or accident, for example, but these causes in turn may reflect the drop-outs of a former generation. Such an argument is valid, of course, only in a society in which school completion is the norm but, on the other hand, only in such a society can one speak of excessive drop-outs. Thus it is fair to argue that if the proposed reorganization would immediately eliminate the drop-outs which can be fairly charged to the way the schools are organized now, then it would, in the long run,

eliminate all drop-outs. A second way of dodging the above question is to say that the answer depends on whether the proposed system can be made to work. The answer to this, in turn, is that the proposed system has learning built into it; that groups organized as proposed will learn to teach their members what they are supposed to learn. If skeptics still remain, the final answer must be, as it always is, that we must try and see.

Further argument would only repeat what has been said and only one thing remains to be said, namely, that the weakest link in the preceding discussion is the last and the strongest link the first. The suggested answer may not be the right answer but the statement of the problem is probably correct. If this is accepted then it behooves others to support the search for an acceptable answer. One welcome kind of support would be critical appraisal of the argument. Another would be experimental trial of the ideas proposed.

SOCIAL CONSTRUCTION IN SCIENTIFIC
DOMINATED BY TRADITIONAL GROUPS

Colin Furtado
Université de Paris

Social Planning Conference
July 18 - 22, 1966