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THE MULTINATIONAL EFFORT: NEW STRATEGY FOR THE DEVELOPMENT OF SCIENCE, TECHNOLOGY AND EDUCATION IN LATIN AMERICA

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We will harness science and
technology for the service
of our peoples *

*Inaugural Address of the President of the
Executive Committee of the
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In the fourth century, while history was witnessing the Fall of the Roman Empire, the annals of literature were recording the appearance of "Daphne and Chloe", one of the most beautiful love poems ever written. At a time when ancient institutions were crumbling, the poet Longinus was not only composing a literary masterpiece, but he was also demonstrating the ability of man to transcend human conflicts in order to devote himself to creative endeavor.

Gentlemen, at the outset of my address to this Inaugural Session of the Executive Committee of the Inter-American Cultural Council, I recall this literary event, as it serves to illustrate that social and economic progress in Latin America are indeed within the realm of possibility.

The period in which we live today is hardly conducive to reflection and meditation. We are living in a period of increasing personal, national, and international conflicts —conflicts which are affecting all peoples everywhere, even our young. We live in a period in which men's values are changing rapidly, as is indeed our very knowledge of mankind.

People today are aware of their basic needs. They are no longer willing to accept a sub-human level of existence. This applies particularly to people in developing countries. The peoples of these countries know that life can be better. They are demanding change —and they are demanding this change immediately.

We live in a period in which no Latin American educator or scientist can ignore the fact that the economic development of our countries is greatly dependent upon the development of our education and science.

We live in a time, therefore, in which we cannot help but be distressed with the lagging rate of development of our countries—a rate of development which, if maintained at the present level, would not be doubled until the next century.

We live in a time when, for the first time in history, the mass media are reaching all peoples everywhere. We live in a time when the aspirations of all peoples are being elevated to unprecedented heights.

We live today in what is called a "revolutionary era". Without losing sight of our primary concern—that of education, science, and technology—it is easy to illustrate the fact that indeed our era is revolutionary.

Over the last hundred years, education has assumed a primary role in society—a role which is almost without parallel in modern history. This change has come about not merely in the form of new schools or increased student enrollment. This change is a functional change. Today one's place in society is often determined by his educational accomplishments. Education today can determine one's social standing and even his social mobility.

Science and technology walk hand in hand with education. Innovations in these areas, the importance of which need not be stressed, have rendered to the field of education new methods and techniques which are revolutionizing the entire traditional education process. This is quite well known. I would like, nevertheless, to point out some of the specific problems which have resulted from this situation—problems which pertain to our Hemisphere, and particularly to Latin America.

An Over-all View of Science and Education in Latin America

In the first place, it is evident that, although in the past our educational systems and, in some cases, our scientific programs, were geared to the

problems of the times, the changes taking place in our countries today call for a thorough re-evaluation of our educational systems, as well as a re-evaluation of our scientific and technological programs. In the field of education, a tradition is well established. It may lack vitality, but it is nonetheless, a worthwhile tradition, solidly based in society. Science and technology have no such tradition. As a result, people today are unaware of the wide range of benefits which can be derived from these two fields.

The inadequacies of our educational systems are borne out by two existing situations: a lack of educational research, and a failure of the system to meet the needs of society for a trained labor force.

In spite of our broad experience in the field of practical education, educational research is almost totally lacking—research which would, for example, enable us to investigate in a scholarly way, the various psychological, social, educational, cultural, and economic conflicts which today are so paramount in the lives of our students. I need not stress the importance of such research to the development of our educational systems, nor the peace of mind that such research would bring to both teachers and students.

The inadequacies of our educational systems with regard to the labor force may be seen in nearly all our countries by an examination of our vocational training schools. Diversification is minimal, and the training programs offered in these schools are insufficient. They are not geared to the manpower requirements of our present and future labor force.

Secondly, it must be stated that all governments in Latin America attach primary importance to education. In the last decade, elementary and secondary school enrollment broke all existing records. In several Latin American countries, one out of every four persons is enrolled in some level of the educational system—a proportion similar to that in developed countries. The average rate of attendance in elementary schools in Latin America is higher than seventy percent—a rate which will most likely exceed the goal set by Latin American countries in the Charter of Punta del Este.

Secondary school enrollment is increasing at a rate faster than teachers can be trained to meet the new demand. In the past decade, in several countries, university enrollment has more than doubled.

Many Latin American educators view this increased enrollment as a step toward the alleviation of the quantitative side of educational problems. The qualitative aspect is, of course, intensified. An exception is the problem of illiteracy. A principal cause of illiteracy is lack of school attendance at the elementary level. This situation has been brought at least relatively under control.

Thirdly, and as a consequence of the two points mentioned above, educational spending has reached unprecedented heights in Latin America. The goal of spending four percent of the GNP on education has been reached in many Latin American countries. It has been surpassed in several.

Educational spending by the public sector is estimated at US\$2,500,000,000 per year in Latin America. It is evident, therefore, that the public sector views the field of education as a highly profitable field for investment. This is further incentive for educators and others in the field to improve the existing systems. Taxpayers must be assured that they are correct in their assumption that a poor education may be expensive but that a good education is never cheap.

Educational spending, however, cannot increase indefinitely, particularly while our over-all economic growth is subject to the serious limitations which presently exist. It is necessary for educational funds to be competently managed and efficiently utilized to encourage contributions from new internal and external sources. It must be emphasized, however, that existing educational programs should not be adversely affected by this process.

External Financing and the Development of Education and Science

Always, in discussions of this nature, the problem of external financing arises. Almost without exception, our countries need and seek international cooperation. The need will become

even more pronounced as national educational expenditures mount. International financial institutions engaged in development activities are turning increasingly to human resource development programs, for these programs not only promote peace and social progress, but they also play a key role in the accumulation of wealth.

A serious imbalance exists between the amount of international aid allocated to education and that allocated to other sectors of the economy. In addition, international aid often carries with it stringent conditions which call for specific types of projects or programs. Such conditions frequently prevent an undeveloped sector of the economy from solving its problems with its own solutions. The conditions which are imposed are often ones which were not imposed upon the developed country at a comparable stage of its economic growth. Such conditions serve as an impediment to negotiations for various types of financial aid.

Another serious problem regarding external financial assistance concerns the rise in the interest rate. This is a growing hindrance to the search for international development capital.

On the positive side, I must mention the great satisfaction we derived from the statements of the President of the World Bank who has said that he will render high priority to granting additional bank loans to developing countries for educational purposes. The new sectoral credits granted by the United States Agency for International Development will also be of extraordinary value to our educational development programs. In addition, I would like to reiterate my gratitude to the Inter-American Development Bank, which has always devoted considerable attention to the educational field —particularly to the field of higher education. I would like to express my gratitude also to the private, public, and international organizations which are actively promoting education in our Hemisphere.

With regard to the scientific field, the lack of a real tradition has already been mentioned. This fact is illustrated by the lack of prestige which is accorded to the scientific field, both socially and economically. Although no reliable data is available —a further indication of the low priority

given to this field— it is a well-known fact that national expenditures for science and technology are extremely inadequate in relation to the needs of the region— inadequate both in absolute terms and in terms relative to amounts spent in the developed countries. This situation is aggravated by the severe imbalance which exists between external aid granted to the scientific sector and aid granted to other sectors of the economy. It is only in recent years that international lending institutions have agreed to support scientific and technological development programs in Latin America. This situation cannot be tolerated if we are sincere in our efforts to increase the over-all development of our countries.

The promotion of scientific and technological programs in developing countries is often subject to serious debate. It is argued that such programs are extremely expensive, and it is pointed out that the gap which already exists between the developed and the developing countries is extremely large. It is often forgotten, however, that scientific and technological innovations are essential to any meaningful development. It is essential that such innovations be first developed and then applied to the particular characteristics and needs of our region. This procedure is necessary in order that the developing countries can compete in world markets. Although it is often desirable to import foreign technology, this should not become habitual without first exploring other alternatives and without knowing the ways in which this technology can be adapted to local conditions. It is often true that the introduction of foreign technology requires related local research to compensate for the displacement of local products in the world market. Rubber and nitrates are good examples of this situation. These products lost their position in the world market without any adequate compensation. Solutions to problems such as these require efforts of highly qualified technicians. To train and develop technicians of this caliber, there must exist a climate in which pure science is promoted at the highest level. Only widespread pure scientific investigation can open the door to future development of our natural resources—a development which, at any moment, could result in unlimited possibilities for the future economic development of Latin America.

It will be our duty, therefore, to promote a bold and forceful scientific and technological policy throughout Latin America.

The Answer of the Inter-American System

Inadequacies in the fields of education and science explain, more than any other factor, the reason for the creation of the Executive Committee of the Inter-American Cultural Council. The appearance in our Hemisphere of a new entity designed specifically to accelerate strategic features of educational, scientific, and cultural development in Latin America can only be explained by the overwhelming need for new and vigorous efforts in these fields—efforts which today are being greatly aided by the cooperation of multinational bodies. This was the explicit understanding of the American Chiefs of State when they declared at Punta del Este last year, that educational development was an absolute prerequisite for over-all development in Latin America. At the same time, the American Chiefs of State agreed to render unprecedented support to science and technology, in order that these disciplines might eventually benefit all peoples in the Hemisphere. In mentioning this historic conference, which was so important to our present work, I must express the deep gratitude of the Latin American scientific and educational community to the Chiefs of State for their appraisals and for their decision to support our activities. I should also like to express our gratitude to the men who devote their lives to this type of work—work which requires such extreme sacrifices and which offers such meager rewards.

The Regional Programs for Educational and Scientific Development and the Special Fund for Science and Education were created at the Fifth Meeting of the Inter-American Cultural Council at Maracay. This meeting was held less than a year after the Meeting of the Chiefs of State in Punta del Este. Thus it was proven that the Inter-American system can act quickly, especially when it acts within the framework of the Protocol of Amendment to the Charter of the Organization of American States. The Executive Committee of the Inter-American Cultural Council was created at Maracay, in anticipation of the changes to be made in the OAS Charter. When these changes are

enacted, the Executive Committee will be a key factor in aiding the new Inter-American Council for Education, Science, and Culture in the performance of its high-level functions and duties.

We are extremely grateful to the OAS Council for its decisive role in constituting the Executive Committee, the Inter-American Committee on Education, and the Inter-American Committee on Science and Technology, as well as for its repeated demonstrations of support. Likewise, the presence here of the new Secretary General of the OAS, whose long-standing interest in these activities and vigorous support will undoubtedly aid and strengthen our work, is especially heartwarming.

Scope of Action of the Executive Committee of the Inter-American Cultural Council

Within its institutional framework, the functions of the Executive Committee are very broad. These functions range from general activities designed to promote regional educational, scientific, technological, and cultural development in the Hemisphere to more specific programs designed to further multinational projects through regional programs for science and education. Inter-American and international solidarity in these fields will march under this new banner of multinational action. Initial evidence of this was the creation by all OAS member states of the Multilateral Special Fund of the Inter-American Cultural Council with a budget of US\$25 million. This multilateral offer is free of any stringent conditions or "tie-ins", other than the condition that activities be promoted which will supersede national capabilities in nature, scope, and impact.

The scientific community of Latin America has responded with a demand for large-scale multinational projects which could involve the participation of more than one hundred institutions. Without describing the proposed projects in detail, let me say that they are designed to train, over the next five years, a considerable number of scientists. This would result in a great leap forward in the scientific development of Latin America. One of the basic aims of the programs would be to strengthen existing scientific centers and to promote the development of new centers. It is

hoped that the new centers would operate independently and would provide high-level training along with pure and applied research of regional application. By concentrating our efforts on our own local institutions, we hope to eliminate the so-called "brain-drain" which so adversely affects our progress.

The Latin American educational community has acted promptly to promote the essential aspects of educational development. Educational television, training of specialists, improved teaching techniques, preparation of new educational materials, as well as vocational and adult education programs, are all areas in which the multinational activities that we are promoting will provide new opportunities to millions of our peoples. The Group of Experts on Science and Technology and the Ad Hoc Committee on Education played a fundamental role in preparing the bases and structure of these educational activities.

When the Executive Committee begins its approval of projects, the respective Inter-American committees will be called upon to provide important technical advice.

The Executive Committee must undertake another delicate but useful task. In accord with the decision of the Inter-American Cultural Council, we must undertake periodic evaluations of the member states' programs in the fields of education, science and culture. While such action is definitely within our own sphere of competence, we intend to make use of the experience gained by the Inter-American Committee on the Alliance for Progress (CIAP) through its country review process. We plan to coordinate our work very closely with that committee.

Our review and evaluation process will be based on a spirit of service to the individual countries and will be oriented toward two basic objectives: 1. an internal objective which will accord high priority to education and science in all development plans and which will, at the same time, adapt educational goals to specific requirements and needs of each program; 2. an external objective which will involve estimating amounts needed from international lending institutions for

various educational, scientific, and cultural programs. The latter objective will result in the implementation of various development programs by the specialized agencies, not through direct action, but through a general increase in the amount of resources allocated to specific scientific and educational programs. We also hope to provide more flexibility in delivering resources to specific areas, to diversify the fields which will receive such resources, and to improve existing financial and credit conditions.

An additional objective which will be explored is that of coordinating the financial resources of the international lending institutions with those of the Special Fund for Science and Education. Through this coordination, the Special Fund could either provide guarantees or could make contributions for the implementation of multinational projects of common interest.

We are not beginning our work without previous work or experience. Perhaps in the past there has been too much duplication of efforts—a duplication which has at times been an obstacle to the various action programs so essential to the development of our region. It must be recognized though, that at times, this concentration of efforts has contributed to the progress of our Hemisphere. Nevertheless, our awareness of this tendency toward a duplication of efforts compels us to seek maximum coordination between the work of the Executive Committee and the work of other related organizations. We are especially anxious to coordinate our work with that of UNESCO in this field, as well as that of other Inter-American and international agencies, related public and private United States institutions, and related institutions in other countries.

Action Plan of the Executive Committee

During this meeting, we hope to formulate a new Action Plan which we will submit to the Executive Committee in due course. Together with the above ideas, this Action Plan will constitute a Multinational Plan for Educational and Scientific Development to be implemented over the next ten years:

1. Promotion of Educational Innovations

We propose to increase substantially the number and types of experimental schools in which research techniques and facilities may be applied to the improvement of the quality of teaching in our schools. We plan to further the study and creation of a Multinational Center for Programmed Teaching. In brief, we plan in this decade to advance our present educational development level to the year 2000, in order that our educational systems may be better prepared to meet the demands of the future. The countries wishing to enact such programs for their future development should receive our all-out support.

2. Utilization of the Most Modern Systems of Communication for Educating the Masses and for Promoting and Disseminating Cultural and Scientific Information

By 1972, Latin America will have its own microwave system as well as satellite tracking stations in several countries. This enormous endeavor, which will be financed in large part by our own countries, should be utilized in every way possible to benefit our peoples. One such benefit would be an artificial satellite, financed by Latin America, which could be used exclusively or preferentially for educational, cultural, and scientific purposes. Study of this project could be sponsored by the Special Fund for Science and Education. I need not stress the benefits which would be derived from such a system.

3. Development of the Working Class

Every day, education becomes more deeply entrenched as a permanent phenomenon in our society. Advanced training for our labor force directly affects the over-all economic status of our countries. If we add to this the social demands of labor for additional educational opportunities, the need to promote programs in this area and the need to strengthen existing programs by assimilating them into the multinational field becomes readily evident.

4. Strengthening the Scientific Structure of Latin America

This would include the possibility of creating institutions and multinational action programs to help implement various development projects which could be adapted to the individual needs of the region.

5. Incorporation of the Regional System into the Promotion and Adaptation of Technological Programs

Although there is a tremendous need for technological development in our countries, this area of development has received very little attention. It is generally agreed that this development should be implemented by means of a scientific infra-structure which would provide a sound basis for all technological expansion.

6. Detailed Investigation into the Problems of our Youth

No institution concerned with education can ignore the problems which have triggered the present crisis situation which exists among our youth. In a hemisphere in which half of the population is young, and in which the young are occupying positions of increasing importance, it is natural that our young people should express, in various forms and degrees, their desire for a greater participation in their own education and in the determination of their own destiny. In view of the complexity of this situation, we hope to facilitate the initiation of detailed studies of the present problems affecting our youth. These studies should be extended even to non-academic fields.

7. Incorporation of all Sectors into the Development of Education and Science

The private sector has had little participation in the educational process, and even less in the

field of science. This sector often criticizes the various training programs, especially those which have a direct bearing on its particular interests. On the other hand, educators and scientists complain that the private sector fails to support educational and scientific programs. We hope to provide a common meeting ground for these two factions—a meeting ground where they might air their differences and thus derive mutual benefits from their works.

8. Efforts to Integrate Latin America

It is extremely difficult for our countries to eliminate trade barriers as long as barriers exist between our graduates and our students. The road which will lead to a link between these two sectors of the economy is a long but interesting one. At Maracay it was stated that "the historic objective of integration of Latin America, the economic aspect of which has been given concrete form through the establishment of the Latin American Common Market, agreed upon by the Presidents of the Latin American republics, should be expressed more broadly in the field of education, science, and culture, complementing the process of integration in the economic field."

We shall strive to accomplish this.

9. Promotion of Solidarity among the Masses and Encouragement of their Participation in our Programs

As a final goal, we will strive to extend our ideas and programs to all peoples of Latin America. We must instill in all sectors—workers, students, private citizens, and institutions—an awareness of the significance of our work. The dissemination of information regarding the nature of our work must be carefully planned and vigorously supported. An aid to this dissemination would be the establishment of a Multinational Center for Scientific and Educational Journalism.

Gentlemen, my words and indeed the very existence of the Executive Committee arise out of

a mandate and out of a serious need for action. The peoples of Latin America are demanding instant and immediate change. These people must be heard —not because we fear the consequences which could result, but because these people have a right to be heard. As we all know, in the final analysis, it is by man and for man that wealth is created and development is justified.

We will vigorously
promote education
for development *

*Declaration of the Presidents of America. Meeting of the Presidents of America. Punta del Este, Uruguay, April 12-14, 1967.