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ORGANISATION DU TRAITÉ DE L'ATLANTIQUE NORD
NORTH ATLANTIC TREATY ORGANIZATION

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PARIS-XVI
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ORIGINAL: ENGLISH

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RDC/57/408

To: Secretaries of Delegations

From: Executive Secretary

PROVISION OF SCIENTIFIC AND TECHNICAL PERSONNEL

The Secretary General has received the attached letter from the Executive Secretary of the NATO Parliamentarians Conference together with the Report by the Committee on the Provision of Scientific and Technical Personnel of the NATO Countries, the Chairman of which was Senator Henry M. Jackson, and the Resolution adopted on this matter by the Parliamentarians Conference.

(Signed) COLERIDGE

18th November, 1957

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NATO PARLIAMENTARIANS' CONFERENCE
CONFERENCE DE PARLEMENTAIRES DE L'OTAN

(Conference of Members of Parliament from the NATO Countries
Conference de Parlementaires des Pays-Membres de l'OTAN)

INTERNATIONAL SECRETARIAT

15 Victoria Street, Westminster, London, S.W.1.

18th November, 1957

Dear Monsieur Spaak,

In accordance with the instructions contained in the resolution passed by the NATO Parliamentarians last Friday on the Special Committee's report on the provision of scientific and technical personnel of the NATO countries, I am enclosing for your attention and that of the North Atlantic Council the Committee's report and a copy of the resolution.

It was the specific instruction of Senator Jackson, Chairman of the Committee, that this should reach you today in order that the report and resolution might be brought to the attention of the North Atlantic Council with the minimum of delay. With this point in mind 30 copies of the report in English and 30 copies in French have been delivered to your office.

The Standing Committee of the Conference with Senator Jackson will await with interest news of any results that may arise from submission of the report and resolution to you and to the Council.

(Signed) Douglas Robinson
Executive Secretary

M. Paul-Henri Spaak,
Secretary General,
NATO.

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/ 1957 Con/Report II /

NATO PARLIAMENTARIANS' CONFERENCE

(Conference of Members of Parliament from the NATO Countries)

THIRD ANNUAL CONFERENCE
NATO Headquarters, Palais de Chaillot, Paris XVI

11th - 16th November, 1957

TRAINED MANPOWER FOR FREEDOM

Report by the Committee on the Provision of Scientific and Technical Personnel in the NATO Countries

Chairman:
Senator Henry M. Jackson, U.S.A.

Rapporteur:
Mr. C.L. Patijn, Netherlands.

As Unanimously Approved By
The Third NATO Parliamentarians' Conference

The Secretariat

Paris,
November, 1957.

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INTRODUCTION

In November, 1956, the Second Conference of Members of Parliament from the NATO countries established a Special Committee on Scientific and Technical Personnel. It was asked to report to this year's meeting of the NATO Parliamentary Conference whatever findings it deemed appropriate with respect to these three topics:

(a) The present situation with respect to the training of scientific and technological personnel in the NATO countries;

(b) The relationship between NATO utilization of the existing potential resources in this field and the utilization of similar resources by the Soviet bloc;

(c) The development of resources of scientific and technological personnel sufficient to enable the NATO countries to maintain their individual and collective capacities to resist armed attack and to continue their economic growth essential to their strength and well-being.

During the Conference the following members have served on the Committee:

Belgium	Mr. P. de Smet Mr. Arthur Gilson
Canada	Dr. R.P. Vivian
Denmark	Mr. Willy Heising Mr. Adolf Sorensen
France	Mr. Armengaud Mr. Deixonne Mr. Longchambon Mr. Viatte
Germany	Dr. George Kleising Graf Adelmann
Greece	Mr. Panos Yokas
Iceland	Mr. B. Grondal
Italy	Professor Amedeo Giacomini

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Luxembourg	Mr. Eugene Schaus
Netherlands	Mr. C.L. Patijn
Norway	Mr. Bernt Ingvaldsen Mr. Sverre Rostoft
Turkey	Mr. N. Inanc
United Kingdom	Mr. Richard Fort Mr. Martin Maddan Mr. Charles Pannell
United States	Senator Henry M. Jackson (Chairman) Senator Kuchel Congressman Corbett Congressman Smith

This Special Committee is one of several international groups which have been concerned with the shortage of trained scientific and technical manpower in the NATO Community.

The Organization of European Economic Cooperation has made numerous studies of the manpower question, and has encouraged member states to survey their needs. This year, it published a particularly helpful report entitled "The Problem of Scientific and Technical Manpower in Western Europe, Canada, and the United States."

NATO has also been concerned with this problem from almost the time it was founded. This year, on the recommendation of the Committee of Three on Non-Military Cooperation in NATO, the NATO Council appointed a task force to report to it before the end of the year on the desirability of calling an international conference on the supply of trained manpower and on other problems of scientific co-operation.

The previous work of OEEC and NATO has been of great value to the Special Committee. It also feels indebted to many private citizens and to the executive agencies of the member states for their counsel and cooperation.

The Chairman wishes to express his special thanks to his Committee colleagues for their excellent memoranda and suggestions, which alone made possible the following findings and recommendations.

Henry M. Jackson, U.S.A., Chairman

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THE PROBLEM

The member states of NATO confront a genuine crisis in the form of serious shortages of skilled scientific and technical manpower.

This shortage is due above all to the scientific revolution through which the world is now passing.

Useful atomic power, automation, and the thousand and one other practical applications of the scientific discoveries of the past fifty years can raise standards of life throughout the world to a new plateau.

At the same time, this revolution has immensely complicated the problem of resisting military aggression. The NATO Community must be able to defend itself against ballistic missiles, nuclear bombs, and an entire panoply of other new weapons systems.

The scientific revolution has created an unprecedented demand for qualified scientists and engineers. Only with more trained managerial and technical brain power can NATO take full advantage of the new opportunities for industrial progress and economic well-being. More and better skills will also be needed if the Atlantic nations are to continue their historic role of the chief exporters of science and technology to the under-developed areas of the world.

The need for more skilled personnel is underlined by the Soviet military and educational effort. Scientific manpower is being graduated in the Soviet Union at a present per capita rate approximately twice that of the NATO Community as a whole. Russia now turns out more scientifically trained people than any Western nation, and is accelerating the output at a higher rate than any nation. Furthermore, Soviet instruction is of high quality.

The fact that the Soviet Union was the first to launch an earth satellite is proof enough of their great technical competence.

One fact requires emphasis, however. NATO would need more trained manpower even if there were no Soviet Union and no defense effort. The root causes of the shortage are long-term in nature. They stem from the scientific revolution itself, and its technological consequences.

To realize the full promise of the scientific revolution NATO must solve a triple problem. There is the problem of quantity - how to increase the total number of qualified scientists and engineers. There is the problem of quality - how to discover and nurture the truly exceptional talents, the Maxwells, the Fermis and the Bohrs of coming generations. There is the problem of utilization - how to employ our technical brain power in the most efficient manner.

ENDS AND MEANS

The long-term goal should be this. No barriers to the development of talent. Nothing is more precious. It is the greatest resource of the state and of the free world community. It should be sought out and nurtured with utmost diligence and care.

Every qualified young person within the NATO Community who wishes for a career in science and engineering should be encouraged to try for one - and should be able to secure the necessary education. Yet to-day in all NATO countries, countless young people with marked ability for scientific and engineering careers end their education with the secondary school.

In many cases, students do not have the money needed to complete their education. In other cases the incentive to go further is absent. In some countries artificial social barriers hold back students of great native ability.

A similar need for more open doors to opportunity, of course, exists in the humanities and the social sciences. This report, however, is confined to the problem of scientific manpower.

The goal of "no barriers to talent" may not be reached for decades, or even generations. Before the goal is reached a whole new public philosophy towards science and technology may be required. Far more than they are to-day, the teaching and practice of science and engineering must come to be regarded as among the greatest human callings.

We should never lose sight of the long-term goal. Meanwhile, however, we confront the immediate problem - how to take additional practical steps to remedy the manpower shortage.

Governments can do much to help, but by no means all. Over the long run, it is the people themselves who will decide the success or failure of corrective measures. It is the people themselves, as parents, who must take major responsibility in encouraging gifted young persons to follow careers in science and engineering. Over and above all else, it is the people themselves, and not their governments, who must create a social climate in which intellectual exploration is recognized as a great odyssey of the human spirit.

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We should not exaggerate the potential contribution of cooperative international measures. International agencies cannot assume the primary responsibility for official action in this crisis; that must be accepted by national governments.

Without exception, the member states have begun remedial programmes. In each country, the problem has a different specific form. Some countries particularly lack technicians. In others, basic science is relatively strong, and applied technology comparatively weak. In still others, women graduates in science find difficulty in securing appropriate employment; in yet others, educational facilities in the form of inadequate laboratories are the greatest single obstacle to progress. Most NATO countries report a shortage of science teachers in secondary schools and universities.

In almost all the NATO countries there are numbers of qualified scientists who could be utilised more effectively than at present.

It is important that national programmes be supplemented and assisted by cooperative international actions. However, the resources available to the North Atlantic Treaty Organization are limited. They should not be dissipated on projects, however meritorious, of secondary importance. Our practical problem is to get the maximum benefit out of these resources.

Ideally, NATO activities should be catalytic in nature. That is, they should aim at initiating chain reactions which extend over the broadest possible scientific and technological front.

By the same token, we believe that the resources available to NATO should primarily be used to support and broaden the work of existing schools, research centres, and agencies in this field, rather than to create wholly new institutions.

Therefore, this report makes the following recommendations;

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PART I

RECOMMENDATIONS

1. An Atlantic Community Talent Development Programme.

It is recommended that there now be established a NATO-sponsored and NATO-financed Talent Development Programme, designed to produce annually at least 500 doctoral degree holders with research experience in the fields of maximum importance for the defence and economic well-being of the NATO Community.

Certain disciplines are today of overriding importance for the future of the NATO Community - both for strengthening our military defences and for promoting technological progress. Among these fields are applied mathematics, aero and fluid dynamics, basic electronics, nuclear physics, solid state physics, physical chemistry and metallurgy.

Last year, American universities awarded a total of less than 450 Ph.D's in these fields. The number of comparable degrees granted in Europe was apparently considerably smaller.

A relatively small number of additional trained people of outstanding talent in these disciplines could have the catalytic effect which we deem so important.

Three obstacles now exist:

(1) Too few qualified instructors;

(2) Too many students with great potential leaving school before receiving advanced training; and

(3) Inadequate laboratory facilities in the schools.

An Atlantic Community Talent Development Programme should be designed to produce annually 500 doctoral degree holders in the fields of greatest importance for the defence and welfare of the NATO Community. The doctoral degree, as used here, would require two to three years of research work, a thesis and an examination on the thesis.

Such a programme would give financial assistance to students, in the form of fellowships, and to universities in which the fellows enrolled, in the form of "Special Development Grants" to help improve teaching facilities.

Atlantic Community fellows could be selected through a NATO-wide competition patterned after the Rhodes Scholarship plan. Regional nominating boards might be established in each country, and final awards would be made by a NATO-wide group.

It might be desirable to establish two types of fellowships. One would be granted at the equivalent of the American freshman year in college and would be renewable annually until the fellowship holder received his doctorate. The other would be awarded at the level equivalent to the first year in an American graduate school, and would also be renewable. Each type of fellowship programme might be geared to produce 250 Ph.D's annually.

The awards might range from $500 to $3,000 annually for each fellow, depending on his age and training.

Fellowships granted to students coming directly from high school would presumably pay less than those for more advanced students. Younger students would also presumably be left as free as possible in their choice of scientific fields.

At the same time that each fellowship was awarded, a Special Development Grant would be made to the University in which the student enrolled. Depending upon the cost of facilities and instruction and the field chosen, such grants to universities might range from $1000 to $4000 per each fellow enrolled.

Since the manpower shortage problem is most acute in Europe, the large majority of the fellowships should be awarded to European students, for use primarily in European universities.

Atlantic Community fellows, other factors being equal, would choose to study at the leading European centre for their particular discipline. The grant to the university associated with each fellowship would enable the institution to strengthen its facilities and improve its faculty still further. In time, this programme could encourage the development of truly outstanding centres in each of the fields to which the programme is applicable.

We estimate that this Talent Development Programme, in full operation, would cost a total of between $8 and $10 million annually.

At the outset, this programme would probably be financed very largely by contributions from NATO itself and from the member governments. However, industry and privately endowed foundations could also be encouraged to make grants.

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2. An Awards Programme for Teachers and Students in Secondary Schools.

It is recommended that NATO sponsor and finance an annual awards programme in mathematics or science for outstanding secondary school students, together with their instructors.

Many authorities maintain that the root cure of the scientific manpower problem lies in attracting more qualified students into mathematics and science at the level of the U.S. high school. One important way of accomplishing this is through raising the quality of instruction, since behind every good student there is a good teacher.

In order to give both teachers and students in the secondary schools an additional incentive for effort and excellence, it is proposed that NATO sponsor an annual competition, which would give monetary awards to outstanding students, together with their instructors.

For example: an annual mathematics competition could be established. Students of a designated age level would take national examinations of uniform difficulty. Those scoring highest nationally would then be eligible to compete for grand prizes in a NATO-wide contest. Five thousand prizes of $300 each would be provided, together with perhaps 100 grand prizes of $1000 each for the overall NATO competition. Each prize would be divided between the student and his teacher, with perhaps one half going to the teacher or possibly to the school. The total cost of such a programme would approximate $1,600,000 annually. This NATO-wide mathematics awards programme is considered a minimal one. We would hope that each of the fifteen members of NATO would follow through with its own programme of awards.

Such a NATO-wide competition could be applied in other fields, for example in physics, and awards could be granted for general attainment in the sciences. Whatever specific form the competition took, certainly for relatively modest outlays of money, it should help to raise the level of instruction and study in our secondary schools.

It may also be desirable to develop other positive means to stimulate interest in science at the high school level. For example, book prizes long have been a feature of many secondary schools with high traditions of training. Members of NATO might experiment with student award programmes which take the form of a distribution of outstanding monographs on science.

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3. Summer Study Institutes

It is recommended that immediate steps be taken to increase the number and variety of summer study institutes within the NATO Community, in order to extend the influence of outstanding scholarly talent in fields now hampered by a shortage of teachers.

The summer study institute has been an important post-war educational development both in North America and in Europe. More than 100 institutes concerned with mathematics, the sciences, and engineering have been held this year in the United States, 96 of which were supported by the National Science Foundation. Two typical European summer study institutes are those at Les Houches in France and Varenna in Italy. The former, sponsored by the University of Grenoble and the French Ministry of Education, offers summer seminars in modern physics. The latter sponsored by the Italian Physical Society, the Ministry of Education and Italian industry, holds summer seminars in different fields of physics each year.

Summer institutes serve different purposes. One gives advanced training to graduate students in specific disciplines; another brings together mature research scholars for a summer-long seminar in particular scientific problem areas; yet another offers refresher courses in science or mathematics to secondary school or college teachers.

Unlike more ambitious undertakings, the institutes are relatively easy to establish. They focus on one problem area; their enrolments are limited; they are held at places where study and recreation can be combined; they attract a more international student body and faculty than is customary for an ordinary graduate centre; they are administered by existing organizations; they meet during the academic vacation period when university instructors are free of their normal duties.

Several additional institutes should be established, both in North America and Europe, by the summer of 1958, and the number of institutes could be increased in succeeding years. Nuclear engineering, applied mathematics, solid state physics, agriculture, fisheries, and medicine are natural fields of study for such existing and new institutes. These institutes would be staffed and attended by professors, research workers, and highly qualified young students from throughout NATO and other European countries.

Summer institutes might also be held (1) in the learning and teaching of mathematics, for secondary school and university teachers; (2) in methods of acquainting young people with the world of science, for public opinion leaders in NATO countries, and (3) in managerial techniques, for key personnel in industry, education and government.

It should be possible to rely chiefly on existing institutions in setting up the summer programmes. Qualified centres would be invited to submit proposals for summer study programmes, and these proposals would be evaluated on the basis of the competence of the proposed teaching staff and the adequacy of available facilities. Also, the institutes could be administered by existing centres, for example, under the general sponsorship of the National Science Foundation or the Academy of Sciences in the United States, and by their counterpart organizations in the other NATO countries.

Since many outstanding younger students would find it financially difficult to attend summer institutes, consideration should be given to a scholarship programme, with modest stipends, for pre-doctoral students. Funds for such scholarships might come, in part at least, from non-governmental sources.

The idea of a European-wide centre of post-graduate studies - internationally staffed and financed and drawing to it the finest students in Europe - has long excited the imagination of scholars on the continent.

In time, it may be practical and desirable to establish a post-graduate school, which could constitute a NATO Centre for Advanced Technology. Such a centre might evolve organically from less ambitious NATO-sponsored activities in the manpower field. Several years of preparatory planning, however, would probably be necessary.

At present, it seems best to place primary emphasis on programmes along the lines of those proposed in this report, which would strengthen existing centres of study. It is estimated that $100,000 would be a sound initial NATO contribution for the summer institute programme. This fund would be supplemented by funds from private foundations and other sources and would permit the immediate planning of at least two key institutes in the summer of 1958.

4. International Exchanges of Scientific and Technical Personnel

It is recommended that NATO member states expand their international exchange-of-persons programmes involving scientists and engineers and advanced students, and in this connection, enter into agreements to mutually recognize equivalent degrees.

The value of this programme has already been fully demonstrated. A vastly stepped-up programme is now required.

Personnel exchanges and foreign visits are generally designed to serve an educational purpose in the broad sense. They may serve to familiarize the technically trained visitor with new discoveries and techniques which may then be applied more widely.

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In the narrower academic sense, many thousands of students from NATO countries receive their scientific and, especially, technological training outside their home country.

Under present government programmes the exchange of civilian scientific and technical personnel among NATO countries is relatively small. Personnel in the humanities, the social sciences, and art, predominate.

Expanded programmes of exchange of scientists and engineers would have the immediate advantage of improving the usefulness of persons already recruited for scientific work.

For example, it is suggested that particular attention be given to expanding exchanges for post-doctoral students who are just beginning their careers. This is a critical period when many excellent people are lost to their chosen field. Stimulating contact with the best experience abroad could help open their eyes to the importance of the contribution they may be able to make.

The exchange-of-persons programmes will be aided if prompt steps can be taken by NATO countries to recognize equivalent degrees.

5. Cooperative Project Research under NATO Sponsorship

It is recommended that NATO sponsor and finance additional important cooperative training and research projects which particularly lend themselves to international action.

Seven years ago the NATO-sponsored and NATO-financed Advisory Group for Aeronautical Research and Development (AGARD) was established to invigorate the study of aerodynamic theory within the NATO Community. Leading scientists and engineers from all the NATO countries participate in the organization and technical panels of AGARD. Its next General Conference will attract 400 - 500 representatives from throughout NATO. Following an AGARD recommendation, a Training Centre for Experimental Aerodynamics was established in Brussels. This centre, supported directly by NATO, brings together outstanding teachers and graduate students from the entire NATO Community, and it has functioned with outstanding success.

The precedent of the aerodynamic training centre should now be extended to other training and research problems when it can clearly be shown by scientific opinion that cooperative international action is appropriate. A long-term programme of cooperative meteorology research, under contract to NATO, is an example of a project deserving further consideration.

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In a few fields it might be necessary to establish new training centres. Wherever possible, however, such NATO contract support should be given to established all-European study centres in fields relevant to military defence and economic progress, as leaders in such fields of study come forward with concrete and outstanding proposals.

6. A European-wide Employment Clearing House

It is recommended that a European-wide employment clearing house for scientists and engineers be established.

One of the most serious practical problems faced today is equating the supply of scientific skills with the demand for these skills. In the highly industrialized parts of the NATO community, demand for highly trained technical manpower exceeds supply. But in other areas, there is underemployment or actual unemployment for scientists and engineers, particularly those just finishing their training.

One obvious way to help remedy this situation is through a European-wide scientific and engineering employment clearing house. The employment rosters of American scientific societies offer a precedent for such a clearing house.

The goal would be to assemble in one register, and at one place, a list of employment opportunities available throughout Europe, together with a list of qualified applicants for such positions.

Once such a register was prepared, and kept current, industry, the universities, research centres, and technical personnel would, beyond question, find it of great usefulness.

7. The Role of Industry

It is recommended that industry give a greater support to academic institutions by making scientists and engineers in its employ available for teaching and assignments in secondary schools and universities, and by helping sponsor and staff summer teaching and research institutes.

There has been a traditional barrier between science in the university and science in industry. The campus has been the home of pure research, with industry the home of applied research and technology. Commonly, there has been little co-mingling between the two.

In a few countries, this traditional barrier is now breaking down. For instance, more than one-half of the advanced-degree holders in science and engineering in the United States are today working in industry. In a few countries industry is now lending schools heavy support through contracts for on-campus research, and grants for new professorial chairs, additional facilities, and scholarships and fellowships. In return, schools are giving industry much needed assistance through such means as consulting services.

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This exchange between the schools and industry is mutually profitable, and is much to be encouraged.

Industrial companies could make a regular practice of granting sabbatical leaves to selected scientists and engineers in their employ, and loaning them for full-time. teaching assignments in colleges, universities and secondary schools. Further, industry could immediately help sponsor and staff summer teaching and research institutes.

8. Maintenance of National Remedial Manpower Programs

It is recommended that the member governments be invited by the NATO Council to maintain appropriate programs for remedying the manpower problem on the national level.

Toward this end they should be invited to do the following:

(a) wherever possible encourage and stimulate higher standards of scientific training:

(b) initiate, expand and continue their studies of scientifically and technically trained manpower, with particular reference to numbers, employment, utilisation, and their future needs;

(c) request their appropriate educational authorities currently to review the adequacy of their educational facilities for providing scientific training, especially in view of the growth of populations and of the demand for education on the part of large numbers of people, and annually (or at some other frequent and regular interval) hereafter to prepare for NATO a report on progress made in this field;

(d) request their appropriate educational authorities to determine whether enough time is now devoted to the study of mathematics and science at the high school level

(e) examine the supply and training of teachers in technical fields; and

(f) give wide public currency to their findings.

9. An Informed Public Opinion

It is recommended that the NATO Parliamentary Conference, the NATO Council, the member governments, and all non-governmental bodies concerned, maintain a continuing and vigorous programme to focus public attention on the necessity of remedying the manpower shortage problem.

A successful long-term programme for remedying manpower shortages must rest on wide-spread popular support. The problem will not be solved until there is a far greater public awareness of the problem's dimensions and importance.

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The NATO Parliamentary Conference can itself help focus attention on the manpower problem. The Conference is composed of elective officials from the member states - legislators who are in daily touch with their constituents, and who are responsible for inviting the attention of their electorates to questions of great consequence.

There are certain practical steps the NATO Parliamentary Conference can now take:

(a) the problem of scientific and technical personnel should be given a prominent place on the agenda of each annual meeting of the Parliamentary Conference;

(b) the Special Committee on Scientific and Technical Personnel should be made a permanent and continuing body of the Conference; and

(c) The Conference should sponsor an annual stocktaking report on this entire problem. This report might be prepared in cooperation with the Organization for European Economic Cooperation and other organizations active in this field. Such a report prepared in a non-technical and readily understandable format, would be a periodic review of progress made and problems yet unsolved in raising the quantity and quality of technical manpower. Efforts should then be made to give these annual reports the widest possible circulation.

10. Administrative Questions

The problem of how best to co-ordinate scientific manpower activities sponsored or encouraged by NATO is difficult and important.

Obviously, these programmes would have to be administered with extreme flexibility. We take it for granted that national educational authorities would be closely consulted throughout, and that due regard would be given to the particular problems of specific member states.

We doubt that NATO, as such, should be directly involved in the day-to-day administration of these matters.

The possibility of contracting out the administrative direction and co-ordination of these activities to some already existing academic or research organization has been carefully explored with leading authorities both in Europe and America. These enquiries have indicated that there is probably no existing organization which could assume these duties.

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The best way to proceed may be to establish an Atlantic Community Foundation. The Governing Board of the Foundation would be composed of two eminent representatives of each of the NATO countries, possibly nominated by the appropriate national academies or scientific societies. The Governing Board, which could meet semi-annually or quarterly, would elect a Chairman, who would in turn appoint a full-time Executive Director plus a small administrative staff.

The Foundation could work under contract to NATO, and it might also receive funds directly from member governments and from non-governmental sources.

The Foundation might find it desirable to establish its headquarters at some already existing European university or research centre of outstanding reputation.

The Executive Director of the Foundation should be selected on the assumption that his drive and good sense could be the determining factor in implementing an effective scientific manpower programme in the NATO Community.

A draft administrative budget for the Atlantic Community Foundation should be developed for presentation to the meeting of the NATO Council on December 16th.

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PART II

RECOMMENDATIONS

1. A NATO Defense Missile Training Center

It is recommended that a NATO Defense Missile Training Center be established immediately.

Today, some of the member states are relatively familiar with the complex planning and operational problems which will be posed by the integration of defensive missiles into the NATO armed forces. Other members of our community, however, now have little acquaintance with these same problems.

A common minimum level of familiarity with these armaments is needed by our entire community. To secure this, a long, and intensive, and systematic training program will be necessary.

We therefore propose that a NATO Defense Missile Training Center now be established, for the purpose of handling this problem on a NATO-wide basis.

The first aim of the Center would be to give NATO engineers and technicians, and armed forces members, a better understanding of the elementary practical problems involved in the use of missiles.

Once this foundation were laid, the Center might develop means for the testing of missiles employed on a NATO-wide basis. A NATO-sponsored missile training and testing range could be established, where practical experience in the use of operational missiles could be gained.

Still later, at this or other centers, basic research programs might be sponsored in scientific areas relevant to the technology of missiles and missile countermeasures. Such programs would aim at utilizing more effectively and broadly the skills of our community's scientists.

2. A North Atlantic Institute for Defense Studies

It is recommended that a North Atlantic Institute for Defense Studies (AIDS) be immediately established.

It is today more and more recognized by military leaders that effective defense planning cannot be improvised, nor done on an intuitive basis. Today, almost any specific defense mission can in theory be performed by a wide variety of different weapons systems. There is no quick and easy way to determine which of these many systems can do the job most effectively. In this missile era, ambitious programs of operational research, employing very complex and advanced scientific and mathematical techniques are required, more than ever before, to secure rational and objective answers within an acceptable time period.

Recognizing this, some of the NATO member states have established defence study centers which aim at bringing the techniques of modern science to bear on such problems. The Rand Corporation, which works under contract to the United States Air Force, is an example. Commonly, such study groups include on their staffs mathematicians, physicists, economists, and representatives of other fields of science. Commonly, also, such groups work under contract to the military but, nevertheless, possess a high degree of autonomy.

Based on experience to date, this type of defence study center performs an indispensable role in sound military planning. The need for such scientific analyses should grow progressively greater as weapons systems and defence problems become more complex.

No counterpart of such a group now exists on a NATO-wide basis. We therefore believe that a North Atlantic Institute for Defence Studies (AIDS), which could be made responsible to SHAPE, should be established immediately.

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/1957 Con./Res.X/

NATO PARLIAMENTARIANS' CONFERENCE

(Conference of Members of Parliament from the NATO Countries)

THIRD ANNUAL CONFERENCE

PARIS, NOVEMBER 1957

RESOLUTION

ON

PROVISION OF SCIENTIFIC AND TECHNICAL PERSONNEL

ADOPTED BY THE THIRD ANNUAL CONFERENCE

This third Annual Conference of NATO Parliamentarians,

Inasmuch as effective implementation of the report of the Committee on Scientific and Technical Personnel requires specific action by the North Atlantic Council as well as the widest appreciation and consideration,

DIRECTS the Standing Committee to submit this report to the North Atlantic Council urging that it be brought to the attention of the forthcoming Heads of Governments meeting, with particular emphasis on those proposals specifically related to the North Atlantic Treaty Organization, i.e.

(I) the Talent Development Scholarship Programme;

(II) the Mathematical Science Awards Programme for high school students;

(III) the Summer Institutes Programme;

(IV) Co-operative Project Research under NATO contract;

(V) the NATO Defense Missile Training Centre, and

(VI) the Atlantic Institute for Defense Studies (AIDS),

INSTRUCTS its Standing Committee to forward copies of this resolution to the Member Governments of NATO and other appropriate interested bodies, including OEEC, and

URGES all individual members of the NATO Parliamentarians' Conference to follow up the recommendations in this report by all appropriate means.

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