F. A. S. *NEWSLETTER*

Volume 19, No. 4

April, 1966

- - - - - - - - to provide information and to stimulate discussion. Not to be attributed as official FAS policy unless specifically so indicated.

NATO's Future Suject of Debate

With DeGaulle's repudiation of NATO and his requests that American forces leave France, the debate among other NATO nations about its future is intensified. The American proposal before the Geneva disarmament conference on nuclear nonproliferation affects the NATO alliance since it allows a NATO nuclear force — West Germany would not sign if it were to omit this point. The projected Multi-Lateral Force has been abandoned, and replaced with the British suggestion: and Atlantic Nuclear Force (ANF) in the NATO debate. The ANF idea is limited to joint British-American Polaris submarine management.

Whatever the inconsistencies of DeGaulle's position he is correct in saying that NATO was set up to deal with a situation that is now vastly changed. DeGaulle himself has done much of the changing, and has certainly caused the serious talk among the other 14 members of NATO of a reconstruction of the organization.

How the NATO alliance and its autonomous discussion of a nuclear force fits into the scheme of nonproliferation of nuclear weapons is a touchy and technical problem. There is an argument that West Germany already has indirect access to nuclear weapons through NATO, and that therefore the Russians should not object to leaving this possibility in the nuclear nonproliferation treaty. There is the further complication of possible closer union among European states, which any nonproliferation treaty must be elastic enough to provide for.

NATO and its problems are thus inevitably joined to the disarmament negotiations and the political interdependence of European states. The goals of the Soviet Union and the United States in these debates must include the realization that the issues involved affect the internal structure of European countries as they do not affect the U.S. and U.S.S.R. *(N.Y. Times, 5, 10, 25, and 30 March 1966)*

ELECTION RESULTS

Chairman: Marvin Kalkstein

Vice Chairman:

(Chairman-Elect) Jay Orear

Delegates-at-Large, 1966-68 Term

Halton Arp	Alexander Pond
Manfred Biondi	Anatol Rapoport
Robert Birge	Victor Sidel
Robert S. Cohen	Jeremy Stone
Caroline L. Herzenberg	Maurice Visscher
Harry Palevsky	Lincoln Wolfenstein

Continuing Delegates-at-Large (Term Expires 1967)

James Arnold	Gardner Murphy
Judith Bregman	Richard Preston
Lyle Borst	John Rasmussen
Richard Falk	Tom Stonier
Martin Kamen	Lawrence Wilets
Donald Michael	Martin Gellert (one-year term *vice* Brennan)

Focus Shifts from Vietnam to China

During March the news of Vietnam was notably brief, and the Senate Foreign Relations Committee hearings brought more attention to China and its relations to the West and to the United States. Experts on China testified and answering remarks from outside Senate hearing rooms extended the debate. While Dean Rusk spoke out sharply against the planned sale of a steel mill by West Germany to China, groups of scholars urged the U.S. to seek an accord with the Communist nation. A document signed by 188 academic experts, all members of the Association for Asian Studies, called for "the United States to try to move the Chinese to a greater acceptance of the principles of coexistence in the emerging world community."

New York's Senator Jacob Javits urged the U.S. government to invite China to negotiations for a peaceful settlement of the Vietnam war. He said that China's presence in Asia and the world has been ignored too long and the lack of realism in this policy could retard peace and stability in Asia. He insisted that it was time to find a way of dealing with Peking.

A. Doak Barnett of Columbia University recommended a change in the "containment and isolation" policy to one of "containment but not isolation." He said that isolation policies had been fully counterbalanced by the power of China. To exert a moderating influence on Peking, Dr. Barnett suggested that the United States, while still defending Taiwan and South Vietnam, should do the following:

Acknowledge Communist China as the de facto government on the mainland.

State a willingness for reciprocal diplomatic recognition.

Limit the present trade embargo to strategic items. Support a formula that would give United Nations seats to both Communist China and Nationalist China.

Defense Secretary Robert S. McNamara predicted that within two or three years Communist China would be capable of launching a nuclear attack on countries within 700 miles of China. McNamara expressed grave concern that China's growing arsenal indicated an intent by Peking to back up its beligerent words with actions. An example of such aggressive statements was a policy declaration last fall by Defense Minister Lin Piao, setting forth the long-term objective of promoting "people's wars" throughout the Asian, African, and American continents. McNamara reasoned that the fact that China, at considerable human and economic sacrifice, was developing a nuclear arsenal was an indication that it was moving "to support such words with instruments of war of the most terrible kind."

Senator Fulbright remarked that countries on the border of China have nuclear weapons, and it was "just as natural for a country to seek its own defense" as to build for aggression. He was referring to Korea, where the U.S. Army is stationing artillery pieces capable of firing nuclear weapons.

John H. M. Lindbeck, associate director of the East Asian Research Center at Harvard, and Benjamin J. Schwartz, a

(Continued on page 6)

OF INTEREST . . .

The State Department authorized physicians and medical scientists to make professional visits to China, North Korea, North Vietnam, Albania and Cuba last December. The approval has now been extended to scholars, but it is still illegal for most American citizens to visit these countries even if they can obtain visas. *(N.Y. Times, 12 March 1966)*

A seminar on atmosphere physics developed into a discussion of general environmental problems during the American Institute of Physics meeting at the Shoreham Hotel in Washington. Some of those present expressed the view that they thought man was losing the battle against famine, drought, and air and water pollution. Dr. James P. Lodge remarked that a city was doing well to stay even with its growing pollution problems. Dr. Reid A. Bryson added that an average city puts out as much particulate matter as a volcano, and he believed the lack of rain in India may be related to dust in the atmosphere. *(N.Y. Times, 15 March 1966)*

The University of California and the Ford Foundation are exploring the feasibility of establishing a four-year accredited college for San Quentin prison inmates. Cooperating with the university in the research and development program are the California Department of Corrections and the Institute for Policy Studies in Washington. *(N.Y. Times, 8 February 1966)*

The British Royal Society has been conducting a slowly expanding exchange of scientists with the Chinese Communist Academy of Sciences. About 15 British scientists have visited China in the past three years, while 25 Chinese are currently studying scientific subjects at British Institutions. Only two or three English students had been fluent enough in Chinese to take up formal studies in China. In August of 1964 Senator Olin D. Johnston of South Carolina had charged that Britain was "traitorous" to allow Chinese access to scientific information that might cost American lives in Vietnam. The Royal Society replied that Chinese students had no access to classified information. *(N.Y. Times, 2 March 1966)*

The Department of Health, Education, and Welfare has published standards limiting the amount of carbon monoxide and hydrocarbons permissible in automobile exhaust of new cars manufactured after 1967. The standard for domestically built cars and large imported cars will be the same as those already in effect for new cars sold in California. The major automobile companies estimate that the cost of these control modifications will be $18 to $45 dollars, depending on the complexity of the devices used. *(N.Y. Times, 30 March 1966)*

FAS NEWSLETTER

Published monthly except during July and August by the Federation of American Scientists, 2025 Eye St., N.W., Washington, D. C., 20006. Subscription price: $2.00 per year.

Chairman.....Dr. W. A. Higinbotham

The FAS Newsletter is prepared in Washington.

Editor: Judith Eckerson.

The FAS, founded in 1946, is a national organization of scientists and engineers concerned with the impact of science on national and world affairs.

Sources of information (given at the end of articles in parentheses) are for further reference. Items reprinted directly from other publications are designated as such in an introductory paragraph.

The City of New York has virtually abolished its Office of Civil Defense and transferred remaining functions to other city departments. The first step in the reorganzation was a budget cut of 60%. Most of the work of the office will be delegated to the Police and Fire Departments. The interim director of the Office of Civil Defense, who proposed the action, also recommended a cut in his own salary. *(N.Y. Times, 25 March 1966)*

The Office of Economic Opportunity has been given increased authorization to distribute money to be used for birth control devices and drugs to women reached by the program. The regulations still prevent distribution of such money to unmarried women or married women whose husbands are not living with them, but they remove restrictions previously imposed which limited the birth control aid to one year from the first prescription. The Administration has asked Congress for $10 million in funds for birth control programs in other nations this year. The O.E.O. has spent $1.25 million on birth control in this country in the past 15 months. *(N.Y. Times, 30 March 1966)*

Alekesei A. Roshchin, who replaced Semyon K. Tsarapkin as Soviet delegate to the 17-nation disarmament conference in Geneva, was received warmly by delegates from other countries. His appointment is considered a sign of possible progress. Conference sources seem satisfied that his designation indicates continued Soviet interest in the disarmament problem. *(N.Y. Times, 25 March 1966)*

Th two-year agreement on cultural, educational, scientific, and technical exchanges between the Soviet Union and the United States was the subject of last-minute problems before the final terms were agreed upon. There were reports that the U.S. had shifted its last minute demands twice, but returned to the earlier proposals to avoid jeopardizing the exchanges which have been going on since 1958. The White House withdrew demands that the agreement include a guarantee against arbitrary cancellation of exchanges, and the Soviet Union was notified that the original would be signed. *N.Y. Times, 19 March 1966)*

WOMEN'S INTERNATIONAL LEAGUE WRITES TO FAS

The following letter was received by the Chairman of FAS in March:

The National Board of the Women's International League for Peace and Freedom meeting in Philadelphia February 4–6, 1966, wishes to send its appreciation to the Federation of American Scientists for your efforts as scientists to work for the abolition of weapons of mass destruction, and for the concern that you have shown in your many efforts of the past year for social responsibility in science, and for your enlivening work in this field.

We recognize that, as Abba Eban has said, "a society in which scientific truth is held in respect must be, or must ultimately become, a free society" and wish to encourage your efforts as socially responsible scientists toward "establishing a family of nations bound together in a covenant of freedom and peace."

In this period of great violence in our world, we are thankful for organizations such as yours.

Most sincerely,

Adelaide N. Noyes

1965 AS SEEN BY ACDA

On March 14 the Eighteen Nation Committee on Disarmament, meeting in Geneva, entered its fifth year. The Arms Control and Disarmament Agency is also entering upon its fifth year as a U.S. agency. The following is excerpted from the annual report of the ACDA to the President and Congress, and concerns the ACDA contribution to disarmament conferences in 1965.

In 1965, despite the trials of the war in Viet-Nam, the United States pushed determinedly ahead in its search for ways to turn down the arms race. A U.S. draft treaty to prevent the spread of nuclear weapons was presented for negotiation to the Eighteen Nation Committee on Disarmament (ENDC) at Geneva. An existing U.S. proposal to cut off all production of fissionable materials for weapons was expanded to include the actual destruction of thousands of nuclear weapons. The United States also restated its willingness to explore the possibilities of a freeze in strategic nuclear delivery vehicles which would limit further production to present levels and prevent the development of new crete nuclear disarmament steps by the nuclear states were called for to match the self-denial by non-nuclear states in not acquiring or developing such weapons.

Throughout, the United States indicated its awareness of the responsibility of the nuclear powers to those states agreeing to refrain from the development of nuclear weapons. ACDA Director William C. Foster reminded delegates that the United States had offered a broad program of measures related to non-proliferation: a comprehensive test ban treaty, a cutoff in the production of fissionable materials, worldwide safeguards on reactors to prevent their diversion to military purposes, a freeze on the numbers and characteristics of strategic nuclear delivery vehicles, and support for the establishment of nuclear-free zones in certain areas of the world, such as Africa and Latin America.

To the Soviet claim that proposals for nuclear-sharing arrangements in NATO would constitute proliferation, the United States answered with its Draft Treaty to Prevent the Spread of Nuclear Weapons. This document, worked out in consultation with the Western members of the Eighteen Nation Committee (Canada, the U.K. and Italy), set out specific terms for an agreement for the fist time. It would prohibit nuclear powers from transporting nuclear weapons into the national control of any country not having nuclear weapons, either directly or indirectly through a military alliance, or assisting in the manufacture of such weapons. Non-nuclear states would have a corresponding obligation not to acquire nuclear weapons nor to manufacture them.

The draft treaty contains language which specifically prevents any increase in the present number of nuclear entities. Its provisions bind both nuclear and nonnuclear states "not to take any action which would cause an increase in the total number of States and other Organizations having independent power to use nuclear weapons."

Mr. Foster emphasized that "The United States is opposed to any form of dissemination of nuclear weapons, direct or indirect. We seek no nuclear-sharing arrangement in NATO which would involve such dissemination. The treaty we have suggested would bar such dissemination since it would prevent the creation of any additional entity, whether a state or organization, having an independent power to use nuclear weapons."

Under the U.S. proposal a new organization having independent power to use nuclear weapons can come into existence only if one of the present nuclear nations voluntarily turns over its entire stockpile of nuclear weapons to a collective entity, thereby giving up its own national capability.

The Soviet Union and its allies, while not rejecting the U.S. draft treaty outright, stated that a basis for negotiation had not been offered. They held to their position that the draft treaty permitted dissemination in that it did not rule out the possibility of "access" to nuclear weapons by the Federal Republic of Germany.

The Italian Foreign Minister, Mr. Fanfani, proposed to the Geneva Conference that the non-nuclear powers individually undertake a temporary moratorium—a unilateral declaration to refrain from developing nuclear weapons for a given period of time, or until the terms of a treaty could be worked out among the nuclear powers. By placing a time limit on such voluntary self-restraint, he suggested, pressure for agreement would be maintained. This idea has not yet been actively pursued, given the continuing hope for agreement on a treaty within a reasonable time period.

The Eighteen Nation Committee recessed on September 16, 1965, in preparation for consideration of disarmament items at the Twentieth UN General Assembly. There, on September 24, the Soviet Union introduced its own version of a non-proliferation treaty. It was obvious that the treaty had been drafted in such a way as to preclude the type of nuclear-sharing arrangements which were currently under discussion in the North Atlantic Treaty Organization.

The eight nonaligned members of the Eighteen Nation Disarmament Conference played an active role in the debate of the General Assembly's 117-nation First Committee. Their initiatives contributed importantly to the compromise resolution on non-proliferation adopted by the General Assembly on November 19.

The Resolution calls on the ENDC to reconvene as early as possible to negotiate a treaty. It urges that "the treaty should be void of any loop-holes which might permit nuclear or non-nuclear powers to priliferate, directly or indirectly, nuclear weapons in any form." The United States considered this language to be consistent with its position. In voting for the resolution, Mr. Foster said:

"We agree that there should be no loop-holes, and the United States draft treaty permits none. (It) would not permit any non-nuclear country to acquire nuclear weapons, national control over nuclear weapons, the power itself to fire nuclear weapons, or access to information on manufacture of nuclear weapons. What could not be done directly would not be permitted indirectly, through a military alliance."

Soon after the completion of United Nations consideration of the five disarmament items, the Soviet and American Co-Chairmen of ENDC agreed to reconvene the Geneva conference on January 27, 1966. There the arduous negotiating task will continue as the Committee works to reconcile the differences in the two draft treaties.

Throughout the year, in New York, Geneva, Washington, London, and Paris, U.S. negotiators pursued the urgent goal of an agreement to stop nuclear proliferation. In Vienna and Tokyo the United States joined with 93 countries of the International Atomic Energy Agency in its effort to bring worldwide power reactor development under improved international safeguards, and ACDA shared the scientific and diplomatic effort with U.S. agencies more directly responsible for this problem, so important to our non-proliferation objectives.

ACDA's Director, William C. Foster, who is principal adviser on arms control and disarmament to the President and the Secretary of State, spent over six months representing the United States at the international conference table.

On April 21, the long-dormant United Nations Disarmament Commission was called into session at the request of the Soviet Union on the ground that the U.N. dues dispute had made it impossible for the General Assembly to hold its usual disarmament debate. The United States agreed, although it would have preferred early resumption of the ENDC talks in Geneva. The meeting lasted eight weeks and opened with a violent Soviet attack on U.S. policies in Viet Nam. The 117-Nation membership, however, was more interested in the problems of nuclear proliferation, and on June 16 wound up its deliberations with an overwhelming call for a return to Geneva "as soon as possible" in order to negotiate a non-proliferation treaty and the extension of the limited test ban treaty to cover underground testing:

Under this mandate, the Geneva Conference convened the following month, on July 27. There, on August 17, the United States introduced its draft Treaty to Prevent the Spread of

(Continued on page 4)

1965 AS SEEN BY ACDA

(Continued from page 3)

Nuclear Weapons. This question held the center of the stage during the short, seven-week session.

On September 16, when the 18-Nation Committee came to its customary recess on the eve of the United Nations General Assembly, it was clear that any agreement on a non-proliferation treaty would come only after difficult negotiation. The Soviet Union had greeted the U.S. draft coldly, saying it offered "no basis" for negotiation, but had offered no alternate draft of its own.

Nevertheless, agreement of another kind had begun to emerge from the months of intense activity at the international conference table. There was an almost universal view that the further spread of nuclear weapon capabilities would constitute a grave and immediate threat to international peace. And while there was disagreement about how it was to be accomplished, the involvement of the Chinese Communists in disarmament discussions became an important objective of a growing number of countries.

When the United Nations 20th General Assembly met in New York (September 21–December 21), the Soviet Union introduced its own version of a draft non-proliferation treaty.

Disarmament questions dominated the agenda of the General Assembly's First Committee, and were debated for seven weeks.

The Assembly itself passed by overwhelming votes five disarmament resolutions, covering non-proliferation, a comprehensive test ban, a world disarmament conference, the denuclearization of Africa, and general and complete disarmament. The United States voted for all five. The Soviet Union abstained on the comprehensive test ban resolution but voted for the others. France abstained on every vote.

After completion of the disarmament items, the Soviet and American Co-Chairmen of the 18-Nation Conference promptly agreed on reconvening at Geneva on January 27, 1966.

Nuclear proliferation dominated the debate and the character of the resolutions throughout the General Assembly session. By the end of 1965 the alarm had been raised on an international scale. In this fact lies the greatest element of hope for agreement.

NON-PROLIFERATION

The U.S. draft treaty to prevent the spread of nuclear weapons was presented at Geneva on August 17. It had been foreshadowed by Ambassador Adlai Stevenson earlier in the year. On April 26 at the United Nations Disarmament Commission in New York, he had characterized the problem of proliferation as the most urgent facing the world, and had called for a "simple and effective" agreement, along the lines of the "Irish Resolution", untnimously approved by the U.N. General Assembly in 1961. Such an agreement, he said, should obligate the nuclear powers not to relinquish control of nuclear weapons or provide assistance necessary for their manufacture to nations not now possessing them. As a corollary, the non-nuclear states should agree not to manufacture, seek or receive such weapons or data necessary for their manufacture, or otherwise acquire control of nuclear weapons.

As the debate in the Disarmament Commission ran its eight-week's course, the sense of urgency expressed by Ambassador Stevenson and Mr. Foster on this issue was echoed by many UN members and attention was directed towards the need for a non-proliferation treaty and for a total ban on testing; the latter was widely regarded as an essential element in preventing further spread of nuclear weapons. In June, the Commission by a vote of 83 to 1 (with 18 abstentions, including the Communist states), called for the resumption of the Geneva Conference "as early as possible" in order that priority attention be given to drafting a non-proliferation treaty and extending the partial test ban treaty to the underground environment.

The Commission's vote heralded a growing confidence in the 18-Nation Committee on Disarmament as the best forum for the conduct of these complicated negotiations.

Some of the themes developed in New York were orchestrated at Geneva, as the 18-Nation Conference met July 27 for the first time since September, 1964. The Soviet Union continued in its lon-held position that no agreement was possible on non-proliferation so long as the United States continued to hold open the possibility of such nuclear-sharing arrangements in NATO as the multilateral force or the allied nuclear force. These schemes, they contended, would constitute proliferation and place nuclear weapons within reach of additional countries, particularly Germany.

The consensus in New York that proliferation was a priority item had not extended to a formula for the best methods for preventing it. There was concern in some quarters that a single measure such as a treaty was not adequate and that a broad program was needed to accompany it. Certain of the non-nuclear states were worried about possible threats to their security should they forego nuclear weapons. Some advocated agreement to outlaw the use of nuclear weapons, or prohibition of their use against non-nuclear states. The latest improvements in the detection and identification of underground nuclear explosions were brought to the attention of international disarmament negotiators. The United States expressed a readiness to take current scientific capabilities fully into account in discussing the number and kind of on-site inspections for verifying compliance with a total ban on testing.

These activities took place under the general guidance of the United States Arms Control and Disarmament Agency, which bears principal responsibility for the preparation and management, under the direction of the Secretary of State, of international negotiations in disarmament.

SEABORG DESCRIBES COOPERATION WITH GERMANY

In a speech delivered to the German Atom Forum in Bonn on March 10, Dr. Glenn T. Seaborg, Chairman of the U.S. Atomic Energy Commission, described the current status of cooperation with Germany under the Atoms for Peace Program. The following is an excerpt from his speech.

Under these agreements, we are furnishing the enriched uranium fuel supply for 18 research reactors in Germany, located at Berlin (2), Darmstadt, Frankfurt, Garching (3), Geesthacht (2), Grosswelzheim, Hamburg, Juelich (2), Karlsruhe (2), Mainz, Ulm and Stuttgart, and the heavy water for your research reactors at Juelich and Karlsruhe. We are providing fuel for Europe's first enriched uranium power reactor, the 15 MW boiling water reactor located at Kahl, and we will be supplying fuel for the large enriched uranium power reactors to be located at Gundremmingen, Lingen, and Obrigheim as they are completed. The reactor at Gundremmingen is being built under our Joint Program of Cooperation with Euratom, which was one of the principal mechanisms for introducing the technology of enriched uranium reactors into Europe. Under this cooperative arrangement, fuel has been made available on especially advantageous terms and, perhaps, most importantly, we, Euratom, and its Member States have cooperated in a broad development program to further improve this type of reactor. To date, more than $50 million has been expended or committed by the United States and Euratom in this joint program.

These reactors are of a type developed in the United States; they use enriched uranium for fuel, and are cooled and moderated by ordinary water. We believe they will f" the major part of the world's needs for nuclear power in t short term, because they are already highly developed, and have achieved a degree of economic performance unmatched by any other type of reactor to date. Under our coopera-

(Continued on page 6)

OUTLINE OF NEEDED RESEARCH IN POPULATION

The following article is an abridgement of one which appeared in The American Behavioral Scientist for February 1966. The author, Robert Lamson, is employed by the Office of Civil Defense.

1. What is the relation of the "population explosion," that is, of rapid population growth rates, to such problems as national security, resources, and welfare?
2. If, as the President's Messages indicate, we are to use our knowledge to help deal with the explosion in world population, what is the range of possible and desirable goals, means and programs for using our knowledge to deal with this problem, domestically and internationally?
3. What is the relation of these goals to current national problems in such fields as national security, resources and welfare?

The asking of these questions reveals our lack of knowledge as well as our need for systematic study and analysis of the goals, means and problems involved in using "our knowledge to help deal with the explosion in world population and the growing scarcity in world resources" and in acting "to help countries trying to control population growth by increasing our research."

However, some tentative answers and suggestions may be offered with respect to: 1. the relation of explosive population growth to problems of national security, resources and welfare; 2. the range of goals and means for using our knowledge to help deal with the explosion in world population; 3. types of research needed to help answer these questions and to implement the President's statements of purpose.

National Security: In the area of strategic defense, planning nationwide requirements for protection against nuclear based on assumptions about population size, growth rates, composition and distribution—basic elements involved in planning nationwide requirements for protection abainst nuclear attack. Planning for military manpower is based on similar assumptions.

Insofar as population size, composition and growth are factors in national power and military capacity, these elements also enter into the caluclus of United States' power and capability with respect to other nations. Population growth rates are also crucial factors which effect the success of our programs to promote economic growth and political autonomy and stability in underdeveloped areas. Rapid population growth rates have made economic growth and political stability increasingly difficult to maintain in some parts of the world, thereby adding to the need for programs and forces to help maintain internal order and to defend against guerrilla warfare.

Resources: With respect to problems of domestic and world resources, population size, and growth rates affect the ability of any society to conserve, to use efficiently or to expand such resources and land, pure air and water, fuel and power, timber, wildlife, wilderness, outdoor recreation areas, open spaces, natural beauty and silence. Population growth rates also affect a nation's ability to provide adequately such functions as transportation, communications, housing, sanitation and education.

Welfare: Population size, composition and growth rates are crucial elements in such problems as poverty, standards of living, health, employment and automation, not only as part of the conditions within which these problems are solved, but also as causes of these welfare problems themselves—in the United States as well as in the rest of the world.

In addition to these problems of security, resources and welfare, of great importance is the fact that such values as freedom, autonomy of personality, the nature of our democratic political system and the extent of intrusion of government into the lives of citizens depend, to a certain extent, on the relation between population (size, composition, density, distribution) and availability of resources. These values may be jeopardized by rapid population growth before limits are reached in the availability of such economic resources as land, water, food, power and fuel, or in our ability to provide such services as housing, schools and transport.

Interaction: The various parts of these problems of security, resources, welfare and political value interact, on the domestic as well as international levels, and the solution of one part of a problem may depend eventually upon the solution of other parts. For instance, the eventual reduction of population growth rates in underdeveloped countries to the point which would allow for economic growth and political stability may possibly depend upon our success in reducing population growth within the United States. For other countries which we attempt to help and motivate to control their population growth may be less willing to do so if the United States does not provide an example, or if they are urged to limit their population growth and consumption of world resources while, at the same time, the United States doubles in size and increases its percentage and rate of consumption of world resources.

In the long run, our ability to solves our welfare problems of poverty, unemployment, automation and health, to increase our domestic standards of living and to provide adequate housing, schools and transportation may depend on whether and what level a balance is struck between population and resources within the United States, even granting the fact that technology can help us to expand and to make more efficient use of our resources.

In the long run also, solutions to our domestic welfare and resource problems may depend upon our success in encouraging other countries to reduce their rates of population growth, if it is granted that the domestic balance between population and resources is ultimately affected by the world population-resource balance.

THE RANGE OF GOALS AND MEANS:

In order to implement the President's statement of purpose to use our knowledge to deal with the explosion in world population, various alternative goals (domestic and international) may be explored by assuming, for the sake of analysis, that it is within the power of the United States to attain any population policy goal which its sets for itself.

To achieve whatever goal is chosen for dealing with the explosion in world population, there is a range of alternative means which differ with respect to effectiveness, religious, moral and political acceptability, degree of individual choice, practicality and cost. They include: 1. methods for controlling birth rates, for instance, infanticide, abortion, sterilization, pills, chemicals, various types of contraceptives, rhythm, abstinence and delayed marriage; 2. methods for motivating people to limit family size, for instance, clinics, information and propaganda, and removal of incentives for having additional children beyond a given number; and 3. alternative government policies for combining elements of these two methods into a program for achieving a particular population policy goal.

Given such a range of possible alternatives for dealing with the explosion of world population, which one's should be used to pursue the goal chosen for population policy?

NEEDED RESEARCH:

Various types of research are needed to help implement the President's statesments of purpose and to answer the quesions raised above. For if, as the President's statements suggest, we are moving toward acquiring the national capability as well as the intent to use human knowledge to alter population growth rates and to treat United States and world population growth as objects for government planning and action, then there is a great need for research on: 1. the relation between population size, composition and growth and our problems and goals in fields such as national security, resources and welfare; 2. the range of alternative domestic and international goals for United States' application of human knowledge to the population explosion; 3. the relation of these alternative goals to such problems as national se-

(Continued on page 6)

HIGH-ALTITUDE NUCLEAR BLASTS HELD USEFUL

Dr. D. W. Dorn of the University of California's Lawrence Radiation Laboratory has suggested that nuclear bombs exploded high in the atmosphere may have many scientific uses. They would provide a new tool for investigating energies and intensities of radiation in the earth's atmosphere. Dr. Dorn believes an international agency would be able "to weigh the advantages and disadvantages of such experiments in a dispassionate way." Nuclear explosions might simulate, briefly, the conditions believed to exist in stars, and might provide a way of measuring properties of man-made elements, he said. *(N.Y. Times, 30 March 1966)*

FOCUS SHIFTS FROM VIETNAM TO CHINA

(Continued from page 1)

professor of history and government there, contradicted in the Senate Foreign Relations Committee the idea that Peking is devoting itself to promoting revolutions around the world and that it has a "magic formula" for subverting underdeveloped nations. Both of them echoed the theme of earlier witnesses that the problem posed by China would be eased if she had broader relations with the outside world. Dr. Lindbeck described the Communist regime of Mao Tse-Tung as preoccupied with the vast domestic problems of organizing and administering Chinese economic and political development, and its leaders as perhaps "stunned by the failures of their excessive ambitions."

In Toronto, comments were as follows: ". . . U.S. leaders must rise above the morbid love-hate feelings for China that have led to negative and sterile policies. Is it Chinese communism that they fear and strive to contain, or are they simply unwilling to see the rise of a great and modern China that is determined to be independent and that scornfully rejects the tutelage of Washington? As they imply that the Chinese preach racial strife, to what extent are they themselves guilty of unconscious racism and of raising fears about a Yellow Peril?"

A three-day National Inter-Religious Conference on Peace held in Washington, although primarily against the administration policies of war in Vietnam, singled out the problem of Chinese isolation and American attitudes toward that country as a large part of the overall problem. Seventeen agencies sponsored the meeting, some religious pacifist and some nonpacifist. *(N.Y. Times, 8, 9, 11, 16, 17, 21, 23 March 1966; The Globe and Mail, Toronto, 8 March 1966)*

OUTLINE OF NEEDED RESEARCH IN POPULATION

(Continued from page 5)

curity, resources and welfare; 4. the combination of means (medical, motivational and policy) which would be required to achieve the goals; and 5. the costs and benefits—economic, political, social and moral—of each alternative and combination.

Paramount in such research should be a concern with the effects on democratic political systems and on the values of freedom and autonomy of personality which are created, first, by rapid population growth and, second, by the goals and means which are chosen for applying human knowledge to the population explosion.

The following is an outline of the goals of various types of needed research.

1. *Medical-Biological:* To provide medical techniques for population control.
2. *Social-Psychological:* To provide the information and techniques for understanding and influencing individual decisions to limit births.
3. *Demographic:* To provide basic information about the nature of the population problem as well as analytical techniques for evaluation of alternative population policies.
4. *Policy-Systems Analysis-Economic-Legal:* To outline and analyze the benefits, costs, risks and requirements of various alternative population policy goals and programs.
5. *Theological-Philosophical:* To reconcile effectiveness, moral acceptability and desirability of alternative population control techniques and programs.

SEABORG

(Continued from page 4)

tive arrangements, the vast body of information on these reactors developed by the Atomic Energy Commission has been made available to your scientists, and our industry has been authorized to enter into commercial licensing arrangements with their partners in Germany.

The result of this is that, today, these reactors, and their fuel elements, can be manufactured entirely in Germany. The enriched uranium required for their fuel elements is available from the United States at the same prices applicable to users in the United States, under long-term arrangements with Euratom which assure the supply of needed quantities over the economic life of the reactor.

FAS NEWSLETTER

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2025 Eye Street, N.W.
Washington, D. C. 20006

Volume 19, No. 4 April, 1966

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