Thomson lists other impediments to change in U.S. relationships with China: "Among other things, this slow movement on China policy has been caused by certain figures in the bureaucracy who tend to be more rigid, even theological, toward Asian Communism than they are to that of East Europe, or than are the real students of the China problem in the bureaucracy or in the field abroad." Thomson also listed three other factors which have contributed to the glacial slowness of U.S. movement on China policy:

- "The mood of the Chinese, who became more belligerent after the Great Leap Forward.
- "A bureaucratic timidity in the face of what was assumed to be public antipathy to any moves toward reconciliation with China; this has been particularly true in Democratic Administrations which are still gun-shy from the so-called loss of China.
- "The Sino-Soviet split. Especially after the resolution of the Cuban missile crisis of 1962 and the subsequent U.S.–Soviet rapproachment, our Soviet experts cautioned us to do nothing about China."

Thomson now thinks that a series of events in the past year, including the Fulbright hearings on China (*Science*, 14 October), have induced some movement on China policy which has culminated, for the moment, with President Johnson's 12 July speech on the subject.

As for the future, Reischauer anticipates that American military forces will be needed in the Pacific during the coming years, and says that the presence of the Seventh Fleet in Far Eastern waters has had a stabilizing influence. "I think it is necessary," he adds, "to draw a distinction between maintenance of forces in the Pacific and on the Asian mainland. I think it's very important for us to realize that we can only play a supporting role in Asia, not a primary one."

In a similar vein, Thomson argues, "Our task in Asia is to encourage, not to dominate. I fear the over-Americanization of Asian efforts—too much American money being spent, too many Americans on the scene. Our massive military efforts can keep some countries from taking steps to stand on their own feet."

Emphasis on Asia

To some Washington observers, the Johnson Administration now seems to be following an Asian lodestar. Turning away from Europe, Latin America, and Africa, President Johnson has directed American energies to Asia, especially to waging the military conflict in Vietnam. This year, President Johnson has made one major trip to Asia, and Vice President Humphrey has made two trips to the Far East. These tours represent the only extensive foreign travel of the two principal officials of this administration.

On the one hand, U.S. experts on Asia are glad that Americans are paying more attention to the continent. On the other hand, some fear the United States will lavish its favors primarily on those small military allies which are of peripheral importance in the broader Asian perspective. While concentrating attention on countries like South Vietnam, Thailand, Taiwan, South Korea, the Philippines, and Australia, the United States may progressively cut itself off from the more significant Asian countries—India, Japan, Indonesia, and Pakistan. Thomson expresses one part of this concern when he says, "I worry that the Vietnam war, like the Korean war, may push us into overemphasizing the virtues of countries which join with us to the exclusion of more important Asian countries which do not support our position."

If the pattern set in the first period of the Johnson Administration continues, it seems that the size and character of the American involvement in Asia will be the major foreign policy issue of our time. Scholars such as Reischauer and Thomson, as well as government officials, are likely to grapple with the problem of defining the proper American role in Asia for many years to come.—BRYCE NELSON

UNESCO: Stress on Development Brings Parity for Science

Paris. In celebrating its 20th anniversary this month UNESCO, the United Nations Educational, Scientific and Cultural Organization, passed a thoroughly respectable milestone in international intellectual cooperation. Hopes of some of its founders and original well-wishers that creation of UNESCO might enable intellectuals and artists to find a path to peace around the pitfalls of politics have not been realized. But the organization has found, or perhaps had thrust upon it, a major mission—assistance to developing nations, with increasing emphasis on science and technology.

As one of the permanent specialized organizations of the United Nations, UNESCO is an intergovernmental organization which depends on member governments both for budget and for approval of its policies. This month the 14th UNESCO general conference convened in Paris to review and approve its budget and program for the 1967–68 biennium.

A turbulent time was not expected in Paris, and no major issues related to the program have so far inflamed the proceedings. Advance consultations with member governments forestall most surprises, and the meeting this year has, in effect, confirmed action taken at the last meeting, 2 years ago, when science was given equal emphasis with education and culture in the UNESCO program [see *Science* **142**, 470 (1963)].

In the years after World War II, when UNESCO was on financial short rations, most of the organization's efforts in science were devoted, quite naturally, to resuscitation of the international scientific community. UNESCO, for example, helped restore the International Council of Scientific Unions (ICSU) to vigor and was instrumental in setting up such other nongovern-

mental international counterparts to ICSU as the Council of International Organizations of Medical Sciences and the Union for International Engineering Organizations.

Encouraged by postwar interest in conduct of basic research on an international basis, UNESCO sought to foster coordinated research programs by member nations and also to promote intergovernmental projects in which new multinational research organizations would be established.

Its role in coordination is exemplified in operations of the International Hydrological Decade; the coordination council for the program is based in the UNESCO secretariat. UNESCO's office of oceanography serves a similar role in relation to the International Oceanographic Commission. Through the UNESCO-sponsored International Cell Research Organization and International Brain Research Organization, existing specialized research laboratories in the member states are becoming associated.

Probably the best-known example of an intergovernmental project which has achieved a life of its own is the European Organization for Nuclear Research (CERN), located outside Geneva. The ideas which culminated in the establishment of CERN, with its solid reputation for research in particle physics, seem to have originated with European scientists even before the war, but were brought to fruition within UNESCO.

UNESCO's activities in science have not been viewed with unanimous favor by scientists. This is probably inevitable for an organization of UNESCO's intergovernmental character and slender means. In its dealings with nongovernmental international scientific organizations frictions have unquestionably arisen. Scientists are temperamentally disposed to run their own shows and to feel impatience with an organization like UNESCO which has to operate on lines consistent with the wishes of its 120 member states and therefore may have a rather slow reaction time.

Perhaps more to the point, UNESCO has never had the money to support research on a major scale or to give broad financing to institutions. UNESCO is in the business of spreading "seed money" around very selectively, so scientists must look elsewhere for major support, and it is well known that the symbiotic relationship between grantor and grantee breeds a peculiar sort of loyalty.

In its multiple roles as missionary, middleman, and marriage broker UNESCO has played and continues to play a significant part in international scientific affairs, particularly in providing subventions to finance planning of international projects. The UNESCO formula seems to work best with the earth sciences. The researcher in the earth sciences—the seismologist, for example—is accustomed to cooperating with government agencies and so probably finds it comfortable to work with an intergovernmental organization.

It also appears (though it is difficult to weigh this as a factor) that, during the period when the science activities of UNESCO were modest in scale, many scientists tended to look on the organization as a stronghold of "do-gooders" primarily concerned with education and culture rather than science. As the UNESCO science program continues to develop, and as the number and quality of scientists in the secretariat increases, this prejudice should dwindle.

The rise of science in UNESCO has in some ways been a long-term and steady one. As early as 1950, concern for the problems of the less-developed nations prompted creation of the U.N. technical assistance program, and a decade later the complementary Special Fund was established to provide funds to build technical and manpower resources necessary to support development. In 1960 a "Development Decade" was proclaimed, in effect giving expression to what had clearly become UNESCO's major mission.

Science-Technology Conference

Close observers, however, say that the watershed event for UNESCO was the United Nations Conference on Application of Science and Technology for the Benefit of the Less Developed Areas, held in Geneva in February 1963. The U.N. was numerically dominated by countries facing problems of development—the Latin-American countries and the "new" nations of Asia and Africa. These nations wanted help and seized upon the Geneva conference as an opportunity to get it. The intensity of this interest seems not at first to have been recognized either by the developed nations or by the UNESCO hierarchy. The message did, however, get through. Some observers say that nothing had a more galvanizing effect on UNESCO officials than the muttering in the lobbies about the possibility of setting up a separate agency to handle the fostering of development through science and technology.

At any rate the conference was followed by a UNESCO reorganization, put forward by new director general René Maheu, in which science was given greater emphasis. A statement from the director general made it official that science was to be accorded parity with education and culture in the UNESCO program, and the changes were reflected in the budget.

Total UNESCO expenditures are running at about $100 million a year, with about half of this representing funds transferred from Technical-Assistance and Special-Fund sources. Science activities now are assigned about a third of the total budget, although the percentage of the "regular" budget which goes to science is considerably smaller. Because some funds which fall into the education sector are used in support of science education projects, an exact accounting is difficult.

Science in UNESCO now, as has been indicated, is heavily weighted on the side of science education and "applications," rather than on that of basic research activities. The original programs to encourage international scientific cooperation continue, but the newer programs have increased much more rapidly in scope and scale.

The UNESCO chief for science now holds the title of assistant director general. The post is occupied by A. Matveyev, a Russian and a member of the Soviet Academy. The main functions are divided between a Department of the Advancement of Science and a Department of Application of Science to Development. In addition, a science policy office carries on a long-term UNESCO activity aimed at helping governments to develop the capacity for science planning.

The Department of Advancement of Science administers both old and new programs. Its basic-research division is responsible for administering UNESCO programs to encourage cooperation in the international scientific community. A natural resources section promotes research and the training of manpower in the fields which its name implies, and devotes special attention to sectors of research, such as some in the soil sciences, which may not be fashionable in developed countries but are extremely important elsewhere. A division of science teaching is giving a new twist to an old UNESCO activity by making available to the less developed nations the new methodology of curriculum re-

form developed in the United States and elsewhere in the last decade. The Department of Advancement of Science has a new chief, G. Burkhardt of Germany, on leave from his chair of physics at Hanover. He is a veteran of Pugwash conferences and has spent a year at an African university.

The Department of Application of Science has, by UNESCO standards, a whopping budget, more than $30 million a year, derived almost entirely from the U.N. development funds outside the regular UNESCO budget. The department's function is to help countries ready themselves to "accept" development, principally through creation of cadres of scientifically and technically trained people. Departmental chief is Ralph Krause, an American engineer.

What might be called institutional projects get most of the funds and emphasis. A typical project would be establishment of an engineering department in a university in a developing country. A request is made by the applicant country to the U.N. Special Fund, and if, after study, conditions are judged favorable by the Fund secretariat, responsibility to carry through the project is awarded to UNESCO.

The recipient country must be able

Footnote to the Argentine Crisis: A Letter From American Scientists

*Recent news from Argentina of the continuing effect of the government's crackdown on that country's universities has been spotty. While there have been no further spectacularly provocative acts to equal the 29 July raid on the Faculty of Exact and Natural Sciences at the University of Buenos Aires (*Science, *16 September 1966), the regime has not withdrawn its order authorizing government control of the universities and has not undertaken any conciliatory gestures sufficient to stem the flow of faculty resignations and emigration. Approximately 150 professors are reported to have left already or to be planning to leave; resignations are continuing to pile up. American efforts to extend assistance to Argentinian academicians seem to be slow in starting. A number of established professors have evidently found places at American institutions through private and informal channels. But efforts by the National Academy of Sciences to assist in placing Argentinian graduate students in science departments of American universities have not yet borne fruit. Academy sources report that the science departments are eager to assist, but have not been able to find unallocated funds within their budgets to provide support for the students. Meanwhile, on 31 August, a group of American scientists, organized informally under the auspices of the Academy, communicated their concern for their Argentine colleagues and the future of science in Argentina in a letter (reproduced below) to the regime's President, Juan Carlos Ongania. The letter, which was not an official communication of the NAS, was signed by Lloyd Berkner, Detlev Bronk, Harrison Brown, Frederick Burkhardt, Carl Cori, Carl Djerassi, Theodore Hesburgh, Arthur Kornberg, Joshua Lederberg, Max Millikan, Henry Allen Moe, William Rubey, Theodore Schultz, Sol Tax, and Arthur Whitaker. There has been no reply.*

Dear Mr. President:

We, the undersigned, as friends of the Argentine people, direct this letter to you because of the international implications in the present crisis in your universities. We urge you to consider this communication both as a response to numerous requests for support from individual Argentine professors and in the light of our desire to be of the utmost assistance to the Argentine nation. We are particularly concerned with the status of our colleagues in the universities, many of whom are seeking placement outside your country.

You have indicated a desire to strengthen the Argentine economy and improve academic life in the nation's universities. No nation which is concerned with progress can do without the intellectual and spiritual stimulation of its scholars. Nor can it afford to interrupt the scientific and technological research vitally necessary for the country's progress and modernization.

There is no need to bring to your attention the police action taken in the universities on July 29 except to underscore that this incident has been understood by your scholars as a loss of personal dignity and as a sign that they are held in low esteem by the state. Many Argentine scientists and scholars are internationally renowned. It is difficult to understand such harsh treatment of the group and the continued trend which subsequent events indicate. We are concerned with the serious personal and national consequences which will result in the loss of vital expertise necessary for national development.

For over a generation, Argentina has witnessed the expatriation of many renowned scholars. A continued drain of this kind can only be detrimental to the Argentine economy and to the continuance of its intellectual preeminence in the Latin American academic world. The fact that this situation has prevailed for some time indicates the problems involved are deep-rooted and complex and any solutions will demand the utmost study and tact on the part of the Argentine Government and others.

One of the methods which world-wide experience has proven most effective for progress in higher learning and research has been based on a system which permits professors to function regardless of their political or religious beliefs.

Mr. President, we respectfully ask that you take into account our concern over the critical situation of Argentine scholars. We hope that your Government will take action to strengthen the academic freedom of the universities, whatever administrative form is chosen, and that it will provide an atmosphere where creativity may prosper. We also feel it would be in the national interest to seek the means to retain all professors who have submitted their resignations and to ensure that their future work is facilitated through evidence of greater respect for their profession.

We have extended our remarks in a spirit of friendship and in the conviction that the welfare of our Argentine colleagues is fully compatible with the progress of your nation. We thank you profoundly for your thoughtful attention to this request.

to provide buildings, a dean or director, and potential teachers. UNESCO provides the necessary equipment, and experts to develop an engineering curriculum suited to local requirements and to get instruction under way. Fellowships abroad for prospective teachers are part of the UNESCO program. The project is expected to be self-supporting and self-sustaining after 5 years.

In addition to university teaching departments, the applications department also underwrites programs to establish national centers in fields, such as instrumentation and metrology, which are viewed as necessary to the modernization process.

With limited funds available it might be assumed that the demand for assistance would be overwhelming and that choosing projects would be a perplexing task. In fact, the matter of a country's ability to accept assistance is given such careful attention that the number both of applications and of approvals seems to be kept reasonably well within the bounds of the 40 to 45 projects likely to be running at any time.

While the UNESCO secretariat supervises administration, the projects are staffed by "experts" who are under contract to UNESCO but are not UNESCO employees in the sense that the "permanent" members of the secretariat are. Posts in specific projects are advertised, and experts are chosen from among nominees put forward by member nations or selected from a roster of applicants maintained at UNESCO headquarters. Project teams are, in almost every case, multinational.

Recruiting for international organizations like UNESCO and their projects holds special piquancy for the United States. While the U.S. provides about a third of the total funds expended by UNESCO, participation, in terms of Americans actually involved in UNESCO activities, is relatively small. In the sciences and engineering, the phenomenon is especially pronounced.

UNESCO recruiting procedures are cumbersome, and this discourages some people. The very large American aid program of course competes to a considerable extent for the same talent. Recruiting is a formal responsibility of the State Department's Office of International Organization Affairs. The State Department has set up a special recruiting section in the office and is in the process of increasing its efforts, but State's contacts with the scientific community are far from perfect, as its difficulties with its own science-advisory and scientific-liaison apparatus demonstrate. And no other official or quasi-official body has shown much sustained interest in the problem. There are some bright spots. For example, a significant number of Americans involved in the curriculum reform movement at home have shown a readiness to carry on the work abroad. But in most other categories requiring people with scientific or advanced technical training, American candidates are scarce. Much of the effective recruiting of Americans for international organizations has been done informally by the relatively few scientists personally concerned with international affairs, in many cases by people already in the field, looking for colleagues or successors. What cannot be ignored, of course, is the fact that the United States probably offers scientists and engineers more in the way of both material incentives and professional opportunities at home than any other country.

Many Americans point out the contrasting pattern of Soviet placements in international scientific jobs. The scientists appointed from the U.S.S.R. are generally very competent and, at the end of their terms of service, usually return to posts more desirable than those they left.

This may be the key point. UNESCO jobs, both at headquarters and in the field, typically demand university research and teaching experience. While American universities are avowedly interested in development, absence of regular faculty from the campus for more than a sabbatical year or, at most, a 2-year leave of absence is frowned on and in many places proscribed. In the case of the scientist, the problem is compounded, since absence from his laboratory for a long period is presumptive evidence to his colleagues that he has drifted out of the scientific mainstream. Certainly a scientist who spent 5 years seeing a development project through in the field would face very serious reentry problems.

Recruiting of Americans for secretariat appointments is not so difficult as finding good men for work in the field. The jobs in headquarters are reasonably well paid, UNESCO has a handsome new building, semidiplomatic status is an attractive fringe benefit, Paris is a pleasant place, and the work is generally interesting and challenging. After a term of 2 or 3 years the man can usually return to the United States without serious harm to his career. On the other hand, the experts' jobs in the field are not highly paid, by American standards; they are likely to be extremely demanding, particularly in terms of adjustment in living and working conditions; and the effect on career is likely to be negative. The result of all this is suggested by one reliable estimate that there are now fewer technically trained Americans working on UNESCO projects in the field than New Zealanders.—JOHN WALSH

Science and Technology: House Subcommittee Offers Capitol Ideas

Critics of congressional structure often dwell on the fragmentation and overlapping of legislative jurisdictions among the large number of House and Senate committees and subcommittees. One of the areas where jurisdiction is greatly splintered is science and technology: perhaps a score of committees legislate and appropriate money with little regard for each other's activities.

Two suggestions for innovations in the congressional approach to science and technology were recently offered by the House Subcommittee on Science, Research, and Development, of which Rep. Emilio Q. Daddario (D–Conn.) is chairman.* The first suggestion deals with the problems of coordinating the efforts of many congressional committees without losing the benefits of diversity; the second is concerned with the problem of identifying dangerous side effects of new technology.

To enable committees to get a general view of a problem, the subcommittee suggests the creation of informal, *ad hoc* science and technology study groups consisting of appropriate House committee chairmen who would meet, either before any hearings were

*"Second Progress Report to the Committee on Science and Astronautics," available free of charge from that committee, U.S. House of Representatives.