training period on the subjects they expected to teach. Some, apparently, have been diverted to other subjects by local needs and preferences. It is not unusual, for example, for the principal of an African high school, when he learns that a Peace Corps teacher has had high school or college chemistry, to assign him to teaching a chemistry course, often without benefit of textbooks or equipment, because such a course is so radiant a status symbol for an African school.

Few Peace Corps teachers can expect to find full stocks of books or ideally equipped laboratories. And because it is Peace Corps doctrine that American volunteers operate on equal terms with other teachers in the schools abroad, the Peace Corps does not attempt to send books and equipment along with the volunteer. Individual initiative, however, is not discouraged. Many volunteers, once there, wangle supplies themselves, and in some cases American schools and organizations have sent teaching materials to schools where Peace Corps teachers have been assigned.

Peace Corps training is designed to take into account the austerity conditions most teachers will encounter on their assignments overseas. For example, volunteers training as science or mathematics teachers in a secondary school program for the Philippines last summer each got 125 hours' instruction in biology, chemistry, mathematics, or physics during their 10-week training.

The "refresher" courses were based on the new reformed curricula for high schools, developed under the science-course-improvement projects supported by the National Science Foundation, but the trainees were taught to adapt the course work and laboratory experiments to the conditions under which they would teach.

For Peace Corps college teaching, academic credentials count more than they do for elementary and secondary teaching. The Peace Corps also feels that, to be effective in a university post, a volunteer needs a firm command of the language of the host country. Peace Corps projects in university education have a relatively high attrition rate in training, therefore, because of standards set on language proficiency. The difficulty of finding qualified volunteers to teach science and math is, of course, increased by the demand for graduates in those fields here. The Peace Corps, however, has been able to maintain a modest flow of these projects by finding people with, so to speak, transferable skills. Typical, perhaps, is the engineering graduate of the late 1950's who is now teaching first-year physics students in a new rural university in Latin America.

In Latin America the pattern of demand for Peace Corps volunteers contrasts with that in Africa. A majority of the Peace Corps's workers are engaged in, or are training for, agricultural extension work or community action programs in the rural areas or cities. The demand for teachers is relatively weaker than in Africa, despite Latin America's generally low literacy rate and lack of effective mass education. The coolness toward Peace Corps teachers is attributed by some to a deepseated fear of *Yanqui* cultural aggression through the schools.

At the university level, however, Latin American institutions are not strong in technology, and it is in this area, particularly, that the Peace Corps has been asked to help. Bolivia, for example, is hopeful about some newly discovered oil deposits, and a shopping list of specialists for a Peace Corps university program for Bolivian institutes of technology includes calls for instructors in petroleum instrumentation and pumps and motors as well as in thermodynamics and hydraulics.

This relative restraint in welcoming teachers does not, however, mean that the Peace Corps's reception in Latin America has been chilly. Peace Corps effort in Latin America is concentrated on community development and agricultural projects which are closely linked to the Alliance for Progress and its emphasis on self-help and social progress. The Peace Corps's Latin-American program is scheduled to double in fiscal 1964, to a total of 6150 volunteers there, about half the planned total Peace Corps strength.

To finance fiscal '64 operations for a Peace Corps of 13,000, the President has asked for $108 million. On form, the Peace Corps should get most of this from Congress. The agency's first appropriation in fiscal 1962 was $30 million, cut $10 million from a requested $40 million. Last year Congress voted $59 million of a requested $63 million.

On 15 April there were 4096 volunteers abroad and another 864 in training for a total of 4960 volunteers, 3151 men and 1809 women. The aim is to have 10,000 overseas by the first of the year.

The performance of the Peace Corps to date seems to have allayed the early apprehensions of Congress, which ranged from suspicions that the Peace Corps would be a sort of nonviolent foreign legion for maladjusted post-adolescents to fears that young Americans would go like ideological lambs to the slaughter at the hands of Communist agitators and propagandists.

By adhering to a policy of going where it is invited and doing what it is asked to do, the Peace Corps appears to have minimized the political risks. The agency's most venturesome project may prove to be the one being undertaken by 20 volunteers now training to teach physical education and coach sports in Indonesia, where many students are anti-Western and where the president of Communist China has just concluded a friendly visit.

Two years ago Congress enacted legislation creating the Peace Corps as an "experimental" program. The President this year indicated by word and deed—a big boost in the budget—that he regarded the Peace Corps's probation as ended. But although Congress approves and the agency has had a generally good press here and abroad, the Peace Corps is still an experiment, with results uncertain.

From the outset, Peace Corps advocates saw three main purposes for the agency: to furnish needed middle manpower to underdeveloped countries; to give Americans an opportunity to learn about life in non-Western societies and share their knowledge with other Americans; and to give people in other countries the chance to learn what Americans are really like close up and on the job.

The first contingents of 2-year volunteers are scheduled to complete their service and come home this summer, and only then can a start be made toward judging what they have accomplished, what they have learned, whether, in short, the Peace Corps idea really works.—JOHN WALSH

Federal Science: NSF Publishes a Guide To a Growing Activity

For anyone interested in the growth in the scope and status of the scientific activities of the federal government, a hefty new 598-page report by the National Science Foundation is recommended skimming.

The publication is *Federal Organization for Scientific Activities*, 1962 (for sale by the Superintendent of Docu-

ments, U.S. Government Printing Office, Washington 25, D.C., $3.50).

The NSF last issued such a manual in 1956, and the new directory not only brings up to date the descriptions of agencies' statutory bases, missions, and scientific operations but also provides useful background information and some cautious analysis of changes and trends in organization.

In the words of the report, "Since World War II, developments in organization for scientific acitvities have been largely for the purpose of improving and expanding the Federal scientific effort. Recently, this trend has been characterized by: (1) an increased attempt to review and coordinate more effectively Federal scientific and technical programs at the Presidential level, (2) appointment of scientific administrators to Secretary-level posts, (3) integration or coordination of scientific activities within the subdivisons of the agencies, (4) expansion of international science activities, (5) growth of Government-supported extramural programs, and (6) emergence of the aerospace program."—J.W.

Maps and Charts: Pressure from Private Firm May Bring Rise in Government's Prices

America's traditional commitment to private enterprise insured that, as the government became increasingly involved with science and industry, it would do so most often in the role of patron. In some areas, however—particularly those outside the major defense and scientific research and development fields—the government has become not the benefactor of private enterprise but its competitor.

The charge of unfair government competition has recently been brought against several government agencies which were performing scientific functions long before anyone had ever heard of the "military-industrial complex." Among these are the Coast and Geodetic Survey (established in 1807 in the Commerce Department), the U.S. Geological Survey (established in the Interior Department in 1879), and the Army Map Service (1910). All are relatively small, technical operations with a strong do-it-yourself bent, and they have now aroused the fears of a small sector of American business in the fields of technical mapping and charting.

The controversy has proceeded farthest in the case of the Coast and Geodetic Survey, which has been engaged in a tug-of-war with a small firm in Denver, Colorado—the Jeppesen Company—over the sale of radio aeronautical charts.

The charts at issue (essentially road maps of the air) cover navigation routes between cities, maneuvering around metropolitan areas, and approaches for airport landings. Their use by pilots is not required by law, but according to the Federal Aviation Agency that is only because no law is necessary: they are indispensable navigational aids, and virtually all pilots use them. FAA does require their use in air traffic control towers and distributes them there.

The Coast and Geodetic Survey has been charting the airways since 1926, and the prices of its maps are limited by an 1895 law covering all maps and charts, which provides that purchasers be charged only the costs of paper and printing. Jeppesen has been in the business since the 1930's, and its charts are priced for a reasonable profit. There is some question about how alike the two products actually are: CGS's charts are drawn to FAA specifications, but Jeppesen's are accepted by FAA, which supplies the same information to both producers. The main difference is that CGS charts are more general and more frequently revised (every 28 days), while Jeppesen tailors its products to unique needs of specific users and issues them less often. There are also differences in symbolization and style.

The price differences, however, are substantial: a set of charts that costs $121 from Jeppesen may cost only about $58 from CGS, and this is where, the company claims, the unfair competition comes in. For all that, Jeppesen does a great deal of business. It supplies most of the major commercial airlines and has contracts with the Army and Air Force as well—the latter a point of some interest to the Budget Bureau and the General Accounting Office, which periodically get disturbed at apparent duplication in government mapping services. CGS's customers are mainly government agencies. Both supply the nation's private users of flight information.

The Jeppesen Company opened its campaign at appropriation hearings in the Senate on the 1962 budget. The company persuaded the Senate to cut the Survey's appropriation by $260,000 (inclusion of the amount would have enabled it to extend its services in the areas Jeppesen claimed were competitive) and to recommend an investigation. The Appropriations Committee, in addition, went on record as "approving the general policy that it is unwise to put the Federal government in competition with private business." This was quite a victory for Jeppesen, since in the hearings—which were a bit nasty, filled with charges and countercharges about who was copying whose charts—all the company's claims were disputed by Admiral Karo, director of the Survey, who felt strongly that the budget reduction endangered air safety.

The matter dragged on for a year without an investigation, although Colorado's Republican Senator Allott did introduce a bill providing that the Survey should charge the total costs of its charts. When the scene was reproduced at Senate appropriation hearings for the 1963 budget, however, the Commerce Department decided to look into the matter, and appointed an investigating committee, headed by Thomas Carroll, president of George Washington University, which included representatives from the air transport industries, the Air Force, and some private mapping companies.

The Carroll Committee reported in February 1963. Its majority, while stressing heavily the federal responsibility for mapping and charting, and agreeing with both CGS and the FAA that the government must retain independent competence in the charting field, nevertheless recommended that CGS increase its prices to make them more nearly competitive with the private product. Senator Allott last week introduced a bill (S1336) that, by amending the 1895 law, would do just this.

The proposal, though seemingly innocuous enough, raises certain questions, in part because in an absent-minded way, it would fundamentally change long-standing government policy of providing mapping and charting services to the public at very low cost. There is no apparent objection, in the CGS or elsewhere, to a review of the whole policy. But as Admiral Karo pointed out at the hearings 2 years ago: "If it is time that this historical concept be changed . . . it should be across the board, and not confined to one special series"—that is, to aeronautical maps as opposed to nautical ones, or to CGS as distinct from

(Continued on page 429)