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

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other agencies which typically charge relatively small amounts for their public documents. The wisdom of making an exception of a single agency on behalf of a single company seems debatable.

The proposal has implications for air safety, too, and raises a question of the relation of safety to competition in the field of navigation aids. According to Melvin Tyrrell, chief of FAA's Flight Information Division, FAA is not alarmed by the price rise proposed now, since it is a fairly small one, but introducing the principle of competitive prices raises the possibility that cost may interfere with availability of the charts sometime in the future. This would worry the FAA a good deal.

Underlying the pricing problem is a more basic one that, so far, no one has openly tackled—whether there should be two sets of charts in use at all. Admiral Karo testified last year that "the man in the cockpit of a plane and the man in the control tower should be speaking from the same sort of compilation so that there is no chance of error," but his remarks got little notice. The FAA, which seems to want to avoid appearing hostile to private enterprise, maintains that the charts are so similar that, despite variations in format, their simultaneous use is no cause for alarm. Nonetheless, the FAA would not be averse to a unified system or even, in the long run, to providing charts free of cost to all users of the airways.

The idea of competition, however, dies hard. The Carroll Committee, while paying its respects to federal responsibilities, given the inadequacies of existing commercial capacity, paid greater respects to the benefits of competition. "It is preferable that there be two or more sources of chart supply in order that all the usual benefits of competition may be received," the report says. "Ideally, this competition would involve two or more private producers, but it can be between a private producer and the Government."

Thus, in its heart, the committee really favored more competition rather than less, and only as a second best, supported government participation at all. From the point of view of safety, however, and not of ideology, it seems questionable that the goal should be increasing diversity rather than increasing uniformity. Although the FAA also feels that competition between the government and Jeppesen has been useful, so far the benefits of competition do not seem to have been weighed against the possible hazards of nonuniform flight information.

Coast and Geodetic Survey is not happy about the turn of events, but it is not a very powerful agency and will go along gracefully if the Senate passes Allott's bill. Agency officials would still prefer to go in the direction of greater standardization.

Finally it should be pointed out that this case is not an isolated one. Smaller companies in many fields of mapping have fallen on difficult times and raised a cry of "government competition" in several places recently. The Geological Survey last year only narrowly rescued its request for aircraft for aerial survey operations over the objections of some small surveying companies who thought the work should be contracted to them; a USGS program of mapping in Kentucky has been much attacked by private companies, who claim, though the Survey disagrees, that they could do the job as well or better. These companies are now trying to figure out ways to improve their services and reverse the trend of government's in-house mapping activities. These efforts, however, have fewer implications for public safety than Jeppesen's campaign on aeronautical charts.—ELINOR LANGER

Announcements

The Direct Relief Foundation is soliciting **surgical, medical, and hospital supplies** for use in underdeveloped areas of the free world. The supplies are sent to doctors, hospitals, or clinics overseas and must be used free of charge for indigent patients. Doctors are recommended by the American Medical Association to receive these materials. (Direct Relief Foundation, Warehouse MR, 700–702 N. Milpas St., Santa Barbara, Calif.)

The National Science Foundation invites letters from U.S. scientists interested in participating in the **U.S.–Japan Cooperative Science Programs**. Emphasis is on joint activity in scientific investigation of the Pacific Ocean, and animal and plant geopraghy and ecology of the Pacific area. Scientists who are working with the Japanese in these areas, or who are interested in doing so, are asked to write to NSF, giving a