

convincingly demonstrated in the oceans, perhaps because they are poorly generated or poorly transmitted, or because the observations have not yet measured the proper variables. Such measurements are simply not available at this time. Well-documented current flow near the bottom would provide a far better reference for geostrophic computations than do theoretical levels of no motion; estimates of mass transport could thus be significantly improved.

5) We have already mentioned a sharp increase in temperature in the bottom few meters of the oceans. The existence of a warm bottom layer had been reported earlier by Van Herzen and co-workers from measurements with a

geothermal probe. Is this warm layer maintained by greater density because of higher content of salt or of sedimentary particles? In fact, in the measurements of temperature gradients in sediments, what is the role of tidal "pumping" of interstitial water? For these studies as well as of the intermittent turbulence, long, reliable records of temperature are necessary; we hope they will be supplemented by measurements of heat flow.

6) Finally the observations may be helpful in explaining the origin of internal waves of tidal frequencies, and, if tsunamis are generated during periods of tide observations, they may be well documented if the time period of the observations is short enough. In any

case, the instrumental development can be used in a tsunami-measurement program.

Thus the proposed program has applications in much of Earth's environment, air-sea dynamics, various ocean-wave phenomena, and the anelasticity and stress fields of the solid Earth. The bottom of the sea is perhaps the least explored of the "accessible boundary layers" on this planet, and we may be in for some surprises.

#### References and Notes

1. F. Snodgrass, Scripps Inst. of Oceanography, Univ. of California at San Diego, La Jolla.
2. Sponsored by UNESCO and the Intern. Assoc. for Physical Oceanography.
3. W. Hansen (Germany) and S. S. Voit (U.S.S.R.) are joint chairmen.
4. At La Jolla, California.

#### NEWS AND COMMENT

## Social Sciences: Expanded Role Urged for Defense Department

A study group appointed by the National Academy of Sciences has advised the Department of Defense (DOD) to increase its support and use of research in the social and behavioral sciences. The Department "must now wage not only warfare but 'peacefare' as well," the panel states in its report. "Pacification, assistance, and the battle of ideas are major segments of the DOD responsibility. The social and behavioral sciences constitute the unique resource for support of these new requirements and must be vigorously pursued if our operations are to be effective."

Among its specific recommendations, the Academy group urged the Department to appoint an "eminent behavioral scientist" to lobby in Congress in behalf of Defense's social and behavioral science programs. Alluding to the aversion of some younger scholars toward defense-related research, it recommended that "publicity concerning the distinguished behavioral scientists who have long-term commitments to the DOD should be disseminated as a way of reassuring younger scientists and improving our research image." In reference to current proposals for reducing U.S.

military support of social science research in other countries, it urges "strenuous efforts . . . to insure that the Department of Defense is not excluded from the innovating influences on policy planning and strategy in universities after foreign area studies are transferred to civilian agencies." And, as part of a "research strategy for military agencies," it urges the Department of Defense to undertake "studies of military establishments of allied nations carried out by foreign social scientists. . . ."

These and other recommendations are contained in a 53-page document titled "Report of the Panel on Defense Social and Behavioral Sciences." The document, which is now being narrowly circulated for comments, resulted from a meeting held from 5 to 14 July at Williamstown, Massachusetts, at the request of John S. Foster, Jr., director of Defense Research and Engineering. Foster's request was addressed to Frederick Seitz, chairman of the Defense Science Board, which is the Department's highest ranking science advisory group; Seitz is also president of the Academy, which selected the membership of the panel. Serving as chairman

of the panel was S. Rains Wallace, president of the American Institutes of Research, a nonprofit organization that conducts research under contract to the Defense Department and other government agencies. In 1965 and 1966, prior to taking his present position, Wallace was chief of behavioral and social science research in the Defense Department office now headed by Foster. Other members of the panel were Peter Dorner, of the Council of Economic Advisers; Harold Guetzkow, Northwestern University; Michael Pearce, the RAND Corporation; A. Kimball Romney, Harvard; Roger Russell, Indiana University; and Eugene Webb, Stanford. Listed as a member of the panel, though he attended only one day of the meeting, is Gene Lyons of Dartmouth, who is heading a comprehensive study for the Academy on all social science activities of the federal government.

As is the case with virtually all studies produced by Academy panels, the findings in this case do not necessarily reflect the view of the Academy, nor is the recipient of the report obliged to regard it as more than an advisory statement. However, in view of the interlocking relationships of some of the key figures in the study, it is reasonable to assume that the panel's conclusions are receiving serious attention in the Department of Defense.

Foster's request to Seitz asked that the panel direct its attention to four topics: (i) "High Payoff R & D Areas," defined, in part, as "areas of social and behavioral science research in which it would be reasonable to expect great payoffs over the next three to ten years";

(ii) "Research to Solve Manpower Problems," including the utilization of "marginal manpower" and "manpower-related R&D areas which should have highest priority for funding in the next few years"; (iii) Project Themis, the DOD's program for fostering the growth of new centers of academic excellence; and (iv) "Government/University Relationships," with the panel's goal defined as the identification of "improved techniques for (a) involving first-rank academic groups in research relevant to long-term DOD needs; (b) recruiting first-rank investigators and managers for DOD research organizations; establishing 'academic-type quality controls' on the research carried out by industrial and non-profit groups in the social and behavioral sciences."

One difficulty in assessing the response of the panel is that much of the report is written in a strange and crepuscular style, a sort of stunted offspring of the worst prose fashions of the social sciences and the military. Thus, in discussing the shortage of talented investigators in the social and behavioral sciences, the report states, "Isolation of these individuals is a backward step for encouraging the advance of this area." Again, after asserting that the Department is not placing sufficient emphasis on basic research, the report says, "Analogously, but not as radically disbalanced in areas of concern with respect to cultural and social factors in military operations, the basic research carried out in universities overwhelms the research being undertaken by the non-profit and profit organizations by a ratio of five to one."

In any case, in response to the assignment presented by Foster, the panel combined the first two topics and cited, as likely areas of high payoff for R&D, studies on the utilization of manpower, especially the "marginal" manpower that the Defense Department is now calling into service under what is known as Project 100,000. Also selected as high-payoff subjects were organizational patterns and leadership techniques, decision-making, "understanding of operational problems in foreign areas," "man and his environment," and "research in behavioral science methodology."

On the subject of Project Themis, the panel recommended that the Department do a better job of publicizing the program among social and behavioral scientists, and also that it adjust some of its standards to conform to the preferences of the academic community. "The present narrow description

of DOD research needs in the area of behavioral and social sciences is too rigid to encourage wide participation. . . . To obtain broader participation of quality scientific talent it is recommended that the criteria relating to total defense research and development funds received by institutions be relaxed or that some other criteria be established for the social and behavioral sciences area."

In response to the final topic raised by Foster, the panel disputed the suggestion that the Department of Defense has not been successful in attracting first-rate academic talent to its programs in the social and behavioral sciences. "Instead we believe," the panel stated, "that DOD has been singularly successful in enlisting the interest and services of an eminent group of behavioral scientists in most of the areas relevant to it." But it went on to state, "The area in which this is not true lies in the field of foreign area research and even here the problem is probably overstated as the results of pronouncements by relatively few." To resolve the matter, however, it was suggested that the Academy's standing committee on Behavioral and Social Sciences look into the question.

The report next went on to suggest that DOD might achieve greater success in recruiting academic talent "by assuming more responsibility for stating its needs in terms which are meaningful to the investigator rather than the military. To ask people to do research in 'counter-insurgency,' 'guerrilla warfare,' etc., not only produces a less than enthusiastic reaction but also provides no basis for insights into the ways in which they might contribute." And it added that DOD might also improve its techniques for attracting younger scientists to work on its problems. "There is evidence that the long-term funding of research centers does produce young scientists who are more mission-oriented and receptive to opportunities in DOD research. However, there seems to be little planned effort on the part of DOD research management to recruit these young men. A planned program of recruiting at these centers and at appropriate graduate schools should be initiated."

On the subject of congressional attitudes toward the social and behavioral sciences, the panel observed, "It is important to distinguish between those who are opposed to investment in the 'soft sciences' and those who believe the investment should be made but not

through the Department of Defense. Obviously, these groups present us with quite different problems which need to be approached differently."

"Presentations of the behavioral and social sciences to the Congress," the report continues, "have too frequently involved the presentation of the wrong areas by the wrong people. . . . The people who have represented the social and behavioral sciences before Congress tend to fall in one of three categories:

"1. Representatives of civilian professional organizations who lack a clear picture of DOD requirements and the various ways social and behavioral science research fills them.

"2. Social and behavioral scientists who regard DOD activities as a threat to academic freedom and scientific integrity and who are usually ignorant of the work actually being performed under DOD aegis.

"3. High level defense research managers who, with the best will in the world, simply lack the time to address themselves with any degree of specificity to work in this field which represents such a minute proportion of their budgets and their concerns."

In the face of this situation, the report states, "No effort has been made to initiate contacts with members of Congress and their staff for the purpose of presenting them with a realistic and thorough appraisal of the social and behavioral sciences program. . . . The solution is to provide enough time for a capable individual to obtain the necessary information, keep it up to date, maintain a file of supporting documents, set up procedures for briefing Congressmen on a continuing basis, and ensure the necessary back-up for Congressional requests or DOD testimony before Congressional committees."

On the subject of foreign area research, which, because of the furor over Project Camelot and similar episodes, is perhaps the most politically sensitive in the social sciences, the panel wrote a separate appendix titled, "A Proposed Strategy for Defense Supported Foreign Area Studies."

"To maintain an adequate base for planning and for the conduct of military operations when and where they may occur," the panel states, "the U.S. military establishment must have access to a steady flow of knowledge that originates in social science studies conducted by U.S. and foreign scientists engaged in unclassified research tasks overseas." Though some of the Department's needs can be met through re-

search supported or performed by non-Defense organizations, it continues, "there is a residual amount of work that should be performed by DOD agencies even if substantial programs of studies were conducted by other organizations." The panel adds that, since Congress has shown an interest in transferring sponsorship of foreign area research to "non-mission" agencies, DOD programs should be conducted in a manner that will "facilitate the transfer of established programs as well as the development of new and innovative efforts by civilian agencies." But it notes that "for the immediate future it is important that the Department of Defense maintain a strong program of foreign area studies pending such time as other arrangements can be established." This is followed by a proposed "research strategy for military agencies," with priorities assigned as follows:

"1. Support by military agencies of programs that are visible and patently useful to the host country. . . .

"2. Support by military agencies of programs that train foreign social sci-

entists to elucidate the problems of social change in their own countries.

"3. Support of social science research to be conducted by independent indigenous scientists. . . . The problems to be studied are those of high mutual interest such as the analysis of social change, political modernization, national development, and intergroup relations.

"4. Social science tasks to be conducted by major U.S. graduate studies centers in foreign areas that utilize U.S. based foreign students in training and research enterprises in the countries of their origin. . . . These linkages should be sustained over time so that they can serve as channels for intellectual development with the friendly support of U.S. scholars. . . .

"5. Conduct of individual studies by U.S. professionals acting as independent investigators to study high priority problems in foreign areas.

"6. Studies of military establishments of allied nations carried out by foreign social scientists who could make a start by attempting to learn the applicability

of U.S. developed principles, instruments and operational practices to foreign military establishments. The same type of comparative studies can be made with the military procedures of other advanced nations. Understanding of the processes involved in the handling of cross-cultural conflict and cooperation is of critical importance.

"7. Support of studies based in the U.S. that exploit data collected overseas by investigators supported by non-defense agencies. . . .

"8. Collaborate with other programs in the U.S. and abroad that will provide continuing access of Department of Defense personnel to the academic and intellectual resources of the free world. The Department of Defense needs for foreign area knowledge are increasing so that strenuous efforts are necessary to insure that the Department of Defense is not excluded from the innovating influences on policy planning and strategy that exist in universities after foreign area studies are transferred to civilian agencies."

—D. S. GREENBERG

## FCC Ruling on Cigarette Ads: Health Groups React Warily

In June the Federal Communications Commission, normally the most docile of regulatory agencies, issued one of the strongest rulings in its 33-year history. The FCC held that, under its "fairness doctrine," broadcasters who carry cigarette advertising have the obligation to provide a "significant" amount of free time for warnings of the health hazards of smoking (*Science*, 28 July). Now, 5 months later, voluntary health agencies such as the American Cancer Society and the American Heart Association say they are pleased at the broadcasters' initial response to the FCC ruling.

The fact is, however, some broadcasters are doing far more than others in presenting antismoking messages. And, although the antismoking materials available for broadcasting are in short supply, one finds remarkable var-

iation from place to place in the frequency with which the available materials are used. For example, a Chicago broadcaster, in a single month, devoted \$17,500 worth of prime time to anti-smoking messages. A Florida broadcaster, on the other hand, refused to present such messages until a local citizen complained to the FCC.

Much will depend, it seems clear, on the vigor with which the FCC ruling is enforced—it can become a powerful bomb in the arsenal of the antismoking forces or a dud. Strong enforcement may depend on whether the health agencies and other citizens' groups keep an eye on the broadcasters, point out deficiencies in their performance, and, generally, create a climate of opinion encouraging unstinting compliance. This seems especially true in view of the ruling's ambiguities and of the FCC's

cumbersome and indirect enforcement procedures. Thus far, the health agencies, though they have prestige, money, and nationwide organizations, have not shown a willingness to do much more than supply the broadcasters with anti-smoking "spot" announcements and program materials. These agencies, schooled in the soft arts of "public relations" and long accustomed to having the broadcast media carry many of their fund appeals and health messages, seem likely to shy away from a direct confrontation with the broadcasters, should one prove necessary.

The FCC ruling did not, one may observe, stem from action by any of the health agencies. It resulted from a complaint brought early this year by John F. Banzhaf, III, a brash 27-year-old attorney who is a very junior member of a New York law firm which counts Philip Morris, Inc., among its clients. Banzhaf says that, of the various public issues which had engaged his interest, the smoking and health issue was the one that seemed to offer him the best chance to strike a hard blow in a good cause.

Invoking the fairness doctrine, Banzhaf demanded that the CBS station in New York devote to antismoking messages time roughly equal to that devoted to cigarette commercials. When his re-