

It was, on motion,

RESOLVED that the sum of Three hundred thousand dollars (\$300,000),
RF 74031

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or as much thereof as may be necessary, be, and it hereby
is, appropriated for allocation by the officers for the
initiation of Rockefeller Foundation Fellowships in En-
vironmental Affairs; this sum to be available for alloca-
tion during the two-year period beginning April 1, 1974.

The following considerations were presented:

CLASSIFICATION: Quality of the Environment - Training and Research
(Natural and Environmental Sciences)

SUMMARY: The proposed fellowship program would provide support to
highly qualified individuals for innovative programs of study, re-
search, or public service, focusing on significant regional, national,
or international environmental problems or issues. Support would
be provided for study or work experience in fields distinct from the
scholars' initial training or in direct participation with inter-
disciplinary teams of specialists, in order to broaden their knowl-
edge and enhance their capacity to assume leadership roles in
environmental affairs. Emphasis would be placed on young, post-
doctoral U.S. scholars, but officers would also seek to identify
foreign scholars who could qualify for awards.

RELATIONSHIP TO PROGRAM: Through support to universities, state and
federal agencies, and other organizations for environmental study
and research on problems of regional or national importance, the
Foundation has emphasized graduate education under its Quality of
the Environment Program. This has taken the form of graduate
assistantships for students in specific disciplines working under
the guidance of principal investigators in research on critical
environmental problems. In a few cases scholarships have supported
research leading to doctoral degrees.

PREVIOUS SUPPORT: Grants in aid to Woods Hole Oceanographic Institu-
tion, the University of Utah, and Oregon State University and five

scholarship or fellowship awards have provided support for individual scholars during the past 21-month period, at a total cost of approximately \$91,000. These actions have assisted six post-doctoral and three predoctoral scholars to participate in broad interdisciplinary research and service projects.

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DESCRIPTION: The Quality of the Environment Program has emphasized interdisciplinary approaches to study and research on environmental problems. This has meant a marshaling and reorientation of disciplinary specialists into working teams to address the social, political, and biological aspects of such problems.

Universities have recognized that traditional types of curriculum and training experience provide inadequate preparation for students interested in careers in environmental affairs. Many institutions are in the early stages of development of these new interests, and some are restructuring their organizations to give greater emphasis to environmental studies and research. For the most part such new programs are being molded by individuals whose own backgrounds have been in one of the traditional disciplines. Yet many of the major environmental problems and issues are very broad in scope, and progress toward their solution will involve unique mixes of biological, social, and physical science considerations, intertwined with legal, political, and administrative aspects. This suggests that the preparation of individuals for future leadership roles might be considerably improved by arranging for them to obtain broader training and experience than are traditionally available.

There are a number of disciplinary specialties which are important to the resolution of critical environmental issues. Among them are the natural sciences, engineering, marine science, the social sciences, law, and the humanities. Leaders of the future will need experience in working effectively with interdisciplinary groups, with representation of such specialties, on comprehensive environmental programs. Particularly useful combinations of training would be determined from time to time by consulting leaders in the various fields, including authorities at universities and centers of specialization in environmental affairs.

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As this effort is initiated, it is recommended that attention be directed to young postdoctoral scholars who evidence clear leadership capabilities and can develop and present innovative programs of study and research or public service addressed to significant regional, national or international environmental problems or issues. Such projects should be designed to enhance the skills of the individual for leadership in environmental affairs and to produce a report on the specific research or service objective undertaken. Generally, fellowships would cover a period of one year.

Awards would be made on a competitive basis, and a panel of authorities would be formed to assist in making selections. Persons on the panel would include recognized educators and representatives of institutions concerned with environmental affairs.

Present and past Fellows would be invited to attend an annual conference, the first to be held in February 1975, to review their activities during and following the fellowship period. This conference, of approximately four days' duration, would also provide an opportunity for intensive discussions of major environmental issues with leading authorities and for examination of ways in which educational experiences might best be designed to meet new needs of society.

EVALUATION: The program would be evaluated on the basis of: (1) the value of the multidisciplinary experience to awardees and their institutions, as evidenced by both the Fellows' and their institutions' evaluation of the experience and its impact through research, teaching, or public service; (2) the quality of reports produced; and (3) the advancement in position and responsibilities achieved by the Fellows subsequent to their awards.

FINANCES: The proposed appropriation of \$300,000 would be available for allocation by officers during the two-year period beginning April 1, 1974. It is estimated that up to 25 individual fellowship awards would be made. A portion of the funds would be used by the

Foundation for expenses incurred in the annual conference of Fellows and in their selection.

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COMMENT: The officers have consulted more than 30 private and public institutions and agencies in an effort to determine the need for individuals with special training in environmental affairs. The results obtained in experimental activities at such universities as Michigan, Johns Hopkins, Utah State, North Carolina, and California at Los Angeles and Davis have confirmed the need for persons with much broader disciplinary experience than can be obtained in most existing programs. The need for this breadth of expertise was first recognized when the federal requirement for development of environmental impact statements was established. This requirement should lead to ecologically sensitive planning as a regular element in the decision-making process. Universities that are developing environmental education and research programs recognize the need for individuals capable of bridging disciplines to improve the usefulness and quality of these programs.

An advisory panel would assist the officers in selecting Fellows. Such persons as the following, some of whom have already expressed an interest in serving, would be asked to be members: Dr. Philip Johnson, Division Director, Environmental Systems and Resources, National Science Foundation; Dr. Paul Fye, President, Woods Hole Oceanographic Institution; Dr. Russell Train, Administrator, U.S. Environmental Protection Agency; Dr. Rene Dubos, Professor Emeritus, Rockefeller University; Dr. Gordon MacDonald, Henry Luce Professor of Environmental Studies and Public Policy, Dartmouth College; Dr. Kenneth Hare, Science Advisor to the Canadian Department of the Environment, Toronto; Dr. Vernon Ruttan, President, Agricultural Development Council; Dr. Roderick Nash, historian, Professor of Environmental Studies, University of California, Santa Barbara; and Dr. Raymond J. Nelson, philosopher and mathematician, Case Western Reserve University.

IMPLICATIONS FOR FUTURE SUPPORT: It is anticipated that funds will be requested for continuation of this program if it proves to have special value.

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