subtropical and subantarctic waters; geophysical investigations in the western South Atlantic; reef rock on the coastal platform of southern Brazil and Uruguay; the movement of sediments at the port of Mar del Plata in Argentina; algae of the western South Atlantic; patterns of distribution of plankton organisms; pelagic copepods in the western South Atlantic; faunistic provinces of the western South Atlantic littoral region; Brazilian coral reefs, ecology of the genus *Balanoglossus*; relation between the condition factor and sexual development in *Sardinella aurita* (Cuv. & Val. 1847); and a biological investigation of the whaling season (1960–1963) off the northeastern coast of Brazil.

In addition to the presentation of the formal papers and lectures, a major purpose of the symposium was to consider the future role of oceanography in this part of the world. As a means of encouraging the growth and interest in oceanography, the Planning Committee of the symposium recommended that meetings be held every 2 years, with the possibility of the next meeting taking place in Argentina. It was the consensus of the Planning Committee that, rather than establish a regional journal of oceanography, workers should be encouraged to publish in the established international journals.

At the request of the Planning Committee, the Brazilian Academy of Sciences will recommend to the National Research Council of Brazil that a National Committee on Oceanography be formed in Brazil to act in a permanent advisory capacity on oceanographic problems to the council and government. A list of names of working scientists for the proposed committee from different institutions, universities, and government has been submitted. The president of the committee will be a representative of the National Research Council.

It was also proposed that the first meeting of the Committee on Oceanography be held at the end of October or November to assess the present state of oceanography in Brazil. At that time reports will be presented covering the programs actually being carried out at the various research institutions. With this background, a number of research topics will then be suggested and will emphasize those areas that might be both feasibly and profitably studied. Two or three members of the committee will periodically visit research institutions to better acquaint the committee with the progress and personnel at these laboratories.

The need for training at both the research and technical levels was clearly recognized as a necessary prerequisite for a solidly based oceanographic effort. Previously, the Latin American branch of UNESCO recommended that an Oceanographic Institute be established to provide such training. Such a program has been activated at the Instituto Oceanografico of Sao Paulo University. The Planning Committee recommended support for that program.

At Sao Paulo the student is given a general background in the aspects of oceanography, that is, physics, chemistry, biology, and geology, during the first two semesters. For the following two semesters he receives specialization in a selected field. The objectives of the program are to provide an understanding of the problems in the area and to provide the background to integrate the various fields of science needed for the solution of fundamental questions.

It was suggested that, for each research fellowship granted, a certain portion of the funds should be allotted for equipment so that the fellowship holder would be able to continue his work upon his return to his home institution. The best students will be sent abroad to major research laboratories, where they will study with outstanding scientists.

The new and well-equipped naval oceanographic vessel *Almirante Saldanha* should provide an excellent vehicle for the training of students at sea. In addition, by being available to the scientific community, it can serve as a fundamental facility for the advancement of oceanography in Brazil.

This symposium was jointly sponsored by the Brazilian Academy of Sciences, with funds from the Ford Foundation, the National Research Council of Brazil, and CAPES, a Brazilian society dedicated to the promotion of advanced studies.

In brief, this observer was impressed with the dedicated, enthusiastic, yet sensible and realistic, attitude of those present at the symposium. This bodes well for the future of oceanography in Brazil.

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Minimum Ecological Systems for Man

It is not surprising, in view of the present status of research accomplishments and the immediate prospects for further studies, that a discussion of the consequences of the absence of normal gravitational force and the deprivation of physical activity should result in more questions than answers. However, participants at the second Conference on Minimum Ecological Systems for Man sponsored by the Interdisciplinary Communications Program of the New York Academy of Sciences capitalized on available data from superficially unrelated areas in formulating their questions. The presentation of results and speculations by scientists representing a wide variety of disciplines was accompanied by thoughtful discussion of methodological and conceptual bases for future research.

A significant area of consensus, in terms of both evaluation of existing data and strategy for prospective research, concerned the relevance of the effects of environmental limitations in situations making no pretense of simulating space flight to the prediction of effects during such flight. Examples of such limitations range from the rather simple case of prolonged immobility (bed-rest, so-called) up to the complex pattern of stresses imposed during deep-sea dives. At the same time that they agreed on the desirability, not to say necessity, of exploiting most fully our capacity to examine responses to stress under this whole range of more mundane ecological conditions, the discussants exhibited a keen appreciation of the limitations on the applicability of these results to the space environment. Variables that are more or less excluded from the design of experiments at or near sea level range from the nearly impossible-to-arrange state of "zero" gravity to the difficult-to-ensure, at a realistic psychic level, separation from the normal physical and social surroundings to the degree represented by transatmospheric flights.

It was also apparent in the remarks of the speakers and discussants at this conference that our knowledge of the effects of restriction of motion, limitation of food and water, and absence of gravity as an interacting system of stresses (and to this principal system could be added other less well-defined influences) is limited to those which occur over relatively short periods of time. It was noted that, even when

specific effects—such as muscular degeneration, decalcification of bone and renal deposition of the excess calcium due to immobility, or circulatory decompensations as a function of fluid-balance disturbance—can be predicted on the basis of prior research and physicochemical theory, and when problems of measurement and transmission of measurements of relevant physiological parameters in flight have been solved, the data collected on short orbital flights, for few individuals, and in a context where hardware testing is the primary concern, can be expected to give only a first-approximation answer to questions of the interrelationships between the various states of physiological systems.

Finally, the necessity for return of the voyagers to the full richness of the terrestrial environment, it was seen, raises a fundamental and almost paradoxical question of the degree to which adaptation to the unquestionably strange micro-system of a space vehicle may interfere with readjustment to the earth's surface. Although not made explicit, a foreshadowing of problems of boundary-crossing to a point of physical no return was evident in discussions of the possibility that the human organism may adapt all too well to the alien environment of space.

With this serious question in mind the theme for the third conference, the life-threatening effects of minimum ecological conditions on cardiovascular, renal, and cerebral function, was established by the chairman, W. O. Fenn, of the University of Rochester.

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Biophysics

With A. Engström presiding, the second General Assembly of the International Organization for Pure and Applied Biophysics (IOPAB) met in Paris, 23 June 1964, during the international meetings of its special commissions on Cell and Membrane Biophysics and on Biophysics of Communication and Control Processes (*1*). The preliminary steps taken by the first Assembly in Stockholm in 1961 (*2, 3*) were confirmed, and the following 24 adherents were ratified: Argentina, Austria, Belgium, Brazil, Canada, China (Taiwan), Czechoslovakia,