

PANEL REPORTS

Résumés of the panel reports are presented here in the belief that they represent digests of important thoughts that emerged at the Conference.

Ecology (moderated by H. K. Beuchner)

Under the impact of exploding human populations, tropical ecosystems are rapidly disappearing. From a theoretical point of view we are in a position of needing to discover biological principles and concepts that can emerge only from studying existing tropical ecosystems before they disappear. From a practical viewpoint there are compelling economic and social reasons for studying tropical ecosystems to achieve harmonious adjustments between human societies and the tropical systems in which they live. This is of importance not only to the tropical countries involved, but also to temperate-zone countries whose economies will suffer from increased demands of growing populations in tropical nations. As the high-energy tropical ecosystems deteriorate, more and more economic assistance will be required from countries with the more limited resources of the comparatively low-energy temperate ecosystems.

Although the panel recommended a concentration of effort in Panama, it recognized the importance of an extensive world program involving selected sites of a wide variety to advance knowledge through comparisons of tropical ecosystems. The panel recommended Barro Colorado Island, the Navy Pipeline Area, and the Darien Area as sites in Panama for a concentration of activity designed to understand the structure and functioning of humid, lowland tropical ecosystems. Moving out from these centers of concentrated effort, additional studies of a specific, but less comprehensive, nature were recommended for other parts of Panama and neighboring countries. These recommendations were predicated on the assumption that Panama and neighboring countries would welcome the proposed studies and cooperate actively in the program.

The panel discussed the need for a foundation in systematics for ecological studies. It was suggested that consideration be given to developing a Terrestrial Sorting Center, comparable to that of the existing Smithsonian Oceanographic Sorting Center. It was also suggested that task forces be developed with teams of professional and subprofessional personnel to carry out expeditions to selected sites to develop the necessary knowledge of the systematics of the flora and fauna as a basis for ecological studies.

The panel recommended that the Cape Thompson study in Alaska, which was carried out by the U.S. Atomic Energy Commission in preparation for the proposed harbor development using atomic explosives, become a model for studies required in connection with the sea-level canal. This study demonstrated a basic approach to the study of whole ecosystems, starting with geology, hydrology, soils, and climatology on the physical side of the system and extending through flora and vegetation, fauna and animal population studies, and anthropology. Sophisticated ecosystem ecology studies involving mineral cycling and energy conversion extend well beyond the baseline studies illustrated by the Cape Thompson report.

Interinstitutional cooperation between universities in the United States and in tropical countries, national laboratories, government agencies, and corporations was considered by the panel to be essential to obtain sufficient talent for the study.

Oceanography and Limnology (moderated by I. E. Wallen)

The panel concluded that a long-term study of marine organisms on both sides of the isthmus is necessary and of urgent priority. The most desirable geographic extent of the study was not established, but the initial studies should extend from the bulges of South America to the Yucutan Peninsula on the east and to the Mexican coast on the west and for about 800 miles to sea.

The following were advanced as reasons for the study:

1. This would be an ideal experiment, consisting of the mixing of two mature ecosystems with the jolt of introduction of exotic elements.
2. Recombining of many biotic species that have not been mixed since the Pliocene offers a 1 in 5 million chance to learn about evolution. This would be a chance to see evolution and to participate in it.
3. The study of the effects of major construction on marine organisms would assist in the development of a prediction capability, useful in future planning. The experiment would permit hypotheses to be tested and refinement of study techniques to be developed.