THE ASKOY EXPEDITION OF THE AMERICAN MUSEUM OF NATURAL HISTORY IN THE EASTERN TROPICAL PACIFIC

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BETWEEN February 9 and May 26, 1941, an American Museum party operated the steel Diesel schooner *Askoy* in the area between the Gulfs of Panama and Guayaquil, and from the American coast to a meridian three hundred miles west of Point Chirambirá. The field of investigation thus included the shorelines of southern Darien, Pacific Colombia and Ecuador, such coastal or oceanic islands as the Perlas Archipelago, Gorgona, La Plata and Malpelo, and the outlying pelagic waters. From the points of view of geographer, oceanographer and marine biologist, the region offered a little-worked and fruitful field. A six-hundred-mile stretch of this part of Central and South America, for example, still ranks as the world's least known continental seacoast, while the adjacent bight of the equatorial Pacific has been only sporadically the scene of modern oceanic research.

During a cruise of approximately four thousand miles, investigations were conducted at well over a hundred precisely fixed stations. Some of these were distributed in series parallel with the shore and others at right angles, or across the course of the northward-flowing coastal current. Six of the latter transects were carried for distances of from fifty to three hundred miles offshore. On the southernmost of the sections, toward the west from Point Santa Elena, Ecuador, the most northerly line of stations worked by the British research ship *William Scoresby,* in 1931, was repeated. To this extent the campaign of *Askoy* was linked up with an earlier extensive survey in the ocean off Peru and Chile.

Routine procedure at the stations related chiefly to the surface layers, down to a depth of 150 meters. It included meteorological observations, surface temperatures, vertical temperature sections with the bathythermograph, sea-water samples from selected levels and quantitative catches made with Clarke plankton-samplers. The latter recently devised instruments automatically record the volume of water that passes through the nets, thus obviating the calculations formerly based upon net-diameter, speed and length of haul, etc. It is believed that on this expedition the Spilhaus bathythermograph received its first use in the Pacific Ocean. By working a thermometric element against a pressure element, this device traces on a smoked glass slide a graph which can be readily calibrated to indicate temperatures at all depths within its range. Since the plottings show the thermoclines, they are immediately available as a guide to the most significant levels for taking salinity samples and plankton.

Less regular observations comprised phytoplankton hauls, direct surface current measurements at stations where the vessel could be anchored with hydrographic cable, temperature records obtained with reversing thermometers and soundings by means of wire or Kelvin tubes. (The fathometer with which *Askoy* was alleged to be equipped proved, unfortunately, to be in complete disrepair, a fact likewise true of much other gear guaranteed by the charter specifications). Dredging was carried out in many bays and estuaries, as well as on parts of the open continental shelf. Furthermore, the Dunn diving helmet was employed in the shore waters of numerous mainland and insular localities, particularly at sites of previously unreported reef-coral formations.

The planning and leadership of the expedition were entrusted to Dr. Robert Cushman Murphy, who in 1937 had made a preliminary reconnaissance in the same area. Dr. John C. Armstrong, of the museum's Department of Living Invertebrates, served as scientific associate, and José G. Correia as preparator. The crew comprised Captain Halford Connolly as sailing master, Robert François as mate and Oscar Paar as engineer. Between March 20 and the end of the field work, Lieutenant Eduardo Fallon, commander of the gunboat *Junin* and ranking Colombian naval officer on the Pacific coast of his country, was also a member of *Askoy's* contingent. Because of his intimate knowledge of a hazardous and poorly charted coast, his skill as a navigator, and his able share in every aspect of the investigations, Lieutenant Fallon's participation was a happy and invaluable asset. In early April the American Museum sent Mrs. Murphy by air as a courier to the expedition, with which she remained for a week along the coast of Ecuador.

The four months' use of *Askoy* was made possible by the interest and liberality of several individuals and organizations. Funds to cover the charter of the schooner and the purchase of certain costly equipment were given by Jesse Metcalf, who subsequently flew to Buenaventura and joined briefly in field work at the Bay of Málaga. Contributions, in part unsolicited, were made by the following additional

friends of the museum: Mrs. George Blumenthal, Mrs. Edward F. Dwight, Mr. and Mrs. Ward Melville, Messrs. Frederick F. Brewster, Guy Emerson, Edgar J. Marston, E. Hope Norton, Duncan H. Read and Henry D. Sharpe. Carll Tucker provided a motion picture camera and a supply of 16-mm Kodachrome film.

The Woods Hole Oceanographic Institution lent much apparatus, including two bathythermographs, which would have been otherwise unobtainable. The Hydrographic Office of the United States Navy and the Coast and Geodetic Survey furnished essential scientific and navigational equipment as well as credentials and other aid. The Governments of the Republics of Panama, Colombia and Ecuador, through the good offices of their respective embassies at Washington, and the executives of the Panama Canal Zone all offered their patronage and granted facilities and privileges in part unprecedented. Particularly generous and effective was the cooperation of the Colombian authorities, in whose national territory or zone of special interest the greater part of the period of the expedition was spent. In addition to the assignment of Lieutenant Fallon as a fellow-worker, the civil and military officials, together with numerous private citizens and foreign residents, extended hospitality and assistance at every opportunity.

Reports on the findings of the *Askoy* expedition will, of course, have to await dynamic interpretation of the statistical records and study of the collections. Most numerous among the latter are marine invertebrates of many classes, especially noteworthy being the organisms associated with coral growths. The apparent Indo-Pacific affinities of some of these will, in the opinion of Dr. Armstrong, necessitate modification of certain currently accepted zoögeographic views.

The collection of fishes promises to be interesting, particularly because it includes a number of commensal species and a few luminescent deep-sea forms captured in plankton nets during night towings. Among other vertebrate collections are reptiles and amphibians from island and continental localities and about five hundred birds, mostly sea fowl. The distinctness of the warm-water area of convergent current movement in the tropical bight from the cool zone of divergence to the south, *i.e.*, the Humboldt Current littoral, is emphasized by the fact that the marine bird skins of the expedition include 19 species not taken during the American Museum's lengthy field work of earlier years along the coast of Peru. Incidentally, the area of *Askoy's* operations proved to be the seasonal non-breeding range of three northern-hemisphere birds of hitherto uncertain winter status, namely, the least petrel (*Halocyptena*), Sabine's gull (*Xema*) and black tern (*Chlidonias*). The stomachs of most of the sea birds were preserved, and it is hoped that their contents may be correlated with plankton and other collections so as to throw new light on the ecological chains that begin with such fundamental oceanic pasture as the diatoms.

Other data of the *Askoy* expedition are represented by field journals totaling 130,000 words, abundant photographs and colored motion picture film recording geographical and natural history subjects, oceanographic technic and the life of primitive Chocó Indians inhabiting the western watershed of the Baudó Mountains and the basin of the River San Juan.

SCIENTIFIC EVENTS

THE FAIRCHILD CONNECTICUT GARDEN

IN 1895 Benjamin Thomas Fairchild (1850–1939) purchased several hundred acres of land on Quaker Ridge, North Greenwich, Conn., for the purpose of carrying out a long cherished dream of establishing a wild flower sanctuary or preserve for the woody and herbaceous plants of Connecticut, and the region from Bar Harbor to the Adirondacks. He was thus a pioneer in conservation. The next forty years were spent in developing this tract by bringing in additional quantities of plants already there, and others not already on the tract. At the time of Mr. Fairchild's death, more than 400 species native to Connecticut and the more northern region had become established and listed.

In addition to the flowers the garden has an abundance of native animal life, including deer, ducks, rabbits, woodcock, pheasants, quail and grouse; it also has many varieties of native and migrant song birds, thus serving as a bird sanctuary. A bird census of the garden, made on May 18 by Dr. Frederick H. Pough and Roger Peterson, of the National Audubon Society, resulted in the listing of eighty-two species of birds.

Mr. Fairchild was not only a nature lover, but a man of scientific training, at the head of his own chemical manufacturing firm. A trustee of New York University, he was interested in education, and it was his plan to have the Connecticut Garden serve an educational end in addition to being a plant "sanctuary." On Mr. Fairchild's death the property had a value of approximately $127,000. In order that his wishes for the development and active use of the garden might be carried out his heirs formulated a plan to turn it over to a board of trustees for $60,000, or less than half its appraised value.