

ECOLOGY

Chairman: DONALD E. MILLER, Ball State University

MARION T. JACKSON, Indiana State University,

was elected chairman for 1967

ABSTRACTS

Studies on the Movement of Certain Radionuclides in Estuarine and Benthic Environments. RAYMOND E. HENZLICK, Ball State University.—Fallout radioactivity in certain molluscs was investigated in order to establish movements or patterns of movements for the more easily detected gamma-emitting radioactive contaminants. Ecologically, this information should help in establishing trophic relationships for this group of organisms. *Modiolus demissus* (marsh mussel), *Crassostrea virginica* (American oyster), *Aequipecten irradians* (bay scallop), and *Mercenaria mercenaria* (hard clam) appear to be biological indicators of radioactivity in the environment. Oysters appear to select for zinc-65 and scallops for manganese-54, at least in the natural environment.

In a separate study, selected isotopes (Co^{60} , Fe^{59} , Zn^{65} , Mn^{54} , and Ce^{144}) were experimentally placed in a large wood enclosure in an estuarine environment. Bottom samples were then taken and the benthos assayed for accumulation of the radioactive nuclides. Crustacea, tubed polychaetes, errant polychaetes, and molluscs constituted the greatest biomass. Meiobenthos were similarly collected and assayed but, although they were the most numerous organisms, their biomass was too small to concentrate any detectable radioactivity—at least under the conditions of the study. The greatest radioactivity was manifested in the shelled molluscs and the tube worms, with most of the activity associated with the shells or the tubes.

Facilities of the Radiobiological Laboratory, Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, Beaufort, N. C., were made available for these studies in conjunction with an NSF summer research grant to North Carolina State University.

Preliminary Studies of Vegetation and Microclimates on 30-Year Old Abandoned Stripmined Lands. CAROLYN KRUSE MAYROSE and MARYLYN KRUSE WRIGHT, Indiana State University.—Vegetation and microclimatic differences were studied in a partially strip-mined area near Brazil, Indiana. Random 1/10 acre plots were sampled by the Bitterlich-rangefinder method.

The 1-4 inch size class in the stripped section, consisting of 16 woody species, is dominated by *Ulmus americana*, *Liquidambar styraciflua*, *Fraxinus americana*, *Ulmus rubra* and *Platanus occidentalis* with respective importance values of 36, 16, 8, 8 and 7%. The larger size classes, consisting of 10 species, are dominated by *Robinia pseudoacacia*, *Ulmus americana* and *Populus deltoides* with respective importance values of 43, 17 and 10%. In the unstripped section, the 1-4 inch size class, consisting of 18 woody species, is dominated by *Acer rubrum*, *Liquidambar styraciflua*, *Carpinus caroliniana* and *Ulmus americana*

with respective importance values of 23, 15, 13 and 11%. The larger size classes, consisting of 11 woody species, are dominated by *Liquidambar styraciflua*, *Acer rubrum* and *Fraxinus pennsylvanica* with respective importance values of 41, 17 and 15%. Both stands are shifting in species composition and in dominant species. *Pinus sylvestris* and *Robinia pseudoacacia* were planted in stripped area but neither is replacing itself. *Ulmus americana* is heavily infected with Dutch elm disease and dying rapidly.

During spring months south-facing slope air temperatures averaged nearly 2° F. higher than opposing north-facing slopes. Air temperature ranges were 5° F. greater under deciduous canopies than in adjacent conifers. However, as the canopy closed the range was reduced to 1° F.

Further studies should elaborate succession and microclimatic patterns for the area.