Ecosystem Studies
at Cedar Creek Natural History Area

The simplest example of an ecosystem is a balanced aquarium, made by placing a wisp of hay, some pond water, and air in a glass jar which is then sealed and placed in indirect light. In a few weeks green plants and minute animals have appeared; the green plants use the energy of light and the raw materials carbon dioxide, water, and a few mineral nutrients, to form as products of photosynthesis gaseous oxygen and those complex organic substances which provide the food needed by themselves and by the animals. It may seem at first that this sealed balanced aquarium is a closed system, but brief reflection suggests that light is entering and heat is leaving, making it an open system as Bertalanffy (1950) showed to be true of all biological systems. A more familiar example of an ecosystem is a group of people and the room which holds them, though in this instance it is an unbalanced ecosystem because it lacks any producer organisms and contains only consumers. Fortunately, it is an open system which has allowed people to bring in with them a previous meal and will allow them to depart to reaffirm that dependence even within the room, for each breath recharges their blood with vital oxygen which would not be present in the atmosphere had it not been placed there in the past by photosynthetic plants.

The ecosystem idea is not new; it was presented at least seventy years ago when Forbes (1887) described a lake as a microcosm. But the term ecosystem was invented by the great British ecologist, Tansley, only in 1935. He defined it as "the whole system (in the sense of physics), including not only the organism-complex, but the whole complex of physical factors forming what we call the
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