

Part 3

Microcosms for Society

Part 3 includes those microcosms directly contributing to human society and economy. Some are small laboratory tests designed to help us understand larger utilitarian systems. Some are mesocosms, which do work for society and nature.

Many of the earth's old methods of developing food, salt, and other products have been supplied from complex, enclosed ecosystems. Partially enclosed ecosystems of various sizes are a common means of returning wastes to the environment. Such mesocosms contain domesticated ecosystems in symbiotic relationship with the environment and the human economy. Developing more symbiotic ecosystems and a better fit between humanity and the biosphere is the province of the evolving field of ecological engineering.

The role of humans within ecosystems is the increasingly important focus of those considering the symbiosis of society and its planetary life support system on Earth. With hopes for maintaining humans in space for longer times, the necessity for self-regulating life support systems is becoming apparent. Developing mesocosms that contain complex ecosystems and people is the only direct way to find a life support ecosystem for human beings and test its carrying capacity.

Operating microcosms and mesocosms are becoming important for public exhibition, education, and recreation as the public continues to learn that there is more to nature than just individual species. Adey and Loveland (1991) have published a book summarizing the knowledge concerning ecological mesocosms for public exhibition. Birmingham (1990) describes new Mesocosms and aquaria in Osaka, Japan called *Ring of Fire* designed by Peter Chermayeff and Cambridge Seven Associates, Cambridge, Mass.

Part 3 includes Chapter 17 on food production microcosms and Chapter 18 on waste processing microcosms. Chapter 19 reviews efforts to include human beings within enclosed systems on earth and in space. Finally, Chapter 20 examines possibilities, needs, and values of ecological microcosms for the future.