Climatically cities have been aptly described as damp deserts. Radiant energy is absorbed and stored in dense structural materials and is gradually released at night, reducing day and night temperature fluctuations. [Chicago Association for Commerce and Industry]

Urban Ecology Today

AAAS Symposium

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American cities are physically complex systems in which the animal biomass is predominately of one species and the plant biomass exists by chance or for esthetic considerations. These systems have been examined and prescribed for by engineers, architects, economists, social scientists, and politicians with less than satisfactory results.

As they become increasingly devoid of species and habitat diversity, cities tend toward an encompassing monotony which, in other systems, ecologists recognize as leading to inbalance and disruption. To date there has been a reluctance, perhaps an inability, to look at urban man as a biological entity—an adaptable animal but an animal nonetheless—whose origins as a species are recent and whose needs and behavior are often reminiscent of his mammalian relatives.

Increased appreciation of the usefulness of ecology as an integrative science has developed rapidly in recent years. Experience with mathematical analysis and modeling in the evaluation of natural systems is providing ecology with additional techniques for dealing with the peculiarities of man-made systems.

Despite awareness of the potentials of modern ecology—and the concomitant rise of instant ecologists, one essential subspecies, the urban ecologist, remains hidden in the masonry—if perchance he exists at all. Today, with widespread recognition of need for an ecological approach perhaps urban ecologists will appear and the necessary interdisciplinary effort will develop.

It is not surprising that biologists, with a few notable exceptions, have neglected the urban environment. Natural ecosystems are sufficiently complex to provide challenge to the most enthusiastic naturalist or systems ecologist. Natural systems have the additional advantage of operating for sustained periods with self-adjusting feedback loops and control mechanisms which are not dependent upon the vagaries of short-term political perturbations.

Like other man-dominated systems, the city is an unstable, highly productive, but poorly buffered system involving relatively few species and dependent upon a large input of energy and materials. The city may be viewed as a detritus ecosystem in which all fixed energy originates outside its limits and from which large volumes of waste material and diffused energy escape to the detriment of other systems downwind. To properly understand the city requires knowledge of its physical environment and of the various biotic components—how each functions and what purposes it serves or could serve. In this view the human component is but one of several populations. Planners now recognize that they must consider the biological nature of man at various stages in his life cycle. They too become aware that decent, safe, and sanitary dwellings alone are not adequate environment for a happy and productive human population.

Ecology implies the interaction of the biota with the environment. The

urban system creates its own distinctive environment, relative to climate, soil, and stress. Climatically cities have been aptly described as damp deserts. Radiant energy is absorbed and stored in dense structural materials and is gradually released at night, reducing day and night temperature fluctuations. Precipitation does not infiltrate the soil nor is it evaporated from leaves and litter; instead rain is channeled off the surface and out of the system as rapidly as the engineer can arrange it. In addition to solar energy, the metabolism of the city produces vast quantities of heat which must be dissipated. With excess heat, there are various air pollutants in huge quantities which form a fluctuating but all persuasive envelope for the system. Urban climates are under intensive scrutiny, especially relative to air pollution. Likewise, urban soils and hydrology are beginning to receive attention, as are components of stress, such as noise. The urban biota remains to be examined.

Geographers have long studied the movement and distribution of human populations in cities and in urban-rural ecotones. These demographic studies have provided much insight into the ethnic and economic responses of various city groups but they have done little to elucidate the nature of human behavior or human needs. Social scientists are familiar with the expressed needs of urban man, and with the starvation, stress, and crime characteristic of the inner city. Yet, the root causes of these symptoms, predominately biological in nature, have almost escaped scrutiny.

Cities are presently designed for active adults and have little value for young children, teenagers, or the aged, particularly those of moderate or low incomes. This disregard for the physical and psychic needs of several major age classes in the human population may well be partially responsible for the increased delinquency, deviant behavior, and other problems usually attributed to poverty or family disintegration. High-rise housing for low income families has at last been recognized as a major error. The ecological inconsistencies of high-rise housing are evident to anyone who has watched small children at play.

A dispassionate view of the organization of urban centers leads to the conclusion that the modern American city is not an efficient system either for energy and material transfer or for the support of biomass. In comparison with natural systems the units appear overly separated for efficient exchange of information and require far too much energy merely to keep the system operating. This too is a fertile field for the analyst familiar with complex natural systems.

Naturally established plant and animal populations are present in all cities, often in specific, diverse, and relatively stable communities. Such natural communities, as well as others dependent on man for establishment and survival, may play an important but little-understood role in the life of the city. The implications of ecological concepts such as diversity, succession, energy and nutrient flow, population dynamics, and territoriality are pertinent to the management of older cities and the development of new ones.

No 1-day program can span the range of ideas, disciplines, and problems implicit in an ecological approach to the urban system. This symposium will emphasize the nature and function of urban vegetation and wildlife, and highlight the potential of ecological principles in urban planning. The morning session will consider the basic ecology of the city, that is, plant and animal populations and their environment, while the afternoon session will explore the application of ecological approaches to urban problems.

The symposium, Urban Ecology Today, is being sponsored jointly by the Ecological Society of America and by The Wildlife Society.

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Amendments to AAAS Constitution

Article IX of the Association's constitution deals with the election of affiliated societies of the Association and with the representation of those societies on the AAAS Council. The Committee on Council Affairs and the Board of Directors recommend that Section 1 of Article IX be amended by adding at the end of the section the following sentences: "Council representatives named by affiliated organizations shall serve for terms of at least three years. If a named representative of an affiliated organization is unable to attend a meeting of Council, and if the organization wishes to be represented by a substitute, the substitute shall be the president of the organization."

Article VI, Section 1, of the constitution empowers the Board of Directors "to take such actions as it deems necessary to carry out the objects of the Association." It is the Board's interpretation that this power encompasses the authority to the Board provided in Article III, Section 2, to prescribe special relationships, other than membership, between the Association and students and other classes of persons potentially interested in the Association's several programs, since one of the objects of the Association is to promote science in its relationships to the broader community. Accordingly, the Board recommends that Section 2 of Article III be deleted in its entirety. The section reads: "*Students.* Under such rules as the Board of Directors may prescribe, students may be elected as Student Members or as Honorary Junior Members. Persons in neither category shall be considered as Members of the Association."

The constitution specifies: "Proposed amendments shall be published in substance at least one month prior to an annual meeting of the Association. A proposed amendment that is approved by the Board of Directors shall require for its adoption a favorable vote of two thirds of the Council members in attendance at the Council session at which it is presented."

The Council will vote on these proposed amendments at the annual meeting in Chicago, Illinois, on 30 December 1970.