

**THE CITY AND NATURAL COMMUNITIES**

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There should be no need to try to convince anyone of the ugliness and poor planning of our cities. Those with senses and sensibility will be aware of their shortcomings, and disquieted, too; because with all our insight and technical skill we continue to add to their tastelessness and inefficiency through motives that reflect little credit on the developers — public or private.

My aim is to outline the part ecologists should be playing in the planning of urban areas and their surrounding countryside; especially now, when about 40% of mankind lives in cities, with all the attendant social, economic, political and environmental problems of such places. I will take for granted the fundamental need to supply such essentials as efficient transport, power and waste-disposal systems, formal areas for relaxation, recreation and so on. Such things are the province of engineers and town-planners in the strict sense; just as the design of aesthetically-satisfying buildings, streets and squares is a task for architects. What is needed for a technically efficient city is for all of these experts to be given the proper opportunity to combine in exercising their skills. However, even this is not enough — provision should be made for incorporating natural communities and as much ecological diversity as possible. Until now, most urban areas have been developed without recourse to ecological advice. (I prefer not to use the word “planned”, which, for me, implies more care than — obviously — has been taken). Apparently, developers and local government have had as much need for ecologists as Coffinhal had for scientists on the occasion of Lavoisier’s condemnation.

Implicit in the argument for the incorporation of natural communities within the city is the assumption that men are generally healthier, at least mentally, and therefore happier, for living a part of their time in an environment also inhabited by feral plants and animals. Purists will have to forgive me for including among natural communities those that are feral although directly or indirectly modified by man. To the best of my knowledge there have been no experiments to

prove that, in this technological age, occasional direct contact with nature is essential to man’s physical and mental well-being. It may be that we could all live indefinitely in well-designed urban areas that make no concession to nature apart from ensuring clear skies, clean water and formal lawns and gardens. However, I am convinced that if ever the need for making such an experiment arose, it would show that occasional contacts with natural communities are essential for man’s proper development and are not just a pleasant sensory indulgence. The periodic flight of town-dwellers into the countryside is circumstantial evidence in favour of the correctness of my intuition. Man seems to require diversity in his environment as a stimulant — and the more the better, apparently. Biological diversity (as we shall see later) has obvious practical and economic advantages which apply more to the countryside and agricultural areas than to the city proper, where aesthetic and recreational values are paramount. And not lightly to be disregarded, in town or country, is the moral consideration, only just beginning to gain ground in Western culture, that communities other than human have their rights to existence, too.

How may ecologists play their part in ensuring that cities and their surroundings become as pleasant as possible to live in and, at the same time, satisfy mankind’s most obvious environmental needs?

One of the first steps to be taken to ensure the preservation of as much biological diversity as possible is for ecologists to specify the limits beyond which pollution of air, land and water must not be allowed to go. Such limits should depend upon the assumption that levels of pollution low enough to ensure man’s physical and mental health are not low enough if natural communities are adversely affected. Unfortunately, so much pollution of the kind that might be called “chemical” is insidious and may seriously impair the fabric of nature before man is sufficiently affected to try to reduce it. It is the ecologists who must be given the responsibility of laying down



the acceptable levels of eutrophication, contamination and calcification (or pollution by heat).

Another, and more obvious, threat to biological and environmental diversity is direct modification or destruction by public or private works. The degree to which such modification or destruction is justified varies, of course, with the circumstances; but we just do not plan for natural communities when we build our cities. Not only has the time already come for city planning to be in the hands of competent *regional* planning authorities, but no such authority should be considered competent until it includes at least one ecologist upon its panel of experts. He would have the task of arranging for important biological communities to be identified, classified and ranked in order of importance according to rarity, scientific or aesthetic value, essentiality for conferring ecological stability on an area and so on, and this should be done in full collaboration with the landscape planner.

Natural wetlands (those bodies of fresh, brackish or salt water, static or flowing, predominantly less than about 20 feet deep) are particularly vulnerable to the attention of developers. Their obvious advantages in this regard are that, in New Zealand, they are usually Crown-owned (at least to their shorelines) and may therefore be taken over with a minimum of negotiation and, after being filled in by digging away at another part of the landscape, make cheap, flat, building land. Sometimes partial or total destruction of an urban or suburban wetland is absolutely unavoidable; but I suspect that, more often than not, obtaining land in this way is merely a matter of speed, cheapness and expediency. In the face of growing populations with growing leisure time, wetlands in and around cities should be regarded as most valuable assets in their undeveloped state, and ecologists and planners should list them in order of importance (scientific, ecological, recreational and so on) and advise how they can be most wisely used and yet have their essential character maintained. There is generally little information available about the scientific or ecological value of coastlines, harbours, estuaries or other bodies of water, and virtually nothing is known about the subtle and long-term — and irreversible — effects all too likely to result from changes in water volume, currents, temperature, salinity and so on. Once the aesthetic and recreational values of wetlands begin to be destroyed

by unwise interference with important aspects of their ecology, the pressure for their development becomes almost irresistible. (My use of the word “developer” may appear to have pejorative overtones; in the context I have used it it is meant to — there is cause enough.)

Other landscape surgery involves earthworks connected with quarrying, development of housing areas and construction of motorways. As an all-too-frequent consequence, the quality of the environment suffers. A good deal of this is justified and acceptable; a good deal is not and could be avoided by integrated planning by engineers, landscape architects and ecologists. Alternative sites can usually be found for quarries, though costs may be a little higher as a consequence; and most natural features need not be bulldozed out of a housing estate to give the flat and featureless inclined plane so beloved by most developers because everything is easier and cheaper that way. Nor need all the inhabitants of such an estate have virtually the same view simply because all the standing vegetation has been destroyed and no one dares or cares to plant anything that is not grass or likely to grow more than six feet high. The Porirua Basin, just north of Wellington, is a good example of this kind of development, which, if it continues (as seems more than likely) will make the name of the area even more apt — not only because of the shape imposed on its hills by the bulldozers but also because of its general featurelessness as well.

It is difficult for an ecologist to maintain his scientific detachment over motorways. All too frequently they are a threat to everything in their path worth conserving, and there are many who are convinced that, in shortening the distance from A to B, they not only overwhelm B with A's problems compounded but still leave the journey depressing. There is a growing body of informed opinion overseas which doubts their value in cities and lays the blame for their prevalence upon “the limited scope of urban traffic engineering which, until recently, has been concerned almost exclusively with maximising the carrying capacity of roads, reducing delays at junctions and making roads safer” (Proudlove 1969). Lewis Mumford (1958) has said: “The motorway has repeatedly taken possession of the most valuable recreation space the city possesses, not only by thieving land once dedicated to park uses, but by cutting off easy access to the waterfront parks and lowering



their value for refreshment and repose . . . What [people] do not understand is that they are trading a permanent good for a very temporary advantage, since until we subordinate highway expansion to the more permanent requirements of regional planning, the flood of motor traffic will clog new channels. What they further fail to realise is that the vast sums of money that go into such enterprises drain necessary public monies from other functions of the city, and make it socially, if not financially, bankrupt." I would be the last to deny that motorways are sometimes aesthetically satisfying in themselves as *structures* and often, on balance, worthwhile—for a time; but whether or not, in the long term, they compensate for their devaluation of the quality of the environment is debatable.

Such landscape manipulation as I have been describing may—or may not—be fully justified by circumstances; but invariably its aesthetic and ecological consequences should merit—and get—proper consideration and treatment. Subsequent "prettification" is no substitute for adequate conservation planning beforehand. The two are certainly not synonymous, as certain major environment-modifying organisations apparently believe. Ecological advice which will give us a richer and more varied environment—even if at rather greater cost—is there for the asking. All that is needed is an awareness and an enlightened attitude.

So much for trying to protect what we have been left with; but how may we increase the ecological quality of our environment within or around an already-established urban area? Obviously, we could increase the number and variety of feral biological communities; but this is really practical only on land and in fresh water—marine environments are far more difficult to manipulate in this way. As well as open spaces formally laid out in shaven lawns, flowerbeds and specimen trees, with ponds of water-lilies, goldfish and ornamental waterfowl—an end product of the sterile tradition of Persia and Versailles, the richer tradition of Capability Brown or even a result of the influence of the studied but exquisite subtlety of the Japanese garden (in which nature is even more closely approximated)—large expanses are needed which have the diversity and untidiness of natural communities, for these are biologically the richest of all. Fortunate cities such as Canberra and Vancouver already have them

well within their boundaries. But should they be lacking or insufficient, we nowadays have the technical power to introduce them on a small scale, or, with our knowledge of community ecology and succession, to create close and viable facsimiles, as is already being done in Holland.

Should new towns or suburbs be built in essentially rural areas (for example, the proposed city of Judgeford at the eastern extremity of Paremata Harbour, near Wellington, which is planned to have about 80,000 people by the end of this century), then ecologists should play an essential part in their planning from the very outset. A book has recently been published which shows just how effective and efficient such ecologically-based planning can be. It is *Design With Nature* by Ian McHarg (1969) who, significantly, was born and brought up on the outskirts of that other "great wen", Glasgow, and has lived for many years in that country of many and even greater wens, the United States. His technique is simple and logical. It involves detailed planning on a scale rarely even considered at present, unfortunately. In the area concerned, one maps separately on uniform transparent sheets such things as important geological features, physiography, hydrological data, drainage patterns, soils, tidal inundation, vegetation, wildlife habitats, existing land use, historical landmarks, scenic values, localities of scenic importance, recreation areas, suitable urban and suburban sites and so on, in considerable detail. From these sheets one can produce composites of varying complexity which allow one to solve problems of various kinds, such as assessing which combinations of multiple use are possible, where motorways should go, where reserves should be created and so on. Again, the result is to ensure the best use of resources, a rich and varied landscape and a maximum of ecological diversity. How efficient and how different from the apparently prevalent local practice of considering only four criteria—cheapness, speed, expediency and the maximum short-term cash return.

Someone will object that such thorough-going planning as McHarg's will cost a great deal of money. It may well do so, but in the long run, it will save a great deal, too. But unless society is willing to pay, how else can we obtain a worthwhile urban and suburban environment in these days of uncontrolled population growth and frequently uncoordinated technology? Instead, we will get



more and more Porirua Easts — good housing by world standards, sheltering a population with one of the world's highest material living standards, situated in a good climate and an unpolluted environment; but socially, aesthetically and ecologically monumentally dull and a warning to all those who plan by rote that such planning is not good enough. I wonder how many of its designers would care to reside there ("live" hardly seems the apt word in this instance). Those who think this judgment of Porirua is too severe should compare this city with Tapiola on the outskirts of Helsinki. The Finns have a tradition of good town planning, fine architecture and an appreciation of natural communities in urban environments; we do not.

I do not wish to imply that I believe that nature's handiwork is always aesthetically superior to man's, or more satisfying. The pastoral landscapes of Taranaki, the essentially artificial rural landscapes of Britain, the setting which includes Frank Lloyd Wright's famous house "Falling Water" and much of such cities as Canberra and Vancouver are evidence to the contrary; whereas much of our new agricultural land (in which everything all too frequently gives way to grass, often at the cost of ecological stability) and the downtown areas of such cities as New York, Sydney, Auckland and Wellington (in which there is nothing to admire but the architecture, and not always that) are dull and depressing. In fact, most towns and large cities show what I call the "scabweed syndrome" — decay at the heart spreading outwards as peripheral growth continues. For example, in the period 1954–62 the population of the urban centre of Paris declined by 30%, while the suburban population increased by 65% (Bentham 1970).

On the advantages of ecological diversity in town or country, Charles Elton's most recent book, *"The Pattern of Animal Communities"* (1966, p. 383) has this to say:

"Modern conservation('s) . . . chief problem remains that of fashioning over the whole extent of occupied and exploited land a mosaic of landscape and many small habitats that is as rich as possible consistently with keeping the necessary productivity of land and its use for man for so many different purposes. There are two dangers that are now being more widely discussed than

formerly. The first is that, in giving priority to economic productivity, especially in regard to the production of large cash crops from the land, the human environment itself may gradually become dull, unvaried, charmless and treated like a factory rather than a place to live in. The second is that over-simplified communities contain within themselves flaws of organisation that render them vulnerable to invaders of unfamiliar kinds . . . Just how we are to maintain ecological arrangements that will help solve this dilemma is not yet certainly known, but [we should] . . . maintain the maximum variety of natural and semi-natural habitats and their communities in the landscape, as possible buffers against invasions and unbalance. This means preserving *in as rich a form as possible* all the communities that may be interspersed among croplands, especially woods, scrub, roadside and field hedgerows and meadows as well as various habitats transitional to water [and] the rich maritime terrestrial communities."

Our environmental crisis has two important causes: our dichotomously-minded Western philosophy which conditions us to think in terms of such apparent irreconcilables as mind and matter, good and evil, black and white, man and nature, town and country; and Christian theology which does not encourage population control but which does encourage the view that anything non-human is there for us to exploit to any extreme that we think fit. More than any other discipline, ecology can help everyone begin to appreciate that the biosphere is one integrated system and that, if fully called upon, ecology can make it possible for man to come to reasonable terms with the rest of the biosphere so that he may live comfortably within his resources instead of up to their limits and beyond.

We have heard fine words from the recent Physical Environment Conference in Wellington which eventually produced many admirable recommendations; but we know with what materials the road to hell is paved. If we really want cities truly worth living in, cities that will teach the city-dwellers (nearly 67% of the New Zealand population) first-hand facts about ecology and conservation, ecologists must insist on playing an essential part in their conception. The time has more than come when we, and others, must counter such influences as ignorance, greed, poor



and uncoordinated planning, antiquated aspects of local government, misdirected parsimony, undue haste, political expediency and the intransigence and vanity of many planners. It is virtually now or never.

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