

## I. ROOFTOPS AND GARDENING

Urban growth is inherently accompanied by economic pressures which prevent efficient land utilization. The magnitude of this economic pressure is a function of the city's size, its buildings' ground coverage, and its population density. And yet, even in the midst of the most dense city there are hundreds of acres of undeveloped space, that is, the endless series of unused rooftops. These desolate areas could not only relieve the scarcity of space but also enhance the quality of our urban living environment. The potential of these underdeveloped areas is yet to be explored and their optimal use realized. Indeed precedents of small-scale roof development in urban areas can be found, for example penthouse accommodation for luxury dwelling units and less frequently rooftop office space. Moreover, the roofs of some apartments as well as office buildings are used for recreational facilities such as indoor and outdoor swimming pools, sun terraces and roof gardens. But for the most part roofs in cities are underutilized and represent an unsightly wasteland when viewed from neighbouring high-rise buildings.

The cultivation of horticultural produce in developed societies is relegated to farming areas remote from the city. Horticultural land use is considered economically incompatible with conventional urban land use. However, in the case of some market vegetables, for example, this view may no longer be strictly tenable, in view of recent technological advances pertaining to cultivation especially when coupled with the realization that cities have the potential of almost endless small gardens on rooftops which are preeminently suited for industrial cultivation.

Roofs obviously have a good exposure to sunlight, which is essential for plant growth. Moreover they are a source of carbon dioxide, another prerequisite of plant growth, since city air is often polluted. It is known that plants thrive better in CO<sub>2</sub> enriched air, and industrial cultivation could develop a mutually beneficial system which would not only provide ideal conditions for plant growth, but also improve the living conditions of city inhabitants. The basic principle of this system is based on the premise of balance between living areas for people and cultivation areas for plants. As these two areas supplement each other ecologically, this results in good regeneration of environments both for the human beings and for the plants. Man needs oxygen to breathe, the plants need carbon dioxide. Ample carbon dioxide is produced in the residential areas of the human beings, and oxygen is produced in the plant areas. This will provide air enriched with oxygen for the people, and with carbon dioxide for the plants. At the same time, the plant serves as humidifier and absorbs various harmful gases.

The development of roof areas for horticultural purposes appears to be a viable proposition not only from an ecological point of view, but may also bring about the following advantages:

1. production of high quality year-round garden produce in the urban areas where they are consumed.
2. new employment possibilities for the unskilled urban labour market.
3. reduction of transportation costs and thereby also lower food prices.
4. alleviation of some vehicular traffic on city streets since the amount of food produce to be trucked to the city would be reduced.
5. improvement in the balance of payment situation with southern countries that supply us with produce.
6. aesthetic improvement of roof-scapes by means of both enclosed and open roof gardens.
7. enhancement of the quality of urban living.
8. giving control over aspects directly affecting peoples lives-namely food production-albeit on a very limited scale.

The *Rooftop Wastelands* project had as its original objectives both social and technological goals. It was the intention to examine the feasibility of small-scale, individually operated food production within the downtown area of a Canadian city. It was hoped that this would result in better quality food becoming available at a lower price. Additionally there were environmental and social benefits as a new type of "landscape" became available to the urban citizen. In order to do this there were technological aspects to be resolved - rooftop climate and container cultivation, for instance.

Any experiment alters the perception of the experimenter. This project is no exception. During the eighteen months since May 1975, the expectations and priorities of the project participants have developed considerably. This has come as a result of both technological discoveries and social inputs. New and, we think, valuable data has been accumulated in a number of areas - rooftop structures, hydroponics. In addition, some preliminary data was obtained on potential pollution hazards for urban gardeners.

The main activity of the *Rooftop Wastelands* project was centered on a community centre rooftop in downtown Montréal. This 1000 square meter roof was developed as a community garden intended to serve as both a demonstration of rooftop potential as well as a living classroom for the organic gardening courses that formed an important part of the activities. All in all the community garden comprised about 250 gardening containers, a dozen cold frames, three small greenhouses and a compost bin. In addition there were two large shaded sitting areas. It is intended that most of this garden will remain as an integral part of the community centre's activities.

*This chapter is based on material provided by Norbert Schoenauer.*

