

Preface

This Trilogy of books answers the question “What is Horticulture?”. Their contents span from tropical plantations growing exotics crops such as cocoa, pineapples and rubber through to the interior landscaping of high-rise office tower blocks, to applications which encourage physical and mental health. The common thread uniting this Discipline is the identification, breeding, manipulation of growth and stimulation of flowering and fruiting in plants either for food or environmental and social improvement. Understanding the scientific principles of why plant productivity increases following physical, chemical and biological stimuli has fascinated horticulturists for several millennia.

Epicurus (341BC–270BC) the Athenian philosopher of the 3rd century BC believed that plants achieved “the highest good was calmness of mind”. Calmness comes to some Horticulturists with the satisfaction of entering vast hectares of bountiful orchards, to others from well designed and carefully maintained landscapes while others are entranced by participation in conserving components of the Earth’s fragile biodiversity. Horticulture while being a scientific discipline has much wider and deeper dimensions. There are historic, artistic and cultural facets which are shared with the Humanities and these aspects are included within this Trilogy. Wherever Horticulturists gather together they share a common language which interprets useful scientific knowledge and cultural understanding for the common benefit of mankind. For while Horticulture is about achieving an intensity of growth and development, flowering and fruiting, it is wholly conscious that this must be achieved sustainably such that the resources used are matched by those passed on for use by future generations.

The structure of this Trilogy is such that it traces the evolution in emphasis which has developed in Horticultural philosophy across the second half of the 20th and into the 21st century. Following the worldwide conflicts of the 1940s the key aspirations were the achievement of food sufficiency and the eradication of hunger from the planet. In an increasingly affluent and developed world there is food sufficiency *par excellence*. Never before has such an array of plenty been made available year-round. This plenty is nowhere more evident than in the fresh fruit and vegetable aisles of our supermarkets. Horticulture has given retail shoppers the gift of high quality and diversity of produce by manipulating plant growth and reproduction and post harvest care across the globe.

This third volume illustrates in considerable depth the scientific and technological concepts interacting with the arts and humanities which now underpin the rapidly evolving subject of Social Horticulture. This covers considerations of: Horticulture and Society, Diet and Health, Psychological Health, Wildlife, Horticulture and Public Welfare, Education, Extension, Economics, Exports and Biosecurity, Scholarship and Art, Scholarship and Literature, Scholarship and History and the relationship between Horticulture and Gardening. This volume firmly brings the evolution of the Discipline into the 21st Century. It breaks new ground by providing a detailed analysis of the value of Horticulture as a force for enhancing society in the form of social welfare, health and well-being, how this knowledge is transferred within and between generations, and the place of Horticulture in the Arts and Humanities. The social domain which describes peoples' behaviour shows how dependent mankind is on nature and green open space, not just for material requirements, but also for our physical, psychological, emotional and spiritual needs. Green open spaces, associated with urban communities, are usually the only possible source of connection with the natural world and so contribute to improving the quality of life in our communities. These green open spaces have been shown to provide considerable social capital in terms of employment, education, and recreational benefit. Physical activity, such as walking or cycling to work or for pleasure, or being directly involved with a natural green space activities has been shown to alleviate stress, reduce mental fatigue and potential for anger, increase wellbeing and self-esteem and aid in a more rapid recovery and spending less time in a hospital. Research has also shown by association patients working in a natural environment have improved health, visited their general practitioner less, taken fewer prescription drugs, felt safer in their community, experienced less pain and discomfort, had more opportunities to use their skills, and culminating in reduced community health costs. The lack of plants in an environment can lead to reduced mental and physical development, poor performance at school and in the workforce and the continuation of poverty for generations. Other social benefits of an association with plants include reducing the potential for domestic violence, vandalism, ethnic conflict and crime by building interpersonal relationships. Consequently, this volume places substantial emphasis on the relationship between health, well-being and plants. The success of the Eden Project as described in this volume identifies how keen members of the general public are for an association with plants and the pleasures that they derive from being near, or working with plants. This concept is taken further when examining the importance of plants for psychological well-being. It is now well accepted that diets which are rich in fruit and vegetables can contribute hugely towards the reduction in the incidence of diseases of affluence such as cancers, coronary heart disease and strokes. The relationship between working with plants forming part of the wild flora is examined in this volume. Adding areas of wilderness into people's lives can be highly beneficial to their psychological and physical health and well-being. The transfer of knowledge either to students or to practitioners of horticulture is of major significance. Two chapters examine these aspects looking at means by which knowledge is delivered and the wider contexts within which Horticultural Education is provided. Understanding the Economics

of Horticulture is of paramount importance in justifying public and private financial provisions for the discipline. Biosecurity is difficult to achieve since global air travel takes new plants, microbes and animals around the world at ever increasing speed. This has led to some considerable problems with the growth of alien species which have exploited environments devoid of predators. Of particular importance in this volume are the three chapters dealing with aspects of the relationship between Horticulture and scholarship. Here the aspects of Horticulture which integrate with the Humanities are explored in considerable depth. This is an ancient relationship and one where Horticulture demonstrates the intensity of its connections with man's cultural spirit. Horticulture here becomes far more than an attempt to understand the science of plant growth and reproduction and takes on roles which pertain to artistic and historical significance. Finally, there is an examination of the relationship between Horticulture and Gardening. This is an area of thought deserving of much deeper analysis. Recently, regard for gardening has become levelled down through the activities of the media which wish to reduce topics to sound-byte levels. But culturally gardening has much to do with the relationship between man, plants and the human spirit. It is a truism that "Horticulture is to English Literature as Gardening is to Theatre". In other words Gardening is a physical process whereas Horticulture is cerebral. Some would contend that this does not do justice to gardening which itself may be cerebral. Certainly in history there were political aspects to gardening whereby choosing an incorrect style of landscaping could spell serious even fatal penalties for the owner.

The first volume in this Trilogy covers Crop Production Horticulture (volume 1) and the second volume is devoted to Environmental Horticulture (volume 2). Volume 1 illustrates in considerable depth the science and technology which underpin the continuous production of Horticultural Fresh Produce. Firstly there is a consideration of aspects of industrial development based on basic scientific discoveries. This is followed by chapters written by acknowledged world experts covering the production of: Field Vegetables, Temperate Fruit, Tropical Fruit, Citrus, Plantation Crops, Berry Crops, Viticulture, Protected Crops, Flower Crops, Developing New Crops, Post-harvest Handling, Supply Chain Management and the Environmental Impact of Production. Production Horticulture may now be found supporting the economies of less developed nations, consequently the final Chapter focuses especially on the impact of Production Horticulture in Africa.

The second volume Environmental Horticulture covers considerations of: Horticulture and the Environment, Woody Ornamentals, Herbs and Pharmaceuticals, Urban Greening, Rural Trees, Urban Trees, Turfgrass Science, Interior Landscaping, Biodiversity, Climate Change and Organic Production. These subjects are united by consideration of the need for sustainable use of resources and careful conservation applied of all points where Horticulture and the environment coincide. Horticulture plays an enormous role in aiding environmental care and support. Indeed this discipline could be considered as having founded much of the basis for is now considered to be ecological and environmental science.

The value of Horticulture for human development was emphasised by Jorge Sampaio (United Nations High Representative for the Alliance of Civilisations and

previously the President of the Republic of Portugal) in his opening address to the 28th International Horticultural Congress in Lisbon, 2010. He stated that Horticulture can achieve “a lot to overcome hunger and ensure food security”. In the face of estimates that the world’s population, particularly in developing countries, will reach 9.1 billion by 2050 much does need to be achieved, and in this Horticulture has an especially important roles. Intensive plant production has much to offer as urbanization continues at an accelerating pace. Shortly about 70 per cent of the world’s population will choose to live in urban and peri-urban areas of many countries. In the developing World many millions of the world’s population continue to be undernourished and in poor health. Climatic change, over population, soil degradation, water and energy shortages, pollution and crippling destruction of biodiversity are the challenges facing all of humanity. Horticulture in its Production, Environmental and Social dimensions offers important knowledge and expertise in these areas. This has been well explained in “Harvesting the Sun”, a digest recently published by the International Society for Horticultural Science. In summary form the international interactions between horticultural science, technology, business and management are explained. This offers pointers as to how over the early part of the 21st Century world food production must rise by at least some 110 per cent in order to meet the demands of a expanding populations in countries such as China, India, parts of Asia and in South America.

Considerable breadth and depth of intellect are demanded of those who seek an understanding of horticulture. This is not a discipline for the faint hearted since the true disciple needs a considerable base in the physical, chemical, and the biological sciences and natural resource studies linked with an understanding of the application of economics, engineering and the social sciences. Added to this should also comes an appreciation of the artistic, historic and cultural dimensions of the Discipline. The teaching of fully comprehensive horticultural science courses in higher educational institutions has regrettably been diminished worldwide. It is to be hoped that this Trilogy may go some small way in providing an insight into the scale, scope and excitement of the Discipline and the intellectual rigour demanded of those who seek a properly proportioned understanding of it.

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Professor Geoffrey R. Dixon affectionately records his thanks to his mentor Professor Herbert Miles, then Head of the Horticulture Department of Wye College, University of London (now Imperial College, London) who challenged him to “define Horticulture”. Regrettably, it has taken half a century of enquiry to respond effectively.

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