Introduction

This book is an initiative of The Commonwealth Secretariat, published as a response to the increasing popularity of informal centres of learning. Museums and centres of all kinds – including science, arts and culture – play a key role in educational infrastructure through the provision of programmes and experiences that facilitate the learning of science and technology in formal or informal contexts. At the same time, however, there is a growing awareness that visits, especially by school groups, could be more successful if there were greater interaction between museum curators and teachers. The Commonwealth Secretariat has produced this book to share ideas and approaches, not only for curators and educators working in museums and centres but for teachers in schools, in order to exploit more fully the potential of museums and centres in popularising science and technology.

A recent report by the House of Lords (House of Lords, 2000, ***Third Report of the Select Committee on Science and Society***) states that the future wealth and welfare of society depends critically upon the enthusiasm of young people to pursue scientific careers. "Science, technology and engineering are intimately linked with progress across the whole range of human endeavour: educational, intellectual, medical, environmental, social, economic and cultural... Science and engineering also make a most important contribution to improved public services and the quality of life."

None would disagree that young people should be encouraged to take up science, even if they do not intend to make it their career. The Report continues, "democratic citizenship in a modern society depends, among other things, on the ability of citizens to comprehend, criticise and use scientific ideas and claims... It is important that children do not grow up frightened of science and technology. Therefore a vital point of collaboration between the public, the media and the scientific community must lie in primary and secondary schools."

The UNESCO World Conference on Science in Budapest in July, 1999 made a similar call for a closer relationship between schools and the world of science. "Governments should accord highest priority to the improvement of science education at all levels" says the Framework for Action, "with particular attention to the elimination of the gender bias and bias against disadvantaged groups, raising public awareness of science and fostering its popularisation."

Science centres and museums have been presenting science in a different, informal format for many years but, too often, the school visit is not fruitful. For

effective learning to occur – and within this book there are debates about the meaning of "effective learning" – there needs to be successful interaction between teachers and the museum, to facilitate and improve the visit of the school group.

The articles in this book have been provided by a variety of authors from many different centres. They come from many different countries of the Commonwealth where they have assessed local needs and addressed them through a variety of outreach programmes which are described in Section 1. Ways in which teachers can increase the effectiveness of a visit are outlined in Section 2 and formats for evaluating that visit are discussed.

The question of new technologies is a vexing one for science centres and museums. Such technologies are expensive, and few centres can afford to renew high-tech exhibits frequently. Yet to ignore their potential is to lose an important and popular dimension of the science centre experience. These issues are outlined in Section 3.

Research into effective learning in science centres and museums is increasing and there are some research groups for whom this is a major interest and concern. Three such groups are represented in Section 4, while others are scattered through the book.

The team who have edited this book are collaborators in a fruitful partnership between the National Centre for Public Awareness of Science (CPAS) and Questacon, the National Science and Technology Centre in Canberra, Australia. Questacon was the first such centre in the southern hemisphere and CPAS was built upon a long-standing successful and unique graduate programme in science communication at the Australian National University. CPAS is now also a Centre for the Australian National Commission for UNESCO. The long association between Questacon and CPAS through our joint graduate programmes and international outreach has led to our use of the term "public awareness" instead of "public understanding". We believe that this allows for a variety of approaches to issues at the interface between science and the public and allows for patrons of a science centre to enjoy the experience without the necessary condition of a formal learning outcome.

Teachers have a major role in changing the views of children – but the young students who are the main focus of this book go home each night to parents who also have a view about science and technology and whose visits to the science centre or museum are also to be encouraged. Only through such multi-faceted approaches will attitudes begin to change. Science centres have a unique opportunity to capitalise on those changing attitudes, encouraging

families to follow up on school experiences. If that is to happen, however, the school visit must be enjoyable and engaging. The object must be to excite and enthuse. We believe that the activities described in this book fulfil that objective and provide a blueprint for teachers and curators to make the very most of visits by their young clients.

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You can find Questacon and CPAS at the following websites:
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