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The art and science of lecture demonstration. By CHARLES TAYLOR. Pp. xiv + 177. Bristol and Philadelphia: Adam Hilger (IOP Publishing), 1988. Price US$17.00. ISBN 0-85274-328-8.

The art of communicating scientific ideas is not easy for most of us, so I was delighted to read this unique 'how to' book on lecture demonstrations by Professor Charles Taylor. By 'lecture demonstration' the author is writing about an 'illustration of a point in a lecture or lesson by means of something other than conventional visual-aid apparatus'. He lists these in three categories: (1) visual aids using non-conventional apparatus; (2) analogue demonstrations; and (3) real experiments. In this book, the expert shares his secrets for success (and coping with disaster, including a photograph of the contents of his lecture emergency kit). Everyone who lectures should acquire a copy.

In the foreword to this excellent book, Sir George Porter writes that during his 20 years as Director of the Royal Institution 'no lecturer surpassed Charles Taylor in the elegance of his demonstrations or the way he enchanted audiences of all ages'. Professor Taylor taught in the Department of Physics at University College, Cardiff, and has been Professor of Experimental Physics at the Royal Institution since 1977. He was Chairman of the Teaching Commission of the International Union of Crystallography for many years and, in 1986, was the first recipient of the Royal Society's Michael Faraday Award for Contributions to the Public Understanding of Science. The book is filled with advice on how to succeed in 'that great repertory theatre of science'. The author was inspired by the lectures that he heard in his youth on sound by Dr Alexander Wood and on physical optics by Sir Lawrence Bragg. The advice in a nutshell is: 'Tell them what they are going to see or hear and what to notice particularly; then do the demonstration; then remind them of what they should have seen or heard.'

Charles Taylor presents a fascinating historical account of the various scientific demonstrations given through the years, including photographs of notes that famous scientists made for their use during their lectures. The reader will be delighted with a section on the 'Growth of the Art' in which, for example, I learned (to my surprise) that Thomas Young (1793–1829) was not a very competent lecturer (although versions of his experiments are still in use). On the other hand, Michael Faraday (1791–1867) was a superb demonstrator and some of his advice is included in this book.

The author is, of course, well known for his demonstrations of optical diffraction. He points out, in a detailed section, the importance of preparation for the lecture. The book is full of recipes for demonstrations themselves, each in italics, which makes them easy to identify, and the reader will get plenty of ideas. The uses of the overhead projector, film and video recordings, television, microcomputers and interactive videodiscs are described. He reminds us that anyone in the audience who cannot see what is going on will be very frustrated. ('It is better to miss out a slide than to use one that cannot be seen properly.') There is a very good section entitled 'Coping with Disaster' (such as apparatus held up by customs authorities!). Taylor writes: 'I think there is a case for showing that experiments do not always work the first time and much could be learned by the students watching how the lecturer discovers the fault and corrects it.' This book is so well written that it was a pleasure to read. It is full of anecdotes of problems encountered and tricks that improve lectures. In these present times we are trying to interest young students and the public in general in various aspects of science; here is a monograph that will assist in this. The practical hints that Professor Taylor has provided on lecture demonstrations to audiences of all ages are warmly recommended to all those interested in communicating their love of science to others.

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