was on purpose or an oversight. There is no basic physics that would lead the student to understand much of the meteorology. For example, there is no mention of the definition and the balance of forces that result in the wind. A section on atmospheric stability is completely missing, without which a true understanding of clouds, thunderstorms, etc. is founded. I would surmise that most students would be completely lost in a discussion of scattering and why the sky is blue without some understanding of Raleigh scattering. I also notice that both cgs and MKS units are used; again I would argue for consistency here (i.e. MKS).

The real strength of the CD lies in the graphics, animation and the video clips. Most of these are simply exemplary. The videos, for example, transcend a description of the climate zones to include a human dimensions aspect that identifies the interaction and impact of the human population. The section on climate diagrams and climate zones was particularly good, and coupled with the video clips, linked the theory rather nicely to the reality. Although this tended to be the exception rather than the rule, some of the graphics were a little disappointing (e.g. the one demonstrating the Coriolis effect), but I would imagine in future editions they would be improved. Some graphics were mislabeled and should be corrected.

In conclusion, the teaching philosophy seems to be descriptive rather than inquisitive. The visualization sequences of the CD are appropriate. They are powerful illustrations of multi-media techniques and I commend it whole-heartedly. However, what should be a cornerstone of the CD — the textual description of the science is not consistently good. At present, the visualization tools make an excellent supplement to a good textbook or instructor notes. If the quality of the written text were brought to this same standard, the CD could serve as the sole instructional media for an introductory class.

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Accepted 20 March 2000

Ecosystems of the World, 20, Greenhouse Ecosystems

This book is one of a series of 30 on Ecosystems of the World, including Terrestrial, Aquatic, and Underground Ecosystems. It is somewhat unusual, because ordinarily greenhouses would not have been considered to be in the same category as unenclosed ecosystems.

The history of greenhouses is described very well. However, the geographical distribution and worldwide area of greenhouses, including glasshouses and various types of plastic cladding structures, seems to be very poorly known. Perhaps, this inadequate knowledge is inevitable, but the greenhouse ecosystem itself must be quite variable depending upon the type of structure, ranging from large glass or plastic clad structures down to plastic row covers.

The topics of greenhouse energy balance and microclimate are discussed in several of the chapters; and this is one of the strong points of the book. A table is provided that cross-referenced a number of available greenhouse simulation models. This information should be valuable to researchers who might wish to optimize the design of greenhouses for environmental control and protection against excesses of the external environment. One chapter is devoted specifically to the optimal dynamic management of the greenhouse environment.

Although greenhouses are usually designed for use in monoculture production in a protected environment, plant diseases and arthropod pests can flourish in these environments. One chapter each was devoted to these problems, and how the modified greenhouse environment itself might contribute to the pest problem.

Several topics are not adequately covered. More information is needed on cladding materials: solar transmission properties, thermal properties, sources and differences from various countries of the world. For instance, ‘SixLight’, a polyethylene telephthalate material used in Japan, is not mentioned. Probably, a whole chapter devoted to cladding would have been appropriate.

Another shortcoming is that none of the contributions originated from Asia (China or Japan). Infor-
In many cases in warmer climates, paint, woven fiber screens, and even external overhead water sprays are used to ameliorate the impact of solar radiant energy loading under summer conditions. Little or no attention is given to these climate-moderating subsystems that are employed in greenhouse culture. Likewise, shadehouses (fields covered with woven fibers or filaments, frequently polypropylene) are not addressed, although this type of ecosystem covers large areas wherein photosynthetic light, radiant solar energy load, temperature, humidity, and evapotranspiration may be manipulated.

It is very easy for a book reviewer to focus on criticisms rather than compliments. Therefore, in conclusion, this book really does fill a role in describing greenhouse environments as specialized highly modified, highly controlled, and highly managed ecosystems. These environments are designed to provide favorable growing conditions for nurseries for seedlings to be transplanted to the field, and as systems for production of high quality flowers, foliage, and specialty food crops. There are many positive aspects of this book, too numerous to mention. This book provides numerous references for the interested reader, as well as direct information.

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Accepted 20 March 2000

PH: S0168-1923(00)00137-4