
Preface

This book is an outgrowth of many years of research aimed at studying algae, especially microalgae. Working on it, we soon realized how small an area we really knew well and how superficial our treatment of many topics was going to be. Our approach has been to try to highlight those things that we have found interesting or illuminating and to concentrate more on those areas, sacrificing completeness in so doing.

This book was written and designed for undergraduate and postgraduate students with a general scientific background, following courses on algology and aquatic biology, as well as for researchers, teachers, and professionals in the fields of phycology and applied phycology. In our intention, it is destined to serve as a means to encourage outstanding work in the field of phycology, especially the aspect of teaching, with the major commitment to arouse the curiosity of both students and teachers. It is all too easy when reviewing an intricate field to give a student new to the area the feeling that everything is now known about the subject. We would like this book to have exactly the reverse effect on the reader, stimulating by deliberately leaving many doors ajar, so as to let new ideas spring to mind by the end of each chapter.

This book covers freshwater, marine, and terrestrial forms, and includes extensive original drawings and photographic illustrations to provide detailed descriptions of algal apparatus. We have presented an overview of the classification of the algae followed by reviews of life cycles, reproductions, and phylogeny to provide conceptual framework for the chapters which follow. Levels of organization are treated from the subcellular, cellular, and morphological standpoints, together with physiology, biochemistry, culture methods and finally, the role of algae in human society. Many instances of recent new findings are provided to demonstrate that the world of algae is incompletely known and prepared investigators should be aware of this.

Each of the chapters can be read on its own as a self-containing essay, used in a course, or assigned as a supplemental reading for a course. The endeavor has been to provide a hybrid between a review and a comprehensive descriptive work, to make it possible for the student to visualize and compare algal structures and at the same time to give enough references so that the research worker can enter the literature to find out more precise details from the original sources.

The bibliography is by no means exhaustive; the papers we have quoted are the ones we have found useful and which are reasonably accessible, both very recent references and older classic references that we have judged more representative, but many excellent papers can be missing. In our opinion, too many references make the text unreadable and our intention was to put in only enough to lead the reader into the right part of the primary literature in a fairly directed manner, and we have not tempted to be comprehensive. Our intention was to highlight the more important facts, hoping that this book will complement the few specialized reviews of fine structure already published and will perhaps make some of these known to a wider audience. Our efforts were aimed at orientating the readers in the *mare magnum* of scientific literature and providing interesting and useful Web addresses.

We are grateful to the phycologists who have contributed original pictures; they are cited in the corresponding figure captions. We are also grateful to the staff at CRC Press, Boca Raton, Florida, particularly our editor, John Sulzycki, for his patience and human comprehension in addition to his unquestionable technical ability, and to the production coordinators, Erika Dery and Kari A. Budyk.

Our sincere gratitude and a special thanks to Valter Evangelista for his skillful assistance and ability in preparing the final form of all the drawings and illustrations, and for his careful attention in preparing all the technical drawings. We appreciated his efforts to keep pace with us both and to cope with our ever-changing demands without getting too upset.

We will always be grateful to Vincenzo Passarelli, who frequently smoothed a path strewn with other laboratory obligations so that we could pursue the endeavors that led up to the book, and above all because he has always tolerated the ups and downs of our moods with a smile on his face, and a witty, prompt reply. He lighted up many gloomy days with his cheerful whistling. We are sure it was not always an easy task.

For the multitudinous illustrations present in the book we are indebted to Maria Antonietta Barsanti and to Luca Barsanti, the sister and brother of Laura. When the idea of the book first arose, about four years ago, Maria Antonietta took up the challenge to realize all the drawings we had in mind for the book. But this was just a minor challenge compared with the struggle she had been engaged with against cancer since 1996. Despite all the difficulties of coping with such a disabling situation, she succeeded in preparing most of the drawings, with careful determination, interpreting even the smallest details to make them clear without wasting scientific accuracy, and still giving each drawing her unique artistic touch. She worked until the very last days, when even eating or talking were exhausting tasks, but unfortunately last February she died without seeing the outcome of her and our efforts. She will always have a very special place in our hearts and our lives. Her brother Luca Barsanti completed the drawing work in a wonderful way, making it very hard to distinguish between her artistic skill and his. His lighthearted and amusing company relieved the last and most nervous days of our work, and also for this we will always be grateful to him.

In July 2004, Mimmo Gualtieri, the only brother of Paolo, died of an unexpected heart attack. He left a huge empty room in his brother's heart.

In October 2004, our beloved friend and colleague, Dr. Patricia Lee Walne, distinguished professor of botany of the University of Tennessee in Knoxville, died after a long and serious illness.

This book is dedicated to the three of them.