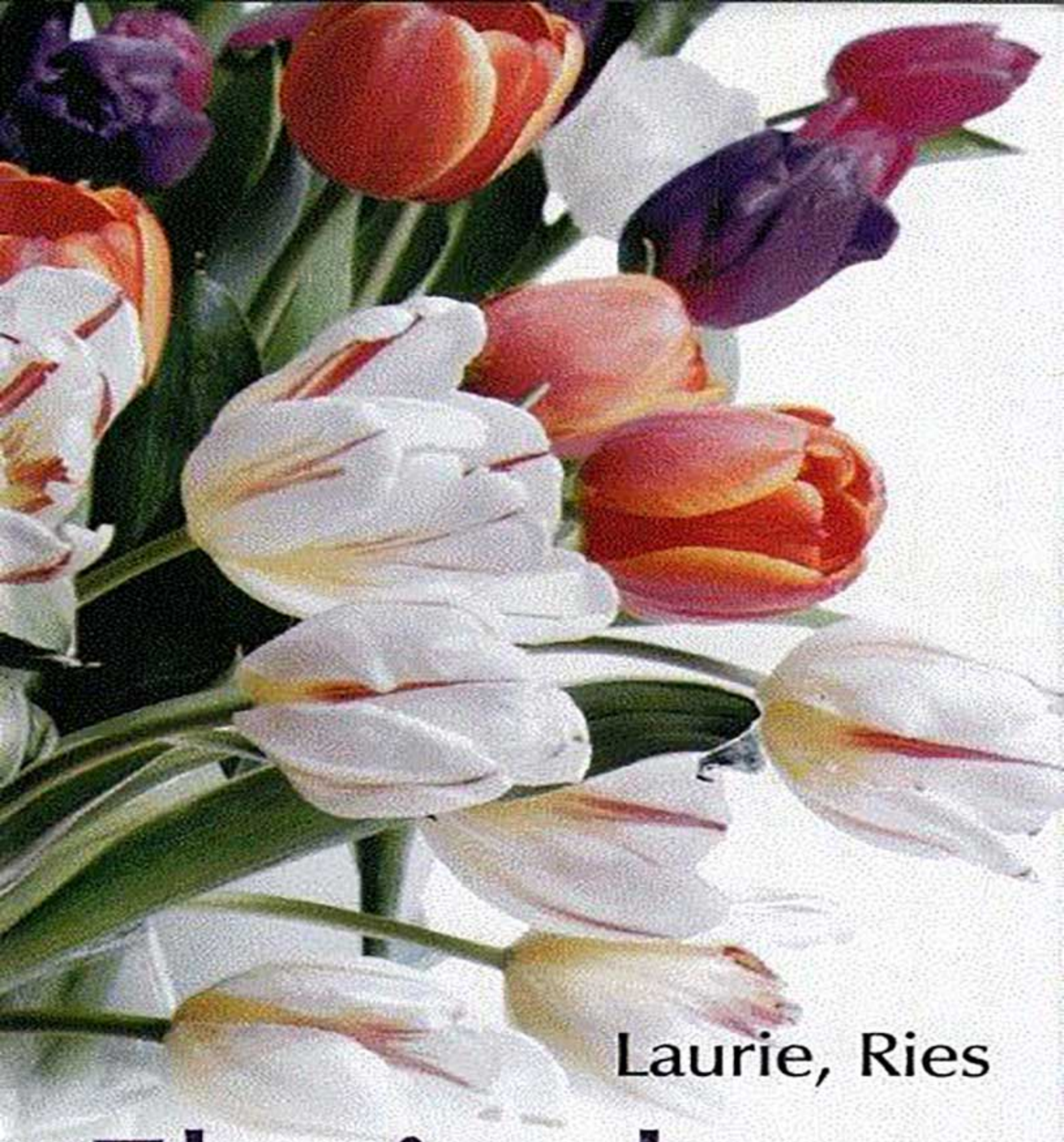

Laurie, Ries

Floriculture

Fundamentals and Practices

FLORICULTURE:

Fundamentals and Practices

Alex Laurie
V. H. Ries

AGROBIOS (INDIA)

Published by:
AGROBIOS (INDIA)
Agro House, Behind Nasrani Cinema
Chopasani Road, Jodhpur 342 002
Phone: 91-0291-2642319, Fax: 2643993
E. mail: agrobios@sify.com

AGROBIOS (INDIA)

ISBN (10): 81-7754-092-0
ISBN (13): 978-81-7754-092-5
Price: Rs. 1800.00 / US$ 90.00

Published by: Dr. Updesh Purohit for Agrobios (India), Jodhpur
Lasertypeset at: Yashee Computers
Cover Design by: Reena
Printed at: Bharat Printing Press, Jodhpur

PREFACE TO THE SECOND EDITION

Floriculture is not static. Constant changes are occurring in methods of culture brought about largely by the advances made by research workers in the various Federal and state agricultural experiment stations. In particular pest control measures have undergone such great changes that the recommendations made in the previous edition are completely out of date. To a lesser degree advances in the control of moisture in the soil have likewise been striking. As a consequence, a revision of certain chapters in this book was deemed necessary to bring it up to date.

ALEX LAURIE
VICTOR H. RIES

COLUMBUS, OHIO
February, 1950

PREFACE TO THE FIRST EDITION

This book has been prepared primarily as a text for the teaching of a course dealing with ornamental plants. Although many books have been written about individual plants or groups of plants used in the gardens, very few contain precise information dealing with the many crops and phases of ornamental gardening. Many such books, written for the layman, have been compiled by enthusiastic gardeners, dipping into their own personal experiences for their information. As a consequence the practices frequently recommended are based on local conditions and usually on biased hearsay.

The authors have attempted to put together in a brief but accurate form the basic information underlying the many empirical practices and at the same time to provide material that would serve the general coverage of a course intended either for students in horticulture who need it to round out their general course or else to aid those who wish to secure information in compact form for cultural purposes.

The more recent practices and the theories underlying them are presented so as to keep the student and the gardener aware of the newer developments. Among these may be listed the soilless culture of plants, growth-promoting substances, modern methods of pest control, and the latest findings in soils and fertilizers.

Largely because of lack of space and partially because the book is not intended as an appreciation course but one strictly informative in nature, little historical information is presented. Likewise, the review of literature has been omitted, and no specific references are given. However, selected references for more detailed information have been presented wherever possible.

The nomenclature of woody plants is based on the Manual of Cultivated Trees and Shrubs, by Alfred Rehder (2d ed.). All other plant materials are from Hortus by L. H. Bailey (1935 ed.).

PREFACE TO THE FIRST EDITION

The authors wish gratefully to acknowledge the assistance of r. J. H. Gourley and Dr. Freeman Howlett of the Department Horticulture, The Ohio State University, as well as of the llowing research assistants of the same department: Dr. Conrad nk, Mr. D. C. Kiplinger, Mr. John Swartley, Mr. Orris Evers.

ALEX LAURIE
VICTOR H. RIES

THE OHIO STATE UNIVERSITY
February, 1942

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FLORICULTURE

CHAPTER I

HOW PLANTS GROW

Seed-bearing plants are made up of several distinct parts—roots, stems, leaves, flowers, fruits, and seeds. The tissues in these parts serve for support, storage, conduction of sap, and protection and consist of individual cells.

Each cell consists of the living protoplasm surrounded by a cell wall. Protoplasm is composed of proteins, fats, minerals, water, and various other compounds, but this mere mixture of chemical compounds does not indicate its importance. Actually it is the seat of all physiological processes within the plant that are associated with growth. The cell is composed of a nucleus which is separated by a nuclear membrane from the rest of the protoplasm—called *cytoplasm.* The nucleus contains two substances, the nuclear gel and the chromatin. The latter is an important substance aggregating into definite bodies, sometimes rod shaped—called *chromosomes*—which are now properly regarded as the bearers of hereditary characters transmitted from one generation to another. The *cytoplasm* contains the plastids—leucoplasts (transparent bodies which may either develop into chloroplasts or function in the deposit of starch)—and chromoplasts, which contain the colored plastids. The green-bearing chromoplasts are known as *chloroplasts* and contain the green pigment known as *chlorophyll.*

Tissues. A group of cells performing a common function is known as a *tissue.* The basic type of tissue from which the others develop is known as the *parenchyma,* or *ground* tissue, and is composed of thin-walled cells which are not much longer than they are wide. Individual cells may be of various shapes. The cells in an active state of division, particularly in the tips of roots and stems, constitute a meristematic tissue. Parenchyma tissues are found throughout the plant and function in food

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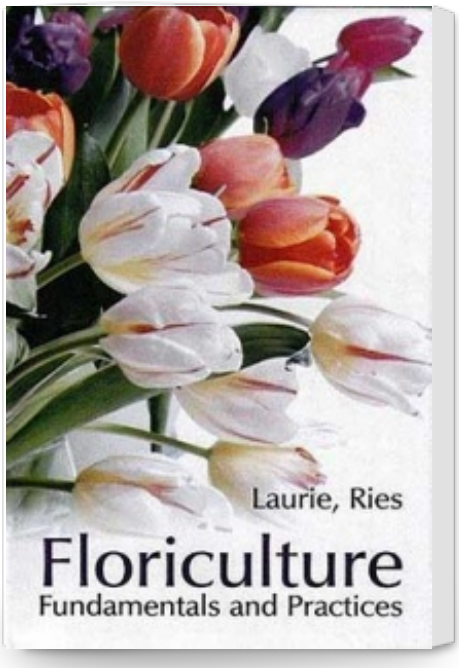

Publisher : Agrobios Publications ISBN : 9788177540925

Author : Laurie Alex And Ries VH