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Structure and Function of Plants
Plant Physics
Plant Anatomy
Plant Stems
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Transport in Plants II
An Introduction to Plant Structure and Development
From Growing to Biology
Science and the Garden
Stomatal Physiology
Molecular Biology of the Cell

BROOKLYNN NEWTON

Vascular Transport in Plants Academic Press
Most conventional gardening books concentrate on how and when to carry out horticultural tasks such as pruning, seed sowing and taking cuttings. This book is unique in explaining in straightforward terms some of the science that underlies these practices. It is principally a book of 'Why' - Why are plants green? Why should one cut beneath a leaf node when taking cuttings? Why do plants need so much water? But it also goes on to deal with the 'How', providing rationale behind the practical advice. The coverage is wide-ranging and comprehensive and includes the basic structure and functioning of garden plants, nomenclature, genetics and plant breeding, environmental factors affecting growth, methods of propagation and production, pest and disease control, and post harvest management and storage. Published on behalf of the Royal Horticultural Society, this book will be a most valuable text for those sitting the RHS general examination, and horticultural students at certificate and diploma levels; it will also appeal to gardeners, growers and scientists.
Plant Biomechanics Wiley-Blackwell
In this book, the author analyzes plant form and how it has evolved in response to basic physical laws. He examines the ways these laws limit the organic expression of form, size, and growth in a variety of plant structures and in plants as whole

organisms, drawing on both the fossil record and studies of extant species.

Concepts of Biology Lerner Digital ™

This easy-to-follow, full-colour guide was created for instructors teaching plant structure at the high school, college, and university levels. It benefits from the experience of the authors, who in teaching plant anatomy over many years, came to realize that students learn best by preparing their own microscope slides from fresh plant samples. The exercises contained in this book have been tested, require minimal supplies and equipment, and use plants that are readily available. Detailed instructions are given for sectioning and staining of plant material. The book contains a glossary of terms, an index, and a list of suppliers of materials required. A CD-ROM of all the illustrations is included for easy downloading into PowerPoint presentations. "Although a number of new plant anatomy texts have been published in recent years, none is as innovative, exciting and user-friendly as "Teaching Plant Anatomy Through Creative Laboratory Exercises" by Peterson, Peterson and Melville. What makes this book so usable from high school biology courses on through to upper level university plant structure labs is the wealth of experience that the authors have incorporated into this comprehensive clearly illustrated text. Using mostly photomicrographs of hand sections and wonderfully clear colour illustrations, they cover all aspects of plant structure from organelles to organs. The book also outlines some easy to use techniques, such as hand sections and clearings and macerations, which will certainly be very useful for any plant related lab. This book really does bring plant anatomy to life and will be a must for any course that deals with plant structure even if it's just to prepare plant material for molecular techniques. An excellent contribution to any botanical teaching where you want your students to get a hands-on approach to the subject."... Dr. Usher Posluszny, University of Guelph

Nature's Palette Our Sunday Visitor

Plant anatomy and physiology and a broad understanding of basic plant processes are of primary importance to a basic understanding of plant science. These areas serve as the first important building blocks in a variety of fields of study, including botany, plant biology, and horticulture. Structure and Function of Plants will serve as a text aimed at undergraduates in the plant sciences that will provide an accurate overview of complex plant processes as well as details essential to a basic understanding of plant anatomy and physiology. Presented in an engaging style with full-color illustrations, Structure and Function of Plants will appeal to undergraduates, faculty, extension faculty, and members of Master Gardener programs.

Anatomy of Flowering Plants John Wiley & Sons

Roots, stems, and leaves are just some of a plant’s most important parts. Readers get a detailed look at these and other plant parts as they closely examine some of the world’s most interesting plants. Vibrant, full-color photographs of plants fill each page, and clear diagrams help readers gain a deeper understanding of the ways plant parts work together. These basic biology lessons are presented to early learners through age-appropriate text that is closely aligned with common science curriculum topics. What parts do plants use to make their own food? The answer is waiting for readers to discover!

Phloem Transport NRC Research Press

This volume contains papers on anatomy, physiology and action of stomata.

Laudato Si Persephone Books

Abscisic Acid in Plants, Volume 92, the latest release in the Advances in Botanical Research series, is a compilation of the current state-of-the-art on the topic. Chapters in this new release comprehensively describe latest knowledge on how ABA functions as a plant hormone. They cover topics related to molecular mechanisms as well as the biochemical and chemical aspects of ABA action: hormone biosynthesis, catabolism, transport, perception, signaling in plants, seeds and in response to biotic and abiotic stresses, hormone evolution and chemical biology, and much more. - Presents the latest release in the Advances in Botanical Research series - Provides an Ideal resource for post-graduates and researchers in the plant sciences, including plant physiology, plant genetics, plant biochemistry, plant pathology, and plant evolution - Contains contributions from internationally recognized authorities in their respective fields

Photosynthetic Nitrogen Assimilation and Associated Carbon and Respiratory Metabolism Academic Press

Vascular Transport in Plants provides an up-to-date synthesis of new research on the biology of long distance transport processes in plants. It is a valuable resource and reference for researchers and graduate level students in physiology, molecular biology, physiology, ecology, ecological physiology, development, and all applied disciplines related to agriculture, horticulture, forestry and biotechnology. The book considers long-distance transport from the perspective of molecular level processes to whole plant function, allowing readers to integrate information relating to vascular transport across multiple scales. The book is unique in presenting xylem and phloem transport processes in plants together in a comparative style that emphasizes the important interactions between these two parallel transport systems. - Includes 105 exceptional figures - Discusses xylem and phloem transport in a single volume, highlighting their interactions - Syntheses of structure, function and biology of vascular transport by leading authorities - Poses unsolved questions and stimulates future research - Provides a new conceptual framework for vascular function in plants

Plants Are Living Things Springer Science & Business Media

As plant physiology increased steadily in the latter half of the 19th century, problems of absorption and transport of water and of mineral nutrients and problems of the passage of metabolites from one cell to another were investigated, especially in Germany. JUSTUS VON LIEBIG, who was born in Darmstadt in 1803, founded agricultural chemistry and developed the techniques of mineral nutrition in agricul ture during the 70 years of his life. The discovery of plasmolysis by NAGEL! (1851), the investigation of permeability problems of artificial membranes by TRAUBE (1867) and the classical work on osmosis by PFEFFER (1877) laid the foundations for our understanding of soluble substances and osmosis in cell growth and cell mechanisms. Since living membranes were responsible for controlling both water movement and the substances in solution, "permeability" became a major topic for investigation and speculation. The problems then discussed under that heading included passive permeation by diffusion, Donnan equilibrium adjustments, active

transport processes and antagonism between ions. In that era, when organelle isolation by differential centrifugation was unknown and the electron microscope had not been invented, the number of cell membranes, their thickness and their composition, were matters for conjecture. The nature of cell surface membranes was deduced with remarkable accuracy from the reactions of cells to substances in solution. In 1895, OVERTON, in U. S. A. , published the hypothesis that membranes were probably lipid in nature because of the greater penetration by substances with higher fat solubility.

The Nature of Plants Springer Science & Business Media

The vascular cambium, a lateral meristem responsible for the radical growth of woody plants, has long been a subject for active research in both temperate and tropical regions. This work provides comprehensive coverage of all aspects of the vascular cambium and represents an up-to-date review of the knowledge accumulated over the last twenty years. Chapters cover origin and development of cambial cells, phenomena of orientation in the cambium, seasonal and environmental influences on cambial activity. There is also a discussion of the evolution of the cambium in geologic time.

Plant Allometry University of Chicago Press

Water Relations of Plants attempts to explain the importance of water through a description of the factors that control the plant water balance and how they affect the physiological processes that determine the quantity and quality of growth. Organized into 13 chapters, this book first discusses the functions and properties of water and the plant cell water relations. Subsequent chapters focus on measurement and control of soil water, as well as growth and functions of root. This book also looks into the water absorption, the ascent of sap, the transpiration, and the water stress and its effects on plant processes and growth. This book will be useful for students, teachers, and investigators in both basic and applied plant science, as well as for botanists, agronomists, foresters, horticulturists, soil scientists, and even laymen with an interest in plant water relations.

Teaching Plant Anatomy Through Creative Laboratory Exercises Greenhaven Publishing LLC

“In the heart of this world, the Lord of life, who loves us so much, is always present. He does not abandon us, he does not leave us alone, for he has united himself definitively to our earth, and his love constantly impels us to find new ways forward. Praise be to him!” – Pope Francis, Laudato Si’ In his second encyclical, Laudato Si’: On the Care of Our Common Home, Pope Francis draws all Christians into a dialogue with every person on the planet about our common home. We as human beings are united by the concern for our planet, and every living thing that dwells on it, especially the poorest and most vulnerable. Pope Francis’ letter joins the body of the Church’s social and moral teaching, draws on the best scientific research, providing the foundation for “the ethical and spiritual itinerary that follows.” Laudato Si’ outlines: The current state of our “common home” The Gospel message as seen through creation The human causes of the ecological crisis Ecology and the common good Pope Francis’ call to action for each of us Our Sunday Visitor has included discussion questions, making it perfect for individual or group study, leading all Catholics and Christians into a deeper understanding of the importance of this teaching.

Strasburger's Plant Sciences Springer
Ten years ago, at the International Botanical Congress in Edinburgh, a group of us from various countries discussed the difficulty of pursuing academic problems in depth at such meetings. In particular, we were discouraged at the poverty of time for phloem transport. From long association, we were conscious of the extraordinary breadth of the problem, from developmental through anatomical, to biophysical and physiological. Only by a reasonable understanding of all these components could one hope to come to some kind of understanding. We decided to establish common plant material so that data would have a common source. Similarly, we resolved to exchange information by circulating pre-publication manuscripts. For awhile, after the meeting was a pleasant memory, the plan seemed to be working; but, as is so often the case, human infirmities and foibles played early and, subsequently, predominant roles. Some became administrators (a punishment for good behaviour); others concentrated on alternative rings in their academic circuses. The next Congress (in Seattle) proved similar to its predecessor in its neglect and, consequently, succor was sought elsewhere. A little known, but remarkably understanding group becoming visible was the Science Committee and the Division of Scientific Affairs of N. A. T. O. Its sponsorship of Advanced Study Institutes including phytochemistry and phytophysics, was unusual both in the generosity of its funding and in the requirements for academic quality.
Botany For Dummies Elsevier
Explains the properties and functions of plants in our world.

Biology for AP ® Courses University of Chicago Press
Plant anatomy is the study of the internal structure of plants. It often involves sectioning of tissues and microscopy, to study plants at the cellular level. Plant anatomy is divided into structural categories such as root anatomy, stem anatomy, wood anatomy, leaf anatomy, fruit/seed anatomy and flower anatomy. The study of the external structure and physical form of plants is known as plant morphology. It is useful in the visual identification of plants. Plant morphology studies the reproductive and vegetative structures of plants. It examines the pattern of development along with the process by which structures originate and mature when a plant grows. This book includes some of the vital pieces of work being conducted across the world, on various topics related to plant anatomy and morphology. It strives to provide a fair idea about these disciplines and to help develop a better understanding of the latest advances within these fields. The extensive content of this book provides the readers with a thorough understanding of the subject.
Seed to Seed Crabtree Publishing Company
Though he didn’t realize it at the time, David Lee began this book twenty-five years ago as he was hiking in the mountains outside Kuala Lumpur. Surrounded by the wonders of the jungle, Lee found his attention drawn to one plant in particular, a species of fern whose electric blue leaves shimmered amidst the surrounding green. The evolutionary wonder of the fern’s extravagant beauty filled Lee with awe—and set him on a career-long journey to understand everything about plant colors. Nature’s Palette is the fully ripened fruit of that journey—a highly

illustrated, immensely entertaining exploration of the science of plant color. Beginning with potent reminders of how deeply interwoven plant colors are with human life and culture—from the shifting hues that told early humans when fruits and vegetables were edible to the indigo dyes that signified royalty for later generations—Lee moves easily through details of pigments, the evolution of color perception, the nature of light, and dozens of other topics. Through a narrative peppered with anecdotes of a life spent pursuing botanical knowledge around the world, he reveals the profound ways that efforts to understand and exploit plant color have influenced every sphere of human life, from organic chemistry to Renaissance painting to the highly lucrative orchid trade. Lavishly illustrated and packed with remarkable details sure to delight gardeners and naturalists alike, Nature’s Palette will enchant anyone who’s ever wondered about red roses and blue violets—or green thumbs.

Biology of Adventitious Root Formation Cambridge University Press

"First published in 1945 by Collins"--Copyright page.

Abscisic Acid in Plants Cambridge University Press

Allometry, the study of the growth rate of an organism's parts in relation to the whole, has produced exciting results in research on animals. Now distinguished plant biologist Karl J. Niklas has written the first book to apply allometry to studies of the evolution, morphology, physiology, and reproduction of plants. Niklas covers a broad spectrum of plant life, from unicellular algae to towering trees, including fossil as well as extant taxa. He examines the relation between organic size and variations in plant form, metabolism, reproduction, and evolution, and draws on the zoological literature to develop allometric techniques for the peculiar problems of plant height, the relation between body mass and body length, and size-correlated variations in rates of growth. For readers unfamiliar with the basics of allometry, an appendix explains basic statistical methods. For botanists interested in an original, quantitative approach to plant evolution and function, and for zoologists who want to learn more about the value of allometric techniques for studying evolution, Plant Allometry makes a major contribution to the study of plant life.

Plants from Cuttings Cambridge University Press

The root is an organ that generally grows into the soil in developed plants that have adapted to terrestrial life but rarely is found above the ground. The roots have channels to transport nutrients and water to the stem and leaves. Studies on roots will provide opportunities to develop food security and environmental sustainability. This book explains root-soil interactions, ethnobotanical use of roots, secondary metabolite production, and soil resource acquisition from agricultural and ecological perspectives.

Plant Anatomy and Morphology: Structure, Function and Development *Research Studies Press

In the 2007 third edition of her successful textbook, Paula Rudall provides a comprehensive yet succinct introduction to the anatomy of flowering plants. Thoroughly revised and updated throughout, the book covers all aspects of comparative plant structure and development, arranged in a series of chapters on the stem, root, leaf, flower, seed and fruit. Internal structures are described using magnification aids from the simple hand-lens to the electron microscope. Numerous references to recent topical

literature are included, and new illustrations reflect a wide range of flowering plant species. The phylogenetic context of plant names has also been updated as a result of improved understanding of the relationships among flowering plants. This clearly written text is ideal for students studying a wide range of courses in botany and plant science, and is also an excellent resource for professional and amateur horticulturists.