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The Theory of Horticulture

John Lindley (1799–1865) was an English horticulturalist who worked for Sir Joseph Banks and was later instrumental in saving the Royal Horticultural Society from financial disaster. His earlier books on British plants were well received and he was influential in the realm of botanical nomenclature, especially in orchidology. He was a prolific author and many of his books were aimed at a non-specialist readership. His aim in this work, published in 1840, was to provide 'the intelligent gardener, and the scientific amateur … with the rationalia of the more important operations of horticulture'. Beginning with a chapter on seeds, the first part of the book describes the life and structure of a plant – the root, the stem, the leaves, the flowers and the fruit. The second part moves on to practical topics, such as ventilation and seed-saving, as well as pruning and potting, explaining many basic concepts of plant cultivation.

The Theory of Horticulture

JOHN LINDLEY

CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paolo, Delhi, Tokyo, Mexico City

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9781108037242

This edition first published 1840
This digitally printed version 2011

ISBN 978-1-108-03724-2 Paperback

THE

THEORY

OF

HORTICULTURE;

OR,

AN ATTEMPT TO EXPLAIN

THE PRINCIPAL OPERATIONS OF GARDENING

UPON

PHYSIOLOGICAL PRINCIPLES.

BY

JOHN LINDLEY, PH.D. F.R.S.

VICE-SECRETARY OF THE HORTICULTURAL SOCIETY OF LONDON,
AND PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE.

" Though I am very sensible that it is from long experience chiefly that we are to expect the most certain rules of practice, yet it is withal to be remembered that the likeliest method to enable us to make the most judicious observations, and to put us upon the most probable means of improving any art, is to get the best insight we can into the nature and properties of those things which we are desirous to cultivate and improve." — *Hales's Vegetable Statistics*, i. 376.

LONDON:

PRINTED FOR

LONGMAN, ORME, BROWN, GREEN, AND LONGMANS

PATERNOSTER-ROW.

1840.

LONDON:
Printed by A. SPOTTISWOODE,
New-Street-Square.

TO

THE MEMORY

OF

THOMAS ANDREW KNIGHT.

PREFACE.

THIS book is written in the hope of providing the intelligent gardener, and the scientific amateur, correctly, with the rationalia of the more important operations of Horticulture; in the full persuasion that, if the physiological principles on which such operations, of necessity, depend, were correctly appreciated by the great mass of active-minded persons now engaged in gardening in this country, the grounds of their practice would be settled upon a more satisfactory foundation than can at present be said to exist. It is, I confess, surprising to me, that the real nature of the vital actions of plants, and of the external forces by which they are regulated, should be so frequently misapprehended even among writers upon Horticulture; and that ideas relating to such matters, so very incorrect as we frequently find them to be, should obtain among intelligent men, in the present state of what I may be permitted to call horticultural physiology.

There must be a great want of sound knowledge of this subject, when we find an author, who has made himself distinguished in the history of English gardening, giving it as his opinion, "that the weak drawn state of forced Asparagus in London is occasioned by the action of the dung immediately upon its roots!"

It does not seem possible to account for this in any other way than by referring it to the want of some short guide to the horticultural application of vegetable physiology, unmixed with other things; and so arranged that the intimate connexion of one branch of practice with another, and of the whole with a few well ascertained facts upon which every thing else depends, may be distinctly perceived from a single point of view. The admirable papers of Mr. Knight are scattered through the *Horticultural Transactions*; and the writings of other physiologists are dispersed through so many different works, that the labour of finding them, when wanted, is greater than is willingly undertaken even by those who have access to ample libraries. With regard to general works on Horticulture, it is very far from my wish to say one word in disparagement of the many excellent publications upon this subject which have

already appeared in this country; on the contrary, the improved state of gardening among us may be reasonably ascribed to the influence of some of these valuable works: but it must be admitted that the true principles of physiology are not, in such books, so separated from the details of routine on the one hand, or so applied to them on the other, as to be readily understood by those who want either the skill or the inclination to distinguish empirical directions from rules which are plainly founded upon the very nature of things. I must also be permitted to observe that, although results are correctly stated in such books, they are not unfrequently referred to wrong causes.

In preparing the following pages for the press, my anxious desire has been to strike out all unnecessary matter, even although it may be required to complete the physiological explanation of common facts; and to introduce little beyond that which every gardener can verify for himself. Vegetable anatomy is no doubt the foundation of all correct views of physiological action; chemistry is of the first importance, when the general functions of plants are considered in a large and general way; and electricity probably exercises an important influence over the vital actions of all living things.

But these are the refinements of science, belonging to the philosopher in his laboratory, and not to the worker in gardens; they are indispensable to the correct appreciation of physiological phenomena, but not to the application of those phenomena to the arts of life; electricity, in particular, appears to me, in the present imperfect state of our knowledge of its relation to vegetable functions, altogether incapable of forming a part of any horticultural theory.

What the gardener wants is, not a treatise upon botany, nor a series of speculations upon the possible nature of the influence on plants of all existing forces, nor an elaborate account of chemical agencies inappreciable by his senses and obscurely indicated by their visible results; but an intelligible explanation, founded upon well ascertained facts which he can judge of by his own means of observation, of the general nature of vegetable actions, and of the causes which, while they control the powers of life in plants, are themselves capable of being regulated by himself. The possession of such knowledge will necessarily teach him how to improve his methods of cultivation, and lead him to the discovery of new and better modes.

It is very true that ends of this kind are often

brought about by accident, without the smallest design on the part of the gardener; and there are, doubtless, many men of uncultivated or idle minds, who think waiting upon Providence much better than any attempt to improve their condition by the exertion of their reasoning faculties. For such persons books are not written.

I hope that what has now been said will not lead any one to suppose that this sketch is offered to the reader as a complete theory of Horticulture in all its varied branches; such a work would be alike tedious to the author and the reader, and, I fear, as unprofitable; for, if a gardener, when once made acquainted with the general principles of science, has not the skill to apply them to each particular case, it is to be feared that no disquisition, however elaborate, would enable him to do so. So far has it been from my intention to enter into subordinate details, that I have carefully avoided them, from a fear of complicating the subject, and making that obscure which in itself is sufficiently clear. All that a physiologist has really to do with Horticulture is, to explain the general nature of the vital actions of a plant, and the manner in which these are commonly applied to the arts of cultivation; if he quits this ground,

he extends his limits so much that there is no longer a horizon in view. No one, indeed, could advantageously investigate the minor points of cultivation in all their branches, unless he were both a good physiologist and a practical gardener of the greatest experience, a combination of qualifications which no man has ever yet possessed, and to which I, most assuredly, have not the shadow of pretension.

In conclusion, let me, in impressing upon the minds of gardeners the importance of attending to first principles, also caution them against attempting to apply them, except in a limited manner, and by way of safe experiment, until they fully understand them. The difference between failure and success, in practice, usually depends upon slight circumstances, very easily overlooked, and not to be anticipated beforehand, even by the most skilful; their importance is often unsuspected till an experiment has failed, and may not be discovered till after many unsuccessful attempts, during which more mischief may be done by extensive failures than the result is worth when attained. No man understood this better than the late Mr. Knight, the best horticultural physiologist that the world has seen, whose experiments

were conducted with a skill and knowledge which few can hope to equal. So fully was he aware of the uncertain issue of experimental investigations in Horticulture, that he thought it necessary, in recommending a new mode of cultivating the Pine-apple, and in objecting to methods at that time commonly in use, to express himself in the following words: — "I beg it to be understood that I condemn the machinery only which our gardeners employ, and that I admit most fully their skill in the application of that machinery to be very superior to that which I myself possess. Nor do I mean, in the slightest degree, to censure them for not having invented better machinery, for it is their duty to put in practice that which they have learned; and, having to expend the capital of others, they ought to be cautious in trying expensive experiments, of which the results must necessarily be uncertain; and, I believe, a very able and experienced gardener, after having been the inventor of the most perfect machinery, might, in very many instances, have lost both his character and his place before he had made himself sufficiently acquainted with it, and consequently become able to regulate its powers."

ERRATUM.

Page 17. line 20. *for the paragraph beginning* "But in others," &c., *read* "But in others the circle occupied by these organs must be very much greater than that of the branches."

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