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BOOK REVIEW

SEN, D. N., CHAWAN, D. D., BANSAL, R. P. (ed.): STRUCTURE, FUNCTION AND ECOLOGY OF STOMATA. — Bishen Singh Mahendra Pal Singh, Dehra Dun (India) 1979. 278 pp. US\$ 22.—

Thirteen chapters of this book, written by prominent authors from eight countries, are divided into three parts. Three chapters of the first part deal with the structure of guard cells, their walls, chloroplasts, vacuoles, other organelles and with substomatal ion-adsorbent bodies (R. A. Stevens and E. S. Martin); stomatal ontogeny and classification in some dicotyledonous families with special emphasis on taxonomic and phylogenetic significance (B. Kannabiran and K. H. Krishnamurthy) and on stomatal features of *Acanthaceae*, which may help in a better understanding of the taxonomy of this large pantropical family of flowering plants (K. J. Ahmad).

Part two is devoted to the function of stomata and contains five chapters. The first deals with the structure of guard cell chloroplasts, their photosynthetic capacity and with the hypothetical destiny of carbon dioxide in guard cell metabolism and functions (S. Lurie). The second chapter clears up the role of abscisic acid in stomatal regulation of gas exchange in relation to environmental and internal factors and plant development (B. R. Loveys and P. E. Kriedemann); the third chapter reviews the role of distinct groups of growth regulators in stomatal function (R. F. Horton). The next chapter discusses the guard cell metabolism predominantly on the results obtained from model plant material *Commelina* (F. L. Milthorpe, N. Thorpe and C. M. Willmer). The last chapter of this section deals with causal interpretations of stomatal response to chemicals, which may affect stomatal movements by altering guard cells membrane permeability, K^+ balance, starch metabolism, glycolate metabolism and by disturbing CO_2 concentration in plant tissue (M. A. Pemadasa).

Part three devoted to ecology of stomata is introduced by the chapter on the versatile role of stomata in coordinating plant needs (H. Moldau). The chapter on the effect of changes of ambient air humidity on stomatal responses and their interrelations with other environmental factors (R. Lösch) is followed by the chapter on peculiarities of stomatal regulation in some important arid zone plants (D. N. Sen, D. D. Chawan and R. P. Bansal). The last but one chapter is devoted to differences in response of adaxial stomata to environmental variables (N. C. Turner). The concluding chapter reviews the present knowledge of circadian rhythms in stomatal movement (E. S. Martin and R. A. Stevens).

The volume provides a useful basic account of the topic and it is strongly recommended to all who are concerned with stomatal physiology, ecology and structure and with processes depending on or connected with stomata actions.

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