

inside a conference room. This kind of design can be considered a resonant design, which benefits both the disabled and the able-bodied. Exciting solutions may arise from the concept of resonant design.

In the chapter 'Provocation meets sensitive', the author tries to highlight some concept design that may originate from a diverse fields like a design for antisocial behaviour or acts in public like scream body by Kelly Dobson, another similar example, a horn of a musical mobile vocalize the act of dialing. Although many such products are not available in the market, the main point here is to think openly for unnoticed and unspoken assumptions.

Another obvious requirement in design is 'feel, don't think'. In the chapter 'Feeling meets testing', the author provides interesting case studies of the user's experience of actual prototypes. Dunne and Raby have designed a technically sophisticated electro-draft excluder, which can deflect background radiation inside house. The product did not sell well in the market, as the people used to feel more insecure at home about background radiation. A study of the actual functional prototype is essential to study the user interface in details.

The 'Expression meets design' chapter mainly highlights the importance of emotional expression in the development of communication aid for speech and lan-

guage impairment. Most of the time it is important how anything is said than what is said. Aesthetic quality of the information can be improved by introducing expressive tone in speech technology to make it live and more interactive. As an example, talking mobile has the facility to change nine different types of pitch of 'yes' and 'no' using thumb-sticks. In Tango designed by Richard Ellenson, a child can change different expressions like normal speaking, whispering, yelling and whining by changing the buttons. Pullin mentions vexed garments like cap, zip jacket, etc. for wheelchair, scooter or bicycle users, which may not be a potential or practical solution.

Pullin also presents a series of interviews with leading designers about specific disability design projects, like 'Tomoko Azumi meets step stools' for people with restricted growth. Martin Bone, an industrial engineer has developed prosthetic leg; Jonathan Ive has designed a hearing aid; a watch for the visually impaired has been developed by Cripson Jones. Other designs are mentioned which are not directly connected with disability-related products – Jasper Morrison, a furniture designer has made a Lotus Swivel Armchair relaxation; Andrew Cook has developed the Tactophonics kit to introduce background music through the computer.

In conclusion, we must change our outlook towards disability for a critical and comprehensive assistive solution for the disabled. The activity of designing needs a multidisciplinary approach. This book will help broaden the designers' perspectives towards designing for disability.

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Abiotic Stress Adaptation in Plants: Physiological, Molecular and Genomic Foundation. Ashwani Pareek *et al.* (eds), Springer, P.O. Box 17, 3300 AA Dordrecht, The Netherlands. 2010. 526 pp. Price US\$ 229.

Govindjee's *Advances in Photosynthesis* series is widely appreciated as being authoritative volumes in all aspects of plant, algal and bacterial plant photosynthesis. This book is not part of the above series, but it deals with a broader and important topic of stress biology in plants. Abiotic stress has been the most threatening for agriculture, forestry and plant industry. The book is an important and timely addition in view of the frightening global climate change 'issues and concerns'. At the outset, we would like to congratulate the editors for bringing out this vitally useful volume. Biology of plants is the biology of stress and it is crucial to have deeper understanding of all aspects of abiotic stress (e.g. temperature, salinity, drought), injury, tolerance and adaptation of all plants, from cyanobacteria to crop plants. The book addresses all these aspects comprehensively. This treatise is dedicated to Ray Wu (Cornell University, USA) who worked on rice biotechnology. The book presents 23 chapters in four sections; contributed by 70 world experts belonging to both the developed and developing countries.

Part I (eight chapters) deals with perception and signalling; part II (four chapters) is devoted to stress regulation and gene expression; part III (six chapters) is devoted to physiology and metabolism during abiotic stresses, and part IV (also six chapters) deals with 'overcoming stress'.

In part I, the stress perception and signal transduction section begins with the well-known work on cyanobacteria involving two-component regulatory systems. This is followed by abscisic acid (ABA) dependent and independent signalling processes and calcium signalling of both specific and general stresses, and then a chapter on the dual role of reactive oxygen species (ROS) that has an impact on transcriptomes and gene expression. The protein kinase and phosphatase for plant signalling processes are fascinating signalling pathways, as well as protein kinase and phosphatase-related gene families. Nitrogen nutrition as an influential



Golden prosthetic hand by Jacques Monestier alongside a conventional split hook

source factor of root–shoot signalling, involving changes in the xylem sap milieu during drought stress, adds interesting insight into the plant–water relationship. Tracing of biotic and abiotic stress signalling pathways and their crosstalk as well as integration provides a new understanding in plant stress biology.

Part II of the book begins with abiotic stress response involving gene expression and genome-based understanding of stress response. The next overview is on promoters and transcription factors in abiotic stress responsive gene expression, followed by a review on epigenetic regulation of genes, small RNAs and chromatin modelling (a robust essay on an emerging field of research). In the chapter on programmed cell death, the readers will find a new outlook on hormonal interactions regulating biotic necrosis cell death involving abiotic stress.

The chapters in part III have an intensive focus on plant homeostasis like the one involving Na^+/K^+ ions, glutathione homeostasis during salt or heavy-metal stress; water economy and stomatal movements, and deprivation effects of macronutrient like N, P, and S in green alga *Chlamydomonas*. There is also a chapter on osmolyte regulation, including osmolytes, glycine betaine, glyoxalate,

glucosylglycerol and diphosphoinositol. The last chapter is on programmed cell death in plants, signalling regulators of plant cell deaths and the role of cell organelles in cell suicide.

The last part of the book deals with overcoming stress and modes of adaptation to abiotic stress through breeding efforts, transgenic approaches and marker-assisted breeding, mutations and mutators for stress resistance. There is a discussion on varietal improvement in rice to tolerate salinity stress as well as a lucid story of the elephant and the blind men – analogy in systems biology. The last chapter tells the readers about the threatening consequences of climate change-based abiotic stress and how to combat it for improving plant productivity.

In conclusion, the book is informative and innovative. Researchers, teachers, graduate students and advanced undergraduate students would benefit from it. We recommended it to all those interested in plants and microbes, and their biology. The editors point out that this book is designed for advanced courses in stress biology, molecular biology, biotechnology, agricultural and environmental biology. We agree that this is an exciting addition in the field.

Springer has provided a website where information on the book is available (<http://www.springer.com/life+sciences/>

[plant+sciences/book/978-90-481-3111-2](http://www.springer.com/life+sciences/book/978-90-481-3111-2)).

Further, the complete Table of Contents of the book is available at: <http://www.springerlink.com/content/978-90-481-3111-2#section=630469&page=1&locus=0>. In addition, the Preface, colour figures and biographies of the editors, can be downloaded free at this website which also hosts the most appropriate cover of this book.

Regrettably the book is unaffordable for students to own a copy. However, e-copies of the book are available at several libraries.

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Errata

Stratosphere-troposphere exchange of ozone at Indian Antarctic station, Maitri

Nandita Ganguly

[*Curr. Sci.*, 2010, **99**, 1074–1079]

1. The last sentence of the abstract as it appears in print was not present in the author's final version of the article. So the abstract should be read as ending with '... eventual transport to the lower troposphere.'

2. Page 1078, column 1, para 2, the second sentence should read: 'Stratospheric intrusions observed in this study were associated with pronounced cut-off circulations'.

Novel mechanisms of emergence of multidrug resistance' tolerance

R. Jayaraman

[*Curr. Sci.*, 2010, **99**, 1008–1010]

Page 1008, col 3, lines 35–40 should read: 'Their earlier observation⁹ that *recA*⁰ mutants were more sensitive to bacterial antibiotics implies the involvement of the SOS response in ROS-mediated lethality'.