message of Sri Ramakrishan inspires humanity to this final destination. The goal of human life is the realization of God'.

The last article in the volume is by Sangeetha Menon on 'Cognitive and experiential foundations of consciousness and "Spiritual Agency": towards a new epistemology'. She is primarily concerned with the identification of the 'agency' that is responsible for cognition and experiences in human beings, and its relation/identification to the self. There is no experience without consciousness. But the study of consciousness requires experience. The scientific methodology had been to study 'subjectivity' on the basis of empirical standards such as causal connection, neural influences and neural locations. Recently, there has been a change. The first-person accounts of experiences of patients affected by spinal injury and whose nerves have suffered a disconnect with certain parts of the body are taken into account in the analysis of the empirical data. Obviously, this methodology is different from the previous ones based on analysis of recorded brain processes alone. This neurophysiological methodology shifts the focus from third-person neural data to first-person qualities of will-power, self-effort, etc. Sangeetha has mainly addressed the issue of agency from the point of view of spiritual experiences of a certain class of people with neural challenges. She also discusses three Indian spiritual experiences such as (i) the detached engagement during enactment (natya), (ii) the heightened state of divine love (bhakti) and (iii) the meditative state of self-knowledge (atma-jnana), which has physical and transcendental functions. Natya is characterized by intersubjective and intrasubjective combination of experiences and feeling, bhakti by a sense of detached love and atma-jnana by a sense of complete detachment. According to Sangeetha, the study of the complexity of the various levels of agency and their relation to consciousness may lead to a better theory of consciousness compared to many that exist at present.

The editor of this volume has succeeded in bringing about a confluence of philosophy and science in a historical perspective ranging from the ancient Vedic period to the 20th century. The articles are written by experts in various fields. Some of the articles are so exhaustive in coverage and length that they could be brought out as monographs in their own right. The volume is certainly a rich treasure-house of authentic information, enriched by an exhaustive list of references, bibliographies, etc. that it will be beneficial to all libraries interested in books in the field of history and philosophy of science. It will surely be a good resource book for students doing research in this or any related subjects and those who desire to write books on the history and philosophy of science.

B. V. SREEKANTAN

National Institute of Advanced Studies, Indian Institute of Science Campus, Bangalore 560 012, India
e-mail: bvsreekantan@gmail.com

Design Meets Disability. Graham Pullin. The MIT Press, 55, Hayward Street, Cambridge, MA 02142, USA. 2009. 341 pp. Price: US$ 29.95.

The term 'disability' be refers to physical or mental impairment, due to which a person is unable to respond properly to a standard stimulus using traditional methods. As a result, such a person's social participation is restricted. With the advancement of technology, persons with disabilities can undertake a variety of personal challenges with alternative solutions based on their abilities. An enriched balance between problem-solving and more playful exploration with open-minded inspiring solutions for them can open up a new direction in a non-traditional way. Thus, disability can initiate radical new directions in mainstream design. The World Health Organization (WHO) acknowledges that almost every human being experiences some degree of disability in life. Therefore, why there is a social stigma towards disability?

This book will help change our response towards disability and generate interest to design against disability for inclusive solutions. The book explains well how disability and design encourage each other with rich examples, brilliant pictures, and fascinating collections from brilliant designers. Graham Pullin discusses the important aspects of such design, and mentions that while designing for disability a healthy coexisting tension is present between exploration with playful and open-minded approaches and problem-solving with clinical and engineering basis.

In the first chapter 'Fashion meets discretion', the author has mentioned eyewear from Cutler and Gross, a device for disability, which has now become an elegant and fashion accessory. On the other hand, hearing aids (earphone or headphone), prosthetics and orthotics still carry the image of disability. Adopting a fashion culture for design may cross the restriction of medical requirements to compensate disability. The author has presented a number of different leg prostheses, including carved wooden legs to wear during appropriate occasions. In case of assistive device, if the primary functionality is not properly achieved, it might not be a good solution. Different types of chairs are available in terms of design and the materials used, but the wheelchair remains almost the same. Designer Bodo Sperlein has designed a China plate embossed with small dots, similar to Braille. Likewise, raised characters on the telephone keyboard will benefit visually impaired. Therefore, further exploration is required to bring a radical change in design approach.

Simple design always favours better overall experience. For the visually impaired, Swiss manufacturer Tissot introduced the Silen-T-Watch with robust engineering for damage protection, where the user can read the time by touch. Another complementary solution is the talking watch. Pullin has encouraged more solutions like the Discretion watch by Crispin Jones – the movement of the wrist produces different types of regional vibration in terms of tactile sensation. Use of copper induction loop on the tabletop will improve sound quality

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 language 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.

Golden prosthetic hand by Jacques Monestier alongside a conventional split hook

RINA MAITI

Centre for Product Design and Manufacturing,
Indian Institute of Science,
Bangalore 560 012, India
e-mail: rmaiti@cpdm.iisc.ernet.in

Abiotic Stress Adaptation in Plants: Physiological, Molecular and Genomic Foundation. Ashwani Pareek *et al.* (eds), Springer, P.O. Box 17, 3300 AA Dorderecht, 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