



Thinking Design. S. Balam. Sage Publications India Pvt Ltd, B1/I-1, Mohan Cooperative Industrial Area, Mathura Road, New Delhi 110 004. 2011. 284 pp. Price: Rs 900.

The book under review is a collection of a dozen chapters, chosen from earlier writings of the author, to articulate and share designers' 'thinking' rather than publish a collection of 'things' that designers develop as part of their profession. The chapters are divided into four sections: Nature and power, Human perspectives and concerns, New dimensions and the future, and Design realizations.

'Nature and power' focuses broadly on what design and its spatio-temporal context has been for designing in India, and explores the power and nature of symbols and training in design.

'Human perspectives and concerns' focuses on two aspects. One is the broad influence of colonization, state policies and politics on design. The other is the ubiquity of design and the need for design in all walks of life, and how design can learn from the artisans – the traditional practitioners of design.

'New dimensions and the future' focuses on three elements: the balance between use of methods and freedom in design, the need for restraint in designing, and the increasingly greater need for not just product but service or process designs.

'Design realizations' includes a series of case studies, and a chapter on design pedagogy in India. The case studies range from consumer products to design for special needs. On pedagogy, the author highlights how Indian design education attempts to integrate both traditional approaches to learning and western approaches, and cater to design

at the corporate, small-scale and craft-production levels.

As Herbert Simon¹ put it succinctly in his influential book, *The Sciences of the Artificial* (page 111), designing is planning for changing existing situations into preferred ones. In this sense, design is ubiquitous, and encompasses creating plans for technical systems such as power plants, economic systems such as market economies, organizational systems such as hierarchical organizations, aesthetic systems such as impressionist paintings, as well as religious systems, philosophical systems and so on. Design also encompasses creation of plans for technologies, as well as theories and models of various phenomena, including those that are related to design – a central goal of research into design² (page 5).

Designing therefore happens at multiple levels. Design of products and services for the society, design of technologies that support development of these products and services, and design of models and theories of natural phenomena that support development of these technologies are all connected in a spiral of interdependency. Each of these designs can be focused around any or a combination of these dimensions: functional, aesthetic, ergonomic, or symbolic, and are capable of various levels of performance within various levels of cost. The single word – design, in fact, encompasses a large space of various kinds of design.

It is therefore important to understand what kind of designs this book focuses on. As the chapters and the case studies indicate, the focus is broadly on integration of technologies and symbols to meet societal needs – in particular the needs of the rural poor of India. Designing that involves resolving substantial functional challenges, leading to development of products, services or technologies (e.g. engineering design), or development of the sciences behind these technologies, is largely beyond its scope. This is not meant to be a criticism: for a subject as vast as design, it is all but impossible to cover the entire gamut, and the scope of the book already is substantial.

Within the scope of what one might broadly describe as industrial design for the rural poor, the author S. Balam, provides some interesting insights. Balam speaks about the plight of the Indian artisan – the traditional 'designers' of India. They typically live in villages,

use local materials and inspirations, and follow strict rules to reproduce the traditional artefacts. In the past, when villages were relatively isolated and self-sufficient, the inter-dependence among people in the villages afforded respectable living for the artisan, who had a captive clientele which he understood well, as he did his materials and processes. Competition from industrial products with more widespread distribution and advertising systems has changed this substantially, and the artisan communities are dwindling. For designers, there is a lot to learn from these communities, and little is done to help them and their craft to earn a respectable living, and to learn from them in a systematic manner. As the author says, '... some solutions and methods can change and become obsolete, but not a class of people and their long-evolved principles of living and working'.

Another insight comes from the author's study of designs by the common people for the common people. What should a designer learn from these designs? One is their overwhelming simplicity and affordability – they cannot afford to be complex for their products to be this affordable. One approach these designs take is to produce them using used materials and crude, locally available processes. This relates to design for the 'bottom of the pyramid', made famous by Prahalad³. There is a huge need waiting to be met, only if the need can be met with extreme affordability. Balam also warns us, and aptly so, that most of these products are also rather unsafe, as makeshift designs with makeshift processes are most likely to be. The challenge for the designer is to learn both what to learn and what not to learn from these designs. The designer must produce sustainably with high affordability, but not at the cost of safety. Designs for the poor need not be poorly designed.

'Design and rule' is yet another interesting chapter, in which Balam speaks on the power of design as a tool, and the extent to which current designers in India have been able to utilize design to help the majority of its people – those who Balam refers to as the 'real people' of India. His argument is that much of the output from Indian designers is contributing to the rich 'minority' of people in India, and very little to its poor 'majority'. Balam argues that under the garb of creating 'freedom of choice', most

designers are currently involved in creating want instead of creating freedom from want, which he argues is the real freedom. According to Balaram, designers of the future should be not merely skilled in designing, but a 'broad-based, socially well-integrated, humane designer with a global vision'.

Perhaps the most insightful of the chapters is the one on the 'The power of representation'. The chapter broadly focuses on how powerful the symbolic value of a product is, and illustrates this beautifully through the artefacts that Mahatma Gandhi used to convey, both to himself and to others, the message of being part of the common masses of India and working towards its political and economic independence. Balaram uses the Gandhi-cap as an artefact to demonstrate how powerful the meaning of a product can be, and how this meaning changes with who uses it and the way in which it is used, and the coherence these have with the other messages that are associated with its user.

To support the rural population of India, Balaram proposes the creation of the 'barefoot designer', who will take design to the villages of India and make it useful to its people. How can the knowledge and skills of the modern designer be married to the context of the rural poor to create better shelters, better sickles, better roads and better drinking water? Balaram proposes formation of a large number of design institutions, many of which will be located in small towns in India, with their curriculum attuned to rural needs. Each village would nominate one person to be trained at one of these institutions, while being guided to design and deliver within his own cultural milieu. The intent is to create designers that would remain part of the rural community, and bring knowledge of the problem and solution together in an ethnographically situated manner to improve rural living.

A particularly interesting part of this book are its case studies, which span from design of a toothbrush-cum-tongue cleaner, through design of a family planner, to design of a Devanagari script; most of these are designed by the author or his students. I personally find the design of a weighing machine for postal letters interesting. The novelty in thinking in this design lies in the fact that a machine for weighing letters is not really about measuring the exact weight of a

letter, but about assessing the postage necessary for dispatching the letter by post. The design needs to ensure that the machine finds the appropriate postage-sensitive weight range for a letter.

To me this is a book of the author's reflections and insights, in particular about the practice, learning and teaching of industrial design for India's rural poor. The language is fluid, and the style informal. The book is thought-provoking, as any good book should be. It would serve its purpose well if it inspires greater interest in, and debate on industrial design in India.

One final comment. While books on the views on design are important for creating public interest in, and encouraging debate on design and its place in the society, the design community needs to reach out beyond views, and work towards developing a validated understanding of design – a science of design – that can be utilized for continuous improvement of current ways of designing. This requires sustained research into design. The good news is that there is a substantial research community around the world, and a growing body of scientific knowledge about design. This includes a growing community of Indian researchers and a growing body of knowledge about design within India, spearheaded by the Indian Institute of Science, several IITs, and others. It would have been really interesting to have a chapter in this book on research into design in India and how this could be used to improve the act of designing, especially for India's rural poor.

1. Simon, H. A., *The Sciences of the Artificial*, The MIT Press, 1996, 3rd edn.
2. Blessing, L. T. M. and Chakrabarti, A., *DRM, a Design Research Methodology*, Springer, London, 2009.
3. Prahalad, C. K., *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*, Wharton School Publishing, 2004.

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Annual Review of Plant Biology, 2011. S. S. Merchant, W. R. Briggs and D. Ort (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Vol. 62. ix + 611 pp. Price: US\$ 91.

The *Annual Review of Plant Biology* provides a picture of current trends in plant science. The leading plant biologists not only critically review their work, but also provide a comprehensive description of the subject by citing recent literature of other workers. Almost all the articles in this volume provide relevant conclusions of the themes with salient/summary points. These features along with excellent coloured pictures, schematics and tables have made the volume impressive and useful as a textbook both for students and researchers.

The structure and character of the articles and presentation style of the *Annual Review of Plant Biology* have significantly changed over the years. Because of rapid advancement in molecular biology and development of highly sophisticated tools and their extensive use in different areas of plant science, the reviews in the volume exhibit more rational discussion and openness without much speculation/assumption. This volume contains 23 reviews authored by about 85 experts from 21 countries of Africa, America, Asia and Europe. Each article has its own character with a specific theme and approach. For convenience, they are broadly classified under themes like transport and transporters, metabolism, signalling and regulatory network, development and evolution, and finally, the techniques and applied botany. At many points, however, the articles of different groups overlap.

The volume begins with an wonderful review by Van Montagu (Ghent University, Belgium), who is widely known as a renowned plant biotechnologist specifically in the field of agriculture biotechnology. He has nicely described his early life and school days and subsequently his scientific career in the university. The description of his horrifying experience of World War II during his school days is remarkable. The first part of the review describes how the specific circumstances during his university education led him to develop a fascination/dedication for research in biochemistry. During this time, the discovery of the double