fisherman is brought into communication link. Today, knowledge is power. And as newer problems whether due to climate change, environmental degradation or a free but not fair market keep on emerging, the solutions to tackle these necessarily need to be dynamic. The old-fashioned agricultural extension system operates based on knowledge, data and do-how, no longer relevant to sustainable and climate-resilient agriculture.

The book also deals in a balanced manner about the GM technologies in agriculture. The risks now well-established with GM crops in general, and the *Bt* and *Ht* transgenics in particular (for 'biotic' stresses), are pointed out (p. 313). However, only time will tell whether the 'Brazilian Adventure' (Box 7.6, p. 328) involving GM crops would eventually turn out to be successful or a mid-adventure, as happened recently in Argentina. With growing scientific evidence on the adverse health and environmental impact of the *Bt* and especially the *Ht* transgenic crops, a rethinking has become necessary. A recent paper (http://www.sciencedirect.com/science/article/pii/s0016718513000730) reveals that the GM soy-based agro-export model in Argentina has been a 'success' in terms of economic growth, but also has a conflict between 'success' and socio-ecological sustainability. Immediate short-term prosperity followed by economic doom and food insecurity in the long-term should be carefully avoided especially in the highly populous, resource-poor South Asian countries. It is likely that the present Brazilian boom attributed to the GM crops could be illusory.

The several aspects, issues and approaches related to social protection, small farmers and food production are extremely well-written providing valuable analyses and suggestions. Explanation of idiosyncratic and covariate shocks and suggestions to deal with them are quite enlightening. The coinage of the term 'gendered' green revolution (p. 131) in the context of feminization of subsistence farming and thereby 'feminization of poverty' as well as the policies and actions required to ensure the livelihood and food security of farm-women (or women farmers) is absolutely masterly. Figure 7.2 (p. 340) presents an 'intervention framework for social protection' that comprehensively addresses agricultural livelihoods development, the social protection safety net and emergency assistance.

To a remarkable extent, several analyses and approaches in this book echo the views on food security and sustainable rural development, community-led approaches to ending food insecurity and poverty, managing monsoons and water resources, etc. presented in the book *From Rio de Janeiro to Johannesburg* by Swaminathan (East-West Books (Madras) Pvt Ltd, Chennai, 2002). In fact, the author refers to Swaminathan while describing the 'drought code', 'flood code' and a 'good weather code' to minimize the adverse impact of drought and flood and to maximize benefits from good weather.

In conclusion, this book elegantly brings out (i) the merits of ecofriendly technologies to achieve productivity in perpetuity over those which lead to dramatic increases in the short-term, but a sharp decline in the long-term due to degradation of soil, freshwater, biodiversity, etc.; (ii) the need to fight the famine of rural livelihoods to achieve access to food; (iii) the large benefits of community-centric approaches to natural resources management and enhancing resilience of the rural communities in the event of extreme natural or man-made disasters and food security; (iv) the need for knowledge and skill empowerment of rural women and men through decentralized extension system, and (v) that agriculture is the real backbone for human survival in South Asia, unlike developed countries such as USA. What has not been explicitly stated is that the US-based agricultural technologies, especially the GM technologies are not suitable for hundreds of millions of resource-poor farms in India and other nations in South Asia largely due to their adverse effects on health, environment, including biodiversity and socio-economic welfare.

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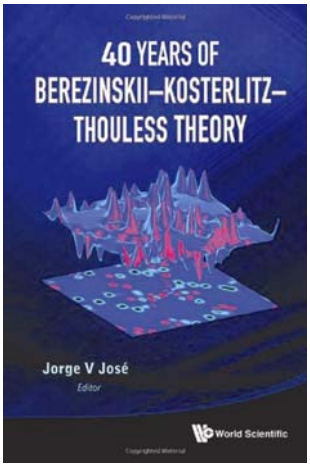

40 Years of Berezinskii–Kosterlitz–Thouless Theory. Jorge V. José (ed.). World Scientific Publishing Co. Pte Ltd, 5 Toh Tuck Link, Singapore 596224. 2013. xii + 351 pp. Price not mentioned.

The question of whether a two-dimensional system with continuous symmetry can support a long-range order has engaged condensed matter physicists for decades. Back in the 1930s, Rudolf Pearls had given general arguments on why such a system would not support a true long-range order. This result was derived more carefully 30 years later by N. D. Mermin and H. Wagner, which is now known as the Mermin–Wagner theorem. In the early 1970s, independent investigations of Vladimir Berezinskii and the team of Michael Kosterlitz and David Thouless on the same topic came to a startling conclusion: Even in the absence of true long-range order, a phase transition can happen in the system from a quasi long-range order, where spatial correlations decay as a power law, to a true disordered state where they decay exponentially with distance. Over the next few decades, this work had profound impact on the understanding of phase transition in two-dimensional systems such as thin superconducting or superfluid films.

The present volume is a collection of 10 review articles to mark the 40 years of Berezinskii–Kosterlitz–Thouless (BKT) transition, by people who have made significant contribution in this field. The opening chapter is a personalized account by Kosterlitz and Thouless, on their discovery and the early developments on defect-driven phase transitions. This chapter makes delightful reading both from a historical and scientific standpoint.

Scientific concepts such as two-step melting in a 2D hexagonal lattice, renormalization group theory analysis of the BKT transition are explained in a lucid and transparent way accessible to non-experts. At the same time serious scientific discourse is seamlessly woven with anecdotes, stories of missed opportunities, of going on wrong tracks and coming back. For example, for a scientific community that remains deeply engrossed in scientometric scores of evaluation, it is interesting to know that the first paper of Kosterlitz and Thouless got a total of about 2200 citations, of which just three citations were in the first 5 years. It also gives delightful insight on a spectacularly productive collaboration between a seasoned senior scientist (Thouless) and a bright but relatively inexperienced young postdoctoral fellow (Kosterlitz). This chapter would make a perfect companion for anyone trying to learn defect-driven phase transitions from more formal textbooks such as *Principles of Condensed Matter Physics* by Chaikin and Lubensky.

The remaining chapters of the book cover diverse topics related to BKT physics and are based mostly on the choice of the authors. Some chapters are more pedagogical and comprehensive and some less so. Chapters 2 (by Jose) and 3 (by Ortiz, Cobanera and Nussinov) outline theoretical developments post BKT. Chapter 2 is devoted to the work of Jose, Kadanoff, Kirkpatrick and Nelson, which provided theoretical justifications to the approximations made in BKT theory. Chapter 3 describes recent developments on duality transformations applied to 2D *XY* model. In Chapter 4, Goldman reviews the BKT transition in superconductors. The theoretical background in this chapter is in most part a repetition of the discussion in chapter 1 and could have been much shorter. On the other hand, the experimental review covers only a small subset of early transport experiments on superconducting thin films and Josephson junction arrays, leaving out most of the recent experiments such as BKT transition in interfacial superconductors and measurements on superfluid density in ultrathin superconducting films. This is partly compensated in chapter 5, where Benfatto, Castellani and Giamarchi describe some of these experiments in the context of their recent formulation of the BKT transition within the sine–Gordon approach. This powerful approach allows a quantitative comparison of the BKT transition in superconducting films with theory by allowing the vortex core energy to deviate from the 2D *XY* model. Chapter 6 by Teitel is a technical review of the fully frustrated *XY* model. In Chapter 7 Fazio and Schonreview discuss the theory of BKT transition in Josephson junction arrays and introduce the concept of charge–vortex duality. In Chapter 8 Vinokur and Baturina review their recent theory based on charge–vortex duality to explain the superconductor–insulator transition in thin superconducting films. This unconventional and rather controversial theory has been a topic of passionate debate in recent times[1–3]. In Chapter 9, Hadzibabic and Dalibard give an overview of the emerging area of BKT transition in ultracold atomic gases. Chapter 10 by Fertig and Murthy is a theoretical review of vortex physics in quantum Hall bilayer devices. In both Chapters 7 and 10, the reader would have greatly benefited from a review of the experimental status of the field, which sadly is missing.

While the book covers a large canvas of topics, one notable omission is the BKT transition in superfluid helium films. Torsional oscillator experiments on superfluid films were the first ones to provide experimental validation of BKT theory and till today remain the neatest experimental demonstration of BKT transition. While these experiments are referred to in the context of theories in Chapters 1 and 2, a review of these experiments would have been appropriate in a volume dedicated to BKT theory. Also, repetition between different chapters could have been avoided. However, despite these limitations, the book provides a useful review of the current status of the field. I would recommend it to graduate students and researchers working on BKT transition. It would be a valuable addition for institutional libraries, mostly as a reference book, but also as a pedagogical text for some of the chapters.

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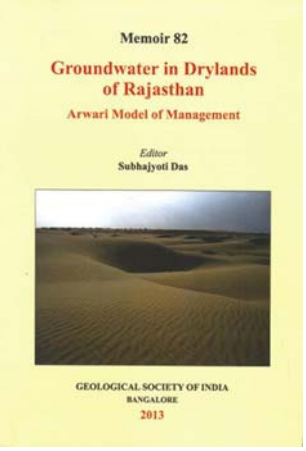

Groundwater in Drylands of Rajasthan – Arwari Model of Management. Subhajyoti Das (ed.). Memoir 82, Geological Society of India, P.B. 1922, Gavipuram P.O., Bangalore 560 019. 2013. xvi + 298 pp. Price: Rs 800.

This memoir by the Geological Society of India (GSI) is an excellent attempt to present the knowledge of guidance on water resources, water quality, watershed management strategies and successful water conservation and management techniques adopted by an NGO, Tarun Bharat Sangh in the semi-arid and desert region of Alwar district, Rajasthan. It is an output of selected peer-reviewed papers presented in the national seminar on 'Changing geohydrological scenario and its environmental impact' jointly organized by GSI, Tarun Bharat Sangh and Central Ground Water Board at Bhikampura, Alwar district, Rajasthan during July 2009. Most of the papers are by practising hydrogeologists of State and Central Government Departments work-