

nutrients modulating the pathogenesis of viral diseases, genetic disorders of nutrients and cancer. The use of knock out mice for understanding these interactions makes the chapters interesting and informative.

Beck and Levander deal with the understanding of outbreaks of viral diseases and the role of nutritional deficiency. The coxsackievirus infection which produces cardiotoxic effect is a good example of diet induced oxidative stress. The deficiency of Se and vitamin E on the phenotypic alteration in the virulence characteristics of this virus is well documented. The role of environmental factors especially dietary factors and life style are considered to be very important in the etiopathogenesis of osteoporosis (Wood and Fleet) and prostate cancer (Clinton and Giovannucci). Current scientific evidence does not provide a role for genetics in the causation of osteoporosis or specific nutrient interventions for the prevention of prostate cancer. The importance of a balanced diet, functional foods on the one hand and food inadequacy on the other need to be examined.

The interdependence of key organs and the expression of genes of glucose metabolism with reference to NIDDM are well illustrated by Bosch *et al.* The use of *Saccharomyces cerevisiae*, a model system to understand the genetic disease of metal ion transport in humans is an overview by Eide. Besides metal specific transport system, factors such as transcriptional and post-transcriptional regulation of metal uptake system and cytoplasmic chaperon proteins are important regulators.

There are two topics closely related to vitamin A nutrition. Castenmiller and West discuss the bioavailability and conversion of carotenoids. The hepatic enzyme involved in the hydrolysis of retinyl esters to retinol is reviewed by Harrison. The dose related factors, 'the Slamenghi factors' have been implicated in the conversion of β -carotene from a mixed meal. There is no agreement on the retinyl ester hydrolase activities reported. Different methodologies used for the evaluation of the enzyme activities have been suggested as the reasons for the discrepancies. In spite of all these research findings, controversies still exist.

There are two chapters on carnitine metabolism. Rebouche and Seim reviewed

the metabolism of carnitine in microorganisms and in mammals and showed that the dietary intake modulates the efficiency of re-absorption of carnitine by the kidney. Kerner and Hoppel discussed the known genetic disorders of cellular carnitine transport and the enzymes of the mitochondrial carnitine dependent fatty acid entry pathway. The implications of this in strict vegetarians (poor source of carnitine) is a subject of interest.

An excellent review on 'Redefining body composition: nutrients, hormones, and genes in meat production' by Wray-Cahen *et al.*, provides the latest understanding of livestock growth and development through genetic engineering. The emphasis is on the identification of tissue-specific factors for controlling livestock growth that will lead to the production of good quality meat. Better understanding of nutrition and physiology helps in the selection of appropriate genes for genetic engineering technologies and to create designer cattle.

The highly specialized chapter on 'Cyclic AMP signalling and gene regulation' by Daniel *et al.*, provides an in-depth account of the components of the cAMP signalling pathway and the transcription factors. The complex molecular mechanisms of the signal transduction through various responsive element binding proteins have been the major focus of this review. The organization of different transcripts of genes coding for cAMP response element binding protein (CREB) is given diagrammatically and is very helpful to the reader.

There are two very interesting collections of reviews of research that have posed a formidable question as to why there is such variation in response to dietary manipulations. Bruce *et al.*, very elegantly brought out the recent discoveries that led to the relationship between cholesteryl ester transfer protein and reverse cholesterol transport (RCT) and atherogenesis. A major break-through has been the discovery of the scavenger receptor BI which mediates the selective uptake of HDL cholesteryl ester in the liver. The interplay of insulin and glucagon during fasting and re-feeding through the stimulation of *FAS* gene by hormone specific responsive elements is reviewed by Sul and Wang. Further elucidation of the mechanisms and factors that can modulate enzymes can form the basis for the therapy of atherosclerosis.

This volume also includes a variety of other interesting topics. The newly discovered redox co-factor for some of the oxidases related to pyrroloquinoline (PPQ), its physiological functions and usefulness as a biocatalyst is covered by McIntire. The nutritional significance of vitamin glycosides has been dealt by Gregory III. The 'Dietary fructans' by Roberfroid and Delzenne is an account of the non-digestible oligosaccharides as one of the most fascinating functional food ingredients. They have interesting technological properties in food product development. The existence of nitrogen recycling through the gut lumen in non-ruminant mammals including man is discussed by Fuller and Reeds. The identities of endogenous nitrogen source and the significance of this process in the overall nitrogen economy of the body have been described. It is expected to have implications for the quantification of the bioavailability of dietary protein.

This book makes excellent reading. It is recommended for senior students of nutritional biochemistry and is an excellent reference book for nutrition scientists. Although the emphasis is on nutrition, molecular biologists will also find the book useful. The book offers ample scope for the application of methodologies in basic and molecular sciences in the areas of health-related issues of humans.

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Fieldwork: A Geologist's Memoir of the Kalahari. Christopher Scholz, Princeton University Press, 41, William Street, Princeton, NJ 08540, USA. 1997. Price: US\$ 24.95. 190 pp.

Geoscience is a field-oriented branch of science and its practitioners are often exposed to unique and varied experiences. However, the geoscientists as a class generally shy away from writing down their field experiences even though many of them are well qualified to do so. Some

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of them, of course, venture out to tell us these wonderful stories. Christopher Scholz, professor of geological sciences at the Lamont-Doherty Earth Observatory, Columbia University belongs to this group. Scholz is very familiar to those who work in the field of earthquake seismology and rock mechanics. One of his earlier books, *The Mechanics of Earthquakes and Faulting*, is a standard text book for the students of seismology. The book reviewed here is a delightful account of an earthquake survey and related fieldwork in the wild Kalahari region of Botswana, which he carried out in 1974.

Scholz was called to assist an UNDP mission on water resources in Botswana. Located far south of an active rift, this region was not known for seismicity. He admits that the invitation came not because the UNDP bureaucracy realized the implications or the relevance of a seismicity study in this region nor did this have any priority. He himself was lukewarm to this assignment. A chance look at the seismograms from the region indicated a few scattered earthquakes in the vicinity of the Okavango delta in Botswana and this rekindled his curiosity. Scholz narrates how he formulated the problem, developed a working hypothesis and a strategy to test this hypothesis. He describes the fieldwork as a 'safari after knowledge, instead of animals' and at the end of his tour, he succeeds in

collecting the data to support this assumption that the African rift indeed extends to the Okavango delta and Kalahari, a fact that was not appreciated at all before this work. Seemingly unexciting as a project in the beginning, the microearthquake survey helps in gathering required data in identifying active faults in the region and in explaining how a rift propagates, a process possibly different from initiation.

Of course, this book is not meant to provoke or to seek answers to scientific queries. It mainly attempts to highlight the trials and travails of a scientist while attempting to wrest some of the secrets from nature, which he calls as the most basic of human challenges. In his book, Scholz shows how a scientific expedition is as intellectually stimulating and exciting as the science itself. Those who are familiar with this type of work know how much effort and planning goes into making a fieldwork successful. This highly entertaining book captures the challenges and obstacles and narrates frightening, at times, hilarious encounters with bushmen, wild elephants, deadly snakes and of course racially biased white Afrikaners. Scholz is able to bring out the Kalahari and Okavango wilderness and social life in all its beauty and splendour. I thoroughly enjoyed his and mate Teddy Koczynski's encounters with local female admirers and their display of 'magical yo-yo' with an African witch

doctor and his group. Fieldwork is a team effort and the leader has the responsibility of maintaining the morale of the members. Scholz writes how he deftly managed to keep up the camaraderie within a culturally diverse group, even in the face of life threatening situations.

This highly readable book projects the fun and excitement of pursuing science. I recommend that every earth scientist should read this book. A major shortcoming, however, is the lack of photographs except one snap shot on the cover. I fail to understand why the publishers and the author chose not to give some glimpses of at least the Kalahari wild life.

We have a number of accomplished earth scientists in India with a vast repertoire of field-related stories and vignettes. However, we rarely come across such books in India. A notable exception is *Recollections of an Indian Geologist* by B. Rama Rao published in 1953. These types of books have an important role in instilling a spirit of adventure and quest for knowledge in the minds of young enthusiasts. Scholz's book is a welcome addition to this genre.

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