

Ironically, the reviewer received the invitation to review this book when he had just finished reading the book, *The End of Science* by John Horgan who had given his views after meeting some of the living greats in various disciplines. John Horgan is not a trained scientist but his critique is very penetrating.

It is difficult to give a blanket approval without suggesting some changes. A few pages of corrections, after carefully noting the printing errors, must be inserted in each copy. With these changes the book may provide reasonably good information to persons interested in broadening their knowledge.

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Water-borne Diseases: The Continuing Challenge. Radhey L. Singhal and O. P. Sood (eds). Ranbaxy Science Foundation, 20, Sector 18, Udyog Vihar, Gurgaon 122 001, India. 1997. 57 pp. Price not known.

Water is the most essential and non-substitutable molecular medium for survival and perpetuation of every life form on earth. The quality and quantity of water available for human consumption is a direct measure of the health of the population and that of the country. In over-populated countries, as in the case of India, the quality of water is abysmally poor due to heavy contamination of soil and water with fecal material, other biological wastes and chemical pollutants.

Because of its essentiality, water is a major vehicle for transmission of most common diseases. Water-borne diseases are of a wide spectrum and are predominantly manifested in the gastrointestinal tract as it is the part of the body that is in direct contact with the ingested contaminated water. Water-borne diseases are caused by a variety of pathogens including bacteria, viruses

and parasites and are mostly manifested as acute watery diarrhoea, dysentery and persistent diarrhoea.

Diarrhoeal diseases account for about 3 million deaths throughout the world and India accounts for approximately a third of this tragedy, which is preventable through cost-effective methods such as provision of safe drinking water, safe excreta disposal, environmental sanitation and clean personal habits such as hygienic storage of water and food, hand washing, chlorination and boiling of water. Although oral rehydration therapy is a great success in reducing mortality, improved sanitation and water supply is the most cost-effective choice for solution of the problem. In developing countries, development of vaccines against major enteric pathogens can only be a complementary strategy.

Water-borne diseases of major public health concern include typhoid caused by *Salmonella typhi*, cholera by *Vibrio cholerae*, dysentery by *Shigella*, diarrhoea by protozoan *Giardia*, acute infantile diarrhoea by rotavirus and jaundice by hepatitis A and E viruses. In India, the economic burden due to morbidity and mortality from these diseases is staggering and some of these old and newly-identified diseases still present a grim situation in the country often in epidemic forms. A lot has to be done to eradicate these easily preventable diseases. In this backdrop, Ranbaxy Science Foundation organized a symposium on 'Water Borne Diseases: The Continuing Challenge', as the second in the series of round table conferences to review the experiences of clinicians, scientists and public health professionals in the country and to suggest important guidelines and national approaches that need to be undertaken to reduce the burden of major water-borne infectious diseases. This volume is a compilation of the proceedings of the conference held on 1 August 1997 organized by V. Ramalingaswami, Chairman, Ranbaxy Science Foundation.

The current status on major water-borne diseases in the country is presented by clinicians and scientists who have contributed significantly towards understanding and prevention of these diseases. The overview by M. K. Bhan on disease burden due to various water-borne diseases and their prevalence and

mode of transmission and the presentation by V. I. Mathan on the ecology of the gut and diarrhoeal diseases are quite revealing. The presentations on cholera by B. C. Deb, bloody diarrhoeas by S. K. Bhattacharya, typhoid fever by R. Kumar, protozoan diarrhoeas by U. K. Baveja, water-borne viral hepatitis by S. K. Panda and management and prevention of water-borne diseases by K. Suresh should be a source of information on the history, epidemiology, prevention and treatment of the diseases. The presentations are very brief, nevertheless, any reader should be able to understand and appreciate the root cause of the problem of diarrhoeal diseases and undertake preventive as well as curative methods to reduce the burden of these easily preventable diseases. The clear message from this conference is that unless provision of safe drinking water and environmental sanitation is effected by governments in developing countries, these diseases will continue to cause immense suffering, deaths and economic loss and this grim situation to a great extent, can be prevented by promotion of personal hygienic habits.

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Biogeography of the Reptiles of South Asia. Indraneil Das. Krieger Publishing Co., Krieger Drive, Malabar, Florida 32950, USA. 1996. 87 pp. Price: US \$30.

I sat up when I heard of a book titled *Biogeography of the Reptiles of South Asia*. Literature on the ecology and biogeography of the herpetofauna of this region is far from adequate, and a publication dealing competently with the biogeographical analysis of the distribution of the region's reptiles is very much needed. And sadly, this elegant-looking book, authored by Indraneil Das, fails to fit the bill.

Though it is creditable that the author has attempted to present a biogeographical resolution of the distribu-

tion patterns of the reptiles of the subcontinent using an integrated approach, the merits of this work are offset by crucial errors. Misinterpretations and errors in any specific literature can handicap the progress of the discipline, more so if it is one of the few treatises on that subject (Biogeography of the Indian subcontinent's reptile fauna in this case) and will ultimately have wider negative effects.

Priced at \$30, the hard bound covers of the book enclose 87 pages – The biogeography of the subcontinent's reptiles. Of the 87 pages, the species checklist occupies 27 pages. The cover has a good photograph of a montane trinket snake (*Elaphe helena monticolaris*). There are many more photos inside – 36 in all, inserted between the cover and the inner title page. All the photographs are the author's.

The first major problem becomes more than apparent when the map of physiographic zones on p. 5 (chapter 3) is examined. At least four of the 10 zones have been inaccurately delineated – The Trans-Himalayas, Northwest, the Himalayas, and the Deccan. For instance, the region west of the Sutlej river has been designated as 'Trans-Himalayas', including a large portion of Pakistan and all of Kashmir, Himachal Pradesh, and Kumaon (Uttar Pradesh)! Das' Himalayas includes the Terai, 'a swampy belt of maximum width 13 km...'. Apart from such inaccuracies, vegetation types of almost all the zones have been described rather superficially and erroneously. For example, on page 9 (chapter 3), the author writes, 'Subtropical pine forests are recorded where temperature ranges are between 1,500 to 3,000 mm a year, and include *Quercus amelloza* and *Q. lineata*, *Rhododendron* spp., *Lyonia* spp., *Pinus roxburghii* and *P. insularis*.'! And Das' Trans-himalayas '... include subtropical evergreen and coniferous forests...'!

A physiographic zone represents similar conditions (within itself) which are largely unique to it, thus forming a distinct entity, with characteristic climate, topography and consequently habitat types which influence the faunal distribution within it, and also affect dispersal across it¹. Any misclassification of zones means that faunal elements will be artificially placed in these zones. For instance, because of Das' zonation,

two species of agamids (Family: Agamidae) of the genus *Japalura*, viz. *J. kumaonensis* and *J. major*, neither of which are found west of Eastern Himachal Pradesh, have been absorbed into the Trans-Himalayas, artificially extending the range of the genus, which is the one of the westernmost Tibeto-Yunnanese elements. Similarly, the Indian egg eater *Elachistodon westermanni* is absorbed into the Himalayas, despite evidence to the contrary². Das has calculated similarities between physiographic zones using Jaccard's Index – the proportion of species out of the total species list of the two sites, which is common to both sites. As the index is a purely qualitative one (based on simple presence-absence data), it is sensitive to species richness^{3,4}. The wrong zonation and consequently artificial placement of species in them, will thus show wrong similarity values between zones. The similarity values, if recalculated using more appropriate zonation, would be obviously different from those presented in the book. The similarity matrix has been then subjected to cluster analysis, and the results represented by a dendrogram, which has been wrongly labeled an 'area cladogram'. An area cladogram, *sensu stricto*, reflects the relationship between hypothesized phylogenies and the distribution of the clades in question^{5,6}.

And the blunders go on... writing about Hora's Satpura hypothesis on page 28 (chapter 4), Das writes (Italics mine) '...the dispersal of the Southeast Asian biota to the Western Ghats through the once forested Siwaliks that...'. Well Das, the Siwaliks are well forested *today*, and are not the same as the Satpuras, are they?!

There are inconsistencies in the description of faunal characteristics of the physiographic zones too. For instance, according to the author, the extralimital elements in the Himalayas include four Tibeto-Yunnanese and eleven Indo-Malayan elements, with *no* representation of Turkomanian-Central Asian or Afro-Mediterranean genera. However the genus *Laudakia*, which is found in the western Himalayas, is considered a Turkomanian-Central Asian element. Similarly, the genus *Vipera*, represented by *V. lebetina* in the Kashmir Himalayas, is an Afro-Mediterranean element.

Before winding up the book, the author then briefly discusses patterns and correlates of diversity, affinities between physiographic zones, affinities with extralimital fauna, barriers and speciation, and disjunct distribution of taxa. All one can say then, is that Krieger Publishing Company definitely hasn't provided (to quote the publishers) '...accurate and authoritative information in regard to the subject matter covered'. Any one who turns to this book as a reliable discourse on the biogeography of the reptiles of this region, is in for bitter disappointment.

1. Rodgers, W. A. and Panwar, H. S., *Planning a Wildlife Protected Area Network in India*. A report prepared for the Department of Environment, Forests & Wildlife, Govt. of India, Wildlife Institute of India, 1988.
2. Gans, C. and Williams, E. E., Present knowledge of the snake *Elachistodon westermanni* (Reinhardt). *Breviora*. Museum of Comparative Zoology Number 36, Cambridge, Mass., 1954, pp. 1-17.
3. Magurran, A., *Ecological Diversity and its Measurement*, 1st edn, Croom Helm Limited, London, 1988.
4. Jongman, R. H. G., Ter Braak, C. J. F. and Van Tongeren, O. F. R. (eds.), *Data Analysis in Community and Landscape Ecology*, Cambridge University Press, Biddles, 1995, 2nd ed. p. 299.
5. Myers, A. A. and Giller, P. S., *Analytical Biogeography*, Chapman and Hall, London, 1988, 1st edn, 578 pp.
6. Cracraft, J., in *Exploring Evolutionary Biology: Readings From American Scientist* (ed. Slatkin, M.), Sinauer Associates, Inc., Sunderland, Massachusetts, 1990, 1st edn, pp. 104-112.

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Orientation and Communication in Arthropods. M. Lehrer (ed.). Birkhauser Verlag, P. O. Box 133, CH 4010, Basel. 395 pp. Price: Sfr 178.

Sometimes one wonders what life is all about. Questions like 'what is life' have a tendency to be taken as profound or at least too ponderous. They are also considered to be very much in the human