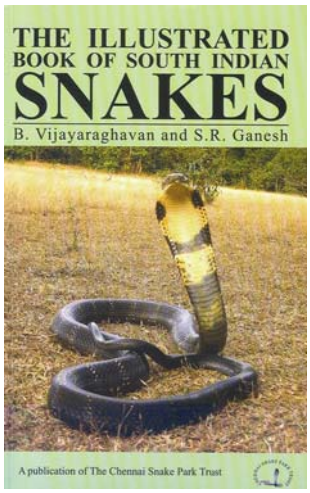

The Illustrated Book of South Indian Snakes. B. Vijayaraghavan and S. R. Ganesh. The Chennai Snake Park Trust, Rajbhavan Post, Chennai 600 022. 2011. 80 pp. Price: Rs 65.

This is obviously not a scientific or library publication, being seemingly aimed at casual readers. As such, the scientific coverage of this book is extremely light. The photographs are excellent, but without scale bars one does not appreciate the diversity of size so readily. Given that in the digital age, with or without huge funding, such good material can be produced, what ultimately makes the difference between a good book and an ordinary one is how well the contents are organized into a palatable and non-repetitive wholesome. There is need for such field guides and I am sure with a little effort this booklet could be of immeasurable value. This would be good for use in schools and in education, were it not for a few glaring flaws in its organization and presentation. There is a well-organized list of South Indian snakes provided; however, not all of these are given the photographic treatment. Unfortunately, absolutely no descriptions are given of species not dealt with in the book, and even those that are given are woefully inadequate. Particularly notable is the lack of comparisons between similar species to help identify snakes. The photographs alleviate this to some extent, as a great many details are visible in them. It would help, however, if future editions of this book expanded the descriptions beyond 'brown with whitish bands' (used to describe all species of wolf snake, for example) or 'bright green' (uniformly used to describe all vine snakes), and highlighted instead how to distinguish the species from each other. The organization of the photographs could also be vastly improved. Why not list the page number of the photographs of each species in the convenient list beforehand (where they are only marked with an asterisk)? Instead, we have to leaf behind to the 'species index' to find these page numbers. This redundancy is an unnecessary inconvenience. Many such pages could be deleted. For example, the back cover is needless advertisement (clearly not one of those which earn money for the publisher), and the inside front cover is uninformative. Pages till 37 could be removed without substantially reducing the value of the book. The real valuable part is between pages 38 and 83. The scope of these pages could be hugely expanded with line drawings and illustrations, information on areas of occurrence and colour-coded as to whether venomous or non-venomous. This could well become a valuable field guide for snakes in southern India with some fine-tuning. However with such an attractive price it is something to be recommended.

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Spectacled cobra (*Naja naja*).

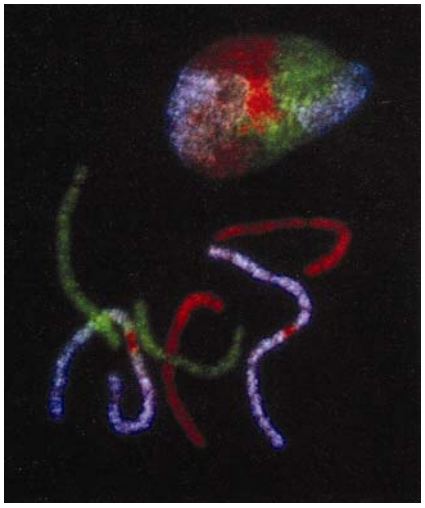
Annual Review of Genomics and Human Genetics, 2011. Aravinda Chakravarti and Eric Green (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, CA 94303-0139, USA. Vol. 12. ix + 445 pp. Price: US$ 86.

This volume is a comprehensive compilation of articles pertaining to recent advances in the field of human genetics. The book covers a broad spectrum of topics, ranging from recent insights into the genetic basis of several diseases and the application of emerging genetic techniques for medico-legal and population studies, to the latest research into the role of genetic factors such as copy number variations (CNVs), repetitive elements and epigenetic mechanisms in the causation of disease.

The initial chapters highlight the important advances in cytogenetics that have occurred over the past few decades. The introductory chapter by Malcolm Ferguson Smith is a fascinating account of the author's own long career in the field of medical genetics, with numerous anecdotes and facts that provide an interesting insight into the evolution of cytogenetics over the past 50–60 years, since the initial discovery of the correct chromosome number in human beings. Over the years, the field of cytogenetics has progressed from visual analysis of chromosomes to a combination of molecular and cytogenetic methods for increasing the resolution of analysis. The increased resolution of new techniques like array comparative genomic hybridization and increased yield of testing have resulted in consensus statements favouring chromosomal microarray (CMA) as the first line of investigation in patients with intellectual disability and autism. Schaaf *et al.* discuss the utility of the cytogenetic microarray technique in detecting CNVs within the genome and the clinical applications of this technique, especially in the evaluation of individuals with intellectual disability, neurobehavioural phenotypes and congenital malformations. Copy number changes in the regulatory non-transcribed regions of the genome have been associated with a number of human phenotypes like skeletal dysplasias, short stature, neurodegenerative diseases, etc. due to deletions/duplications in regulatory regions of genes like *HOXD*, *SHH*, *SOX*9, etc. Klopocki *et al.* focus on CNVs involving non-coding

sequences of the genome, the phenotypes associated with them and their possible role in disease causation.

The recent developments in understanding the genetic basis of human genetic diseases have resulted in medical genetics moving from bench to bedside. Four chapters in the book deal with the practical implications of the new knowledge being generated regarding the genetics of atrial fibrillation, Parkinsonism, speech and language disorders and schizophrenia. Xiao *et al.* discuss the genetic mechanisms underlying atrial fibrillation and how the integration of this genetic information into clinical practice may aid in the early identification of at-risk patients. Further, the knowledge of the molecular pathways involved may help in identifying potential therapeutic targets. Gejman *et al.* present a detailed description of the molecular genetics of schizophrenia, the role of genotyping arrays and next-generation sequencing in the elucidation of the genetic basis of the condition, the genetic variations associated with it, and its genetic overlap with other psychiatric disorders. The chapter by Kang *et al.* throws new light on the genetic basis of speech and language disorders such as aphasia, stuttering, articulation disorders, verbal dyspraxia and dyslexia, and the utility of linkage studies and the candidate gene approach in exploring the genetic mechanisms underlying such conditions. The chapter on genetics of Parkinson disease by Martin *et al.* reviews the recent research data obtained from mouse models with mutations in genes known to be associated with Parkinson's disease, including α-synuclein, LRRK2, PINK1, parkin, and DJ-1 and attempts to elucidate the molecular pathogenesis of this condition.



The three pairs of chromosomes of the female Indian muntjac in metaphase and interphase nuclei show the arrangement of chromosomal territories at interphase. Chromosomes 1, 2 and $X + 3$ are shown in light blue, green and red respectively.

The most famous application of knowledge regarding genetic variation in humans has been in the field of DNA fingerprinting. The use of different markers of variation has helped in the identification of victims in mass disasters as well as aided the law enforcement agencies in the prosecution of culprits and exoneration of innocent persons. 'Genetics of innocence' has been vividly discussed in an aptly titled chapter by Hampikian *et al*. The authors provide an interesting account of the various developments in this field over the last 25 years followed by interesting case studies wherein DNA fingerprinting has helped in proving the innocence of wrongly convicted people.

Availability of the complete human genome sequence has shifted the focus of research towards understanding the regulation of expression of genes. The regulatory variation within and among different species has been discussed in four different chapters, giving a flavour of recent trends in this field. In addition, the biology of stem cells and their pluripotency also has been dealt with by Loh *et al.* in a simple yet informative style.

Cancer has been termed the 'emperor of all maladies' and the treatment avenues have been limited in spite of various advances in this field. The availability of next-generation sequencing strategies with the ability to sequence the whole genome in a few days has renewed interest in this field. Wong *et al.* provide a detailed account of various innovations in sequencing technologies, and their application in detection of germ line and somatic mutations in cancer. The ultimate aim of all genetic studies is to improve our understanding of genetic variation in humans and its relation to human diseases. Medicine is slowly moving from the 'one size fits all' concept of treatment towards 'personalized medicine', wherein the patient is treated individually based on his/her susceptibility to diseases and expected response to a particular treatment. This emerging concept has been lucidly dealt with by Isaac *et al.* in the chapter on personalized medicine.

Overall the book is an interesting compilation of articles on human genetics and genomics. It will prove to be a useful reference for investigators and researchers in the respective fields.

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Annual Review of Nuclear and Particle Science, 2011. Barry R. Holstein, Wick C. Haxton and Abolhassan Jawahery (eds), Annual Reviews, 4139, El Camino Way, P.O. Box 10139, Palo Alto, CA 94303-0139, USA. Vol. 61, vii + 532 pp. Price: US$ 86.

This volume is a collection of twenty useful articles at the forefront of research in particle physics and nuclear physics and cosmology, and the interactions between these fields. Interestingly, the present volume has no preface or introduction and leaves the task of capturing the essence of the collection to the reader, or indeed to the reviewer of the book.

The field of elementary particle physics is now in the era of the Large Hadron Collider (LHC), which is putting forth data collected at a 'centre of mass' energy of 7 Teraelectronvolts (one half of its peak design energy) in the collisions of protons on protons in a 26.7 km, two-ring tunnel that runs below the Franco-Swiss border outside Geneva. The results from the experiment regale the minds and the imagination of all those who follow the trajectory of this most fascinating of fields. Lyndon Evans authors an article entitled 'The Large Hadron Collider', which is described in the abstract as '... the most complex instrument ever built for particle physics research'. In the article an introduction is provided on the fantastic challenges that have been faced in the construction of this gargantuan machine, a great triumph of modern technology science. Furthermore, a great