by Jean-Michel Claverie and Cedric Notredame. Closer home, we had books such as *Bioinformatics: Databases and Algorithms* by N. Gautham. At the other end of the spectrum, one had a plethora of books, some of which were gibberish in their approach. Nonsense texts, such as *Abol Tabol* usually exist somewhere between perfect sense, on the one hand, and absolute gibberish on the other. They manage this by performing a balance between elements that seem to make sense and those that do not. Of course, Sukumar Ray did not attempt to call it bioinformatics, and made no pretense of his intentions – to tickle the senses.

For a book published in 2008, Ghosh and Mallick could have done with less hype. It could have done better building on good texts that are available and delving into topical ideas of open access, open sources and also getting a bearing on the burgeoning integration of computational and experimental biology, systems biology, etc. Also, considering that the bioinformatics community in India has grown to have many researchers and publications, it would not have been too difficult to include work done in India for the textbook examples and references. Especially in areas such as gene prediction, protein structures, modelling, derived databases, software, etc. At the end (Appendix IV) there is a fairly exhaustive collection of courses and companies in India, though there are some errors in that section as well.

The book is lopsided and uneven in the level and quality of the material presented – sometimes within a section itself. Some parts are dealt with in agonizing detail, while the essentials are skipped. Many a time the information is mixed wrong – for example mentioning that 'the Protein Data Bank was established in 1971 by the Research Collaboratory for Structural Bioinformatics, Brookhaven National Laboratories, USA'. The correct information is that the Protein Data Bank (PDB) was founded in 1971 by Edgar Meyer and Walter Hamilton of Brookhaven National Laboratory and the management of the PDB was handed over in 1999 to the members of Research Collaboratory for Structural Bioinformatics. The inexactitude of the details persists and pops up at various places throughout the book, at times with damage to the concepts involved.

There is also the standard confusion between the database and the servers or those who host it. In the chapter on biological sequence databases, we have subsections on NCBI, EMBL nucleotide sequence database, DNA databank of Japan, Protein identification and resource and Swiss-Prot. Under NCBI, the tools BLAST, Mega BLAST, PSI-BLAST, etc. are discussed. Also, this occurs in chapter 4 of Part II, much before sequence alignment concepts in chapter 6 of Part III. The confusion in the presentation and concepts is peppered throughout the book. In some places, the material seems to have been taken from some help option of a software. For example, under the section 'Different standard scoring matrices', we have BLOSUM → Return a BLOSUM scoring matrix , Dayhoff → Return a Dayhoff scoring matrix, etc.

The book would have made for more comfortable reading with better handling of the legends to the black and white figures, which occur earlier and the corresponding colour plates which occur later. This is so, especially, in the chapter on molecular viewers.

Living up to the initial claim about the book catering also to postgraduate students of bioinformatics and to students pursuing DOEACC courses on bioinformatics, there is after each chapter a set of review questions and a list of suggested reading references – though the quality of the questions and references could have been more even.

All in all a book of 536 pages, six parts, 14 chapters along with four appendices and a post-appendix 'Test your understanding' section gives enough material for one to spend time sifting through as one grows the desired bioinformatics antlers.

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The *Annual Reviews* have always sought to present recent developments in various scientific disciplines in a concise but comprehensive way that is of interest to practitioners and researchers of the discipline. The 29th edition of *Annual Review of Public Health* comes packed with several topical issues but with a special focus on climate change.

The threats posed by climate change for human health call for a coordinated and sustained response from a host of stakeholders. While mitigation efforts to reduce or recapture carbon emissions is still top priority, the dismal speed of progress in this front has made it necessary to plan anticipatory and reactive adaptation measures to decrease suffering in the globally warm future. Smith and Haigler's economic analysis using scoping methods, on interventions to replace biomass with cleaner fuels for indoor use is an example of how even low-income countries can benefit from climate change mitigation efforts. It would have been interesting and useful if an accompanying article reviewed the practical implementation of biogas fuels and evaluated the successes, failures, limitations and challenges.

Existing health impact assessments of climate change are incomplete in that they consider only few health effects or do not include non-climate determinants of health. Uncertainty in making valid predictions over long periods, unavailability of disease burden estimates for many health consequences and difficulties in estimating attributable burdens prohibit comprehensive assessments. Patz *et al.* argue for incorporating comparative risk assessment framework in health impact assessments of global climate change to provide evidence for policy makers. Kovats and Hajat review determinants of morbidity and mortality due to heat waves, which are predicted to become more frequent and severe in the future. Age, economic status, co-morbidity, and housing and environmental conditions are determinants of mortality. The heat wave warning systems set up in European nations are an example of the role of intersectoral coordination in preparedness efforts. Jackson and Shields outline preparedness activities that public health agencies at different levels should take up to ensure efficient services at the time of reckoning.

Obesity is fast becoming the most important public health problem in the developed nations and a set of articles have explored possible causes and solutions. Bleich *et al.* use two methods of energy accounting across various OECD nations

to prove that increased calorie intake is far more to blame than physical inactivity for making people obese. They also show that such increased calorie intake is associated with technological advancement and societal changes. The authors have to resort to surrogate measures, modelling and simulations due to non-availability and non-comparability of data – these make the analysis a bit complex and also not entirely convincing. Nevertheless, a coherent and reasonable argument is made to governments for aligning food, agricultural and industrial policies with public health goals. Mary Story *et al.* comment on US agricultural policies that have created a market incentive for consumers to choose energy-dense foods due to higher prices for fruits and vegetables. They present empirical evidence for interventions at various levels – homes, schools, workplaces, restaurants and retail – for creating healthy food and eating environments using an ecological framework. The message from both these articles is clear – if we are serious about controlling obesity, it is high time we attacked the food supply side of the problem. However, measures advocated by Bleich *et al.* like tighter market-entry restrictions, increased government control of prices and decreased urbanization seem to be in conflict with the basic free-market tenets guiding modern economies. In addition, the content of this article may not be readily translated to developing countries which are in nutritional transition.

The National Comorbidity Survey Replication (NCS-R, 2001) presents an alarming picture of the psychiatric morbidity in the US; almost 47% adults qualified for at least one DSM-IV diagnosis during their lifetime and more than 25% in the preceding year. This is probably an underestimate, given methodological limitations. Though mostly mild and self-limiting, a point of concern is that majority of individuals had their first onset during childhood and adolescence. The survey also hints that prevalence may be increasing in recent birth cohorts, although this again may be a methodological artifact. With primary mental healthcare almost non-existent and the societal changes witnessed in recent years, India has a burden of psychiatric morbidity that far exceeds the coping capacity of our health system. This article is a timely reminder to public-health practitioners in India of the need to evolve innovative programmes to deal with this neglected area of health concern.

Two articles that deal with interventions to curb smoking, besides providing valuable lessons for the developing nations, serve to illustrate the fall from grace of smoking to its current status of a medical problem. Curry *et al.* discuss the evidence on health and cost benefits for treatment of tobacco use and dependence. Their major focus is on how health systems can integrate tobacco dependence treatment into their mission. Evidence for a whole set of interventions such as user identification methods, provider education and financing mechanisms like extending insurance coverage and provider reimbursements/incentives is on the whole positive, but large gaps remain in actual practice.

The penalty for public smoking in India is prescribed by the Cigarettes and other Tobacco Products Act, 2003 and several state laws, but as with most others, enforcement is lax. Leave alone legislative powers, our local bodies seem to lack requisite resources and manpower to even realize their executive functions. In this regard, Eriksen and Cerak's chronicle of the US efforts over the past 30 years to restrict smoking in enclosed public places makes for interesting reading.

Groopman *et al.* describe the public health burden due to aflatoxins and cite examples of chemoprotective agents that have been tested in primary and secondary prevention trials. All these trials have relied on surrogate end-points, but appear to be promising strategies that can be adopted in the developing world, where the problem is pervasive. At another level, the review provides valuable insights into a classical paradigm in molecular epidemiology; the identification and validation of biomarkers to assess exposure to environmental contaminants.

Integrated poultry management in India is a full-fledged commercial agro industrial business. There is dense confinement of chicken with no removal of excreta and use of formulated feeds in these poultry farms. The article by Silbergard *et al.* links such industrial food animal production to the emergence and spread of antimicrobial resistance. The authors estimate that 60–80% of antimicrobials produced globally go into non-therapeutic agricultural uses like animal feed formulation. The association between formulated feeds and antimicrobial resistance has been repeatedly uncovered through various methods – ecological analyses, cross-sectional studies of animal food products or employees and environmental sampling. Since resistance can spread across species, the implications for human health cannot be ignored. However, both the public health community and policy makers seem oblivious of these facts, while newer antibiotics are finding their way into agriculture even before they have been licensed for human use.

Eliminating health disparities is a stated aim of public health. While average health levels continue to improve, disparities have continued to widen. Adler and Rehkopf's review clarifies several issues that have plagued this field of health research, including definitions of disparity, choice of optimal comparison groups and causal pathways through which predictors of disparity operate.

The dynamics of behaviour change is explored in two articles, both of which find that public health communication is plagued by an overly simplistic approach, focusing chiefly on individual cognitions and attitudes, neglecting the social context. Abroms and Maibach examine health communication using mass media from an ecological perspective, and conclude that most media campaigns have targeted individuals, resulting only in modest changes. 'Big messy programmes' that influence social networks, the community at large and policy makers seem to be most effective, but such examples have remained few. Pasick and Burke examine the theoretical basis of breast cancer screening promotion interventions and find most interventions to be based on a simplified health belief model. Ecological models can lead to creation of more successful interventions.

This edition also includes chapters on ecological studies, cost-effectiveness analysis and participatory research in public health, besides an insightful analysis of the Women's Health Initiative. The topics dealt with are diverse and are explored in depth. Thus this edition of the *Annual Review of Public Health* continues to be engaging to anyone interested in public health.

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