

chemically, rather than by generating mutant alleles using genetic methods. Synthetic approaches to generating novel biomolecules are also explained.

At present, it seems as if no issue of any major publication in the biological sciences can avoid the mention of stem cells. This volume has rightly devoted only two chapters to this area, describing the derivation and intricacies of only the two well-studied and established stem cell types, namely embryonic stem cells and haematopoietic stem cells. Weissman *et al.* present an authoritative review on the haematopoietic stem cells and have lucidly explained the confusing biology of various derivatives and their implications for therapy ('Stem and progenitor cells: Origins, phenotypes, lineage, commitments and transdifferentiation'). In the chapter on 'Embryo-derived stem cells: Of mice and men', Austin Smith gives a no-frills account of embryonic stem cell biology, the current scenario, and highlights the fact that most stem cell-based therapies are only potential to date. Thus the need for basic stem cell research is the order of the day, as we have only limited control over the outcome of stem cell differentiation.

This volume is a good reference for professionals, as it deals with a wide range of topics that are of current and classical interest. Additionally, students seeking an introduction to simple principles that can be applied to various analyses of cell function and developmental systems would also find this volume useful.

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The Health of Nations: Infectious Disease, Environmental Change and their Effects on National Security and Development. Andrew T. Price-Smith. The MIT Press, Cambridge, Massachusetts. 2002. 220 pp.

During the later half of the twentieth century revolutionary developments in vaccinology, discovery of a series of

antibiotics and improvement in public health measures in the developed countries resulted in an euphoria that the war against infectious diseases was nearly won. Thus in 1969, the US Surgeon General William H. Stewart is reported to have remarked that 'it was time to close the book on infectious diseases'. It was believed that the means of controlling most of these diseases was either available or discoverable without undue difficulty. This feeling was strengthened by rapid advances in molecular biology and biotechnology. The sudden emergence of HIV/AIDS epidemic in the early 1980s provided the rude reminder that microorganisms, which have antedated human evolution by several millennia, are biologically quite powerful to be dismissed so easily. Thus, at the dawn of the new millennium, infectious diseases remain the most common cause of death in the world. We are witnessing an emergence of a variety of new infections – more than 30 new and highly virulent infections having been identified in the last 20 years. These include Hanta virus, Ebola-type haemorrhagic fever, hepatitis C, *Campylobacter*, Lyme's disease, etc. Simultaneously, there has been a re-emergence of well-known diseases like malaria, tuberculosis, cholera and leishmaniasis, not only in the developing countries, but in several developed ones also. Notwithstanding all disease surveillance and health-care services, a defect in a large municipal water supply system resulted in infecting more than 400,000 people in Milwaukee with *Cryptosporidium parvum* not very long ago. Notified cases of food poisoning were 100,000 in the UK in 1997. The recent episode of 'mad cow disease', though affecting only a small number of persons, caused huge economic losses and slaughter of millions of cattle.

It has been generally believed that poverty and underdevelopment predispose to infections, and large-scale infections like the pandemics of plague or influenza in the later part of the 19th and early 20th century or the current HIV/AIDS epidemic can have detrimental effect on state economy. However, the book under review has attempted to provide an empirical evidence to support these presumptions. At the same time it has brought into focus a new dimension rarely studied by biomedical scientists, i.e. the inter-relationship between the emerging and re-emerging infectious

diseases (ERIDs); State capacity which refers to the capability of the government to maximize its prosperity and stability, to exert *defacto* and *dejure* control over its territory.

The author has attempted to understand the causal role that disease plays in determining state capacity and the causal relation between the two variables. For this purpose the author has collected data from 20 countries extending over a period between 1950 and 1991 on indicators for ERIDs on one hand, and state capacity on the other. These include Botswana, Brazil, Colombia, Ethiopia, Haiti, Iceland, India, Italy, Japan, Kenya, Malawi, the Netherlands, Norway, Peru, Rwanda, Saudi Arabia, South Africa, Tanzania, Thailand and Uganda. It must be pointed out that instead of precise data on incidence and prevalence of various infectious diseases, the author has chosen some selected indirect indicators like infant mortality, life expectancy or both. These have been correlated to gross national product, government expenditure, military spending, secondary school enrolment and net long-term capital inflow as indicators of state capacity. Besides studying these correlations at the national level, similar analysis is carried out at regional and global levels. On the basis of this analysis, the author confirms that the increasing prevalence of infectious diseases will increase human mortality and morbidity, resulting in gradual erosion of state capacity and in increasing poverty. Because of this relationship, pathogen-induced economic decline will increase the demands of population on the state for the provision of basic services, even as the ability of the state to provide those goods and to govern effectively declines similarly. It was observed that the balance of the evidence suggests that increasing human-induced degradation of the planet's ecological system may accelerate the emergence of pathogens, promote recrudescence, alter the spatial distribution of pathogens, and make pathogens more virulent. The study establishes linkages between infectious disease and state capacity in terms of fiscal resources, resilience, reach, responsiveness, autonomy and legitimacy. It indicates its influence on perpetuation and even exacerbation of poverty and in certain cases, political instability. ERIDs were found to have a negative effect on such measures of state capacity as fiscal resource, resilience, reach and respon-

siveness, autonomy and legitimacy. The author provides evidence to support the claim that infectious diseases constitute a verifiable threat to national security and state power. Infectious disease prevalence was found to have a negative association with the ability of the state to maintain its armed forces, and thereby ensure the security of the state from external predation and internal disruption. The study provides novel and intriguing evidence to suggest that population health seems to drive state capacity in a reciprocal spiral over a broad span of time. It also highlights the fact that disease represents a greater threat to developing countries and to regions in transition than to developed states with relatively high initial state capacity. Causal relationship was observed among various factors of worldwide environmental change (climate change, extreme weather, pattern

of land use, deforestation, etc.) on prevalence and lethality of microorganisms and on distribution and infectivity of their vectors (e.g. mosquitoes and rats).

The author argues that the prevailing paradigms of development have generally overlooked a significant biological parameter that lies at the core of development. He proposes that the mastery of high morbidity and mortality rates in a population has been a central driver of state prosperity and economic strength throughout recorded history. He makes a strong case that 'there is a biological foundation for development, and that this bio-economic axiom holds both across time and globally across diverse human societies'. Whether one agrees with the axiom or not, based on the indirect evidence provided to support such a dogmatic statement, one thing is clear that it provides a reasonable argument for the

governments to consider health care as an investment in development and not simply a social service to be sacrificed at the first signs of budgetary constraints.

The book provides a new paradigm for health economics. It should thus be of interest to health administrators and policy makers. It provides empirical data to community health workers in their struggle for better support and recognition. No doubt, it may not be of much interest to busy clinicians who already find it hard to keep up with the ever-increasing literature of immediate concern to them.

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MEETINGS/SYMPOSIA/SEMINARS

World Ayurveda Congress 2002

Date: 1-4 November 2002

Place: Kochi, India

Research and review papers are invited for presentation in the Congress. Subject area ranges from fundamental principles to frontier areas of ayurvedic research. Papers can also be in related areas like Siddha, Unani, Astrology, Yoga, Naturopathy, etc.

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Chemistry Olympiad Examination

The National Standard Examinations in Chemistry and Biology (NSEC-2002 and NSEB-2002) leading to participation in the National and International Olympiads, will be held on 17 November 2002 at over 300 centres selected on an all-India basis. These examinations are being conducted by the Indian Association of Chemistry Teachers in collaboration with Homi Bhabha Centre for Science Education (TIFR), Mumbai.

Students of Std XI Science and Std XII Science are eligible to appear for NSEC-2002 and NSEB-2002 which are the only examinations recognized by the Government of India as the first stage of the selection process for participation in the

International Olympiads. The registration fee is Rs 50 per subject.

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National Convention on Corrosion – East Asia Pacific Regional Conference (CORCON 2002)

Date: 28-30 November 2002

Place: Goa, India

Topics cover all areas of corrosion and its control, including: Corrosion in oil and gas industry; Corrosion of infrastructure; Coatings and linings; High temperature coatings; Advanced materials for corrosion protection; Corrosion in naval and aerospace applications; Corrosion in various industries; Miscellaneous areas.

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