

guns used by Babur, of the mortars and light cannons fabricated by Akbar and their material of construction, before taking a close look at the manufacturing methodology of these engines, pattern and mould preparation, ornamentation, machining and gun foundries. Then, to explain the development of forge-welding cannon technology, which is truly Indian, he gives a catalogue of the marvellous specimens of Indian blacksmithing skills on display in various places of India, from Murshidabad to Thanjavur, and dwells on the general design characteristics of these cannons.

The ensuing chapters concern specific aspects of Indian gunpowder weapons. The author concentrates on the use of artillery by the mighty Mughals, from Akbar to Aurangzeb, and also by the regional powers: Rajputs, Marathas, Sikhs and Mysore rulers. He then considers the unique Indian innovations in cannon technology. Some are well-known, such as the swivel cannons mounted on camels and elephants, but other innovative features, such as the multibarrel or multipiece screwable cannons and the extraordinary 'yarghu', which could clean 16 gun barrels at the same time, are described here in full detail for the first time; to this should be added the strengthening of wrought iron cannon barrels by casting them over with bronze, a technique resulting in what are called composite cannons.

The last chapters are devoted to the use of cannons in fortifications, on stone platforms, with the swivel fixed in a circular socket, and on cannon accessories such as gun carriages, the saltpetre industry, cannonballs and rockets.

This large-format book, which is the outcome of sustained research extending over several years, is a scholarly edition with full notes and references at the end of each chapter and a detailed index. Printed on art paper, it is sumptuously illustrated with hundreds of photographs and drawings of cannons, mostly in colour, and with fascinating reproductions of Mughal miniatures taken from the famous 'Akbar, Babur and Padshah Namas'.

On all the pages are found photographs of most of the significant cannons located at military or archaeological museums and in fortifications in India. Many pictures are accompanied by engineer's drawings showing the characteristic features of the cannon; often, for the same

engine there are several pictures of its different portions. Particularly interesting are the images of the Malik-i-Maidan, located near the Sherza Burj at Bijapur, one of the heaviest cannons in India (55 tonnes), bearing inscriptions on its surface and the design of a lion devouring an elephant on its front. Readers will enjoy admiring the pictures depicting the rear portion of a bronze cannon shaped like a ram or a crocodile, the handling clamp designed like a dolphin, a lion, an elephant, a crocodile, a fish, or the tiger inscribed on the muzzle head, trunnions and cascable of Tipu's cannons.

The miniature paintings reproduced in the book are not only works of art but also tools of investigation, since all the details of the weapons are clearly to be seen in them. They show the different types of cannon used in siege wars against forts and on the battlefield during the Mughal period: light cannons resting on forks, heavy mortars. The details of the engines are so clear that, in one of them, two light cannons are seen, one with a straight barrel and the other with a bulge in the breech.

As has been rightly remarked in the preface by R. D. Smith, 'This is the first book to tackle the subject of cannon for the whole of the Indian subcontinent [...] it will remain a classic for many years to come'.

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**Human Development Report 2007/2008: Fighting Climate Change: Human Solidarity in a Divided World.** UNDP, Palgrave Macmillan, New York. 2007. Price: £16.99.

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While the habitual assimilator of newspaper/magazine exclusives on climate change would consider the Human Development Report 2007/2008 (HDR 2007/2008) to be timely in its appearance and consequence, any eager observer would look askance at the title of this year's HDR: why is the fight against climate, when it should really be against humans? Moreover, by fortifying its stance in the sub-title through the use of the words 'divided world', the report has pre-empted

the inconvenience of arriving at a uniform solution for 'dangerous' climate change.

Adopting the ceremonial Confucius-based methodology of digging the past to 'divine the future', HDR 2007/2008 underlines climate change as a 'crisis that links today and tomorrow'. One cannot be obliterated from the deluge of foreboding and haunting prophecies that are conveyed by any work on climate change, especially in terms of water levels rising gulp down land masses or the recurrently advertized implications of rise in temperature. This report too follows suit, but with a difference. There is enough space for deliberation on how such potential outcomes could be averted. Further, the human development dimension and its relation to climate change are also examined.

Two features retain their redolence during discussions apropos climate change. One is the certainty of an impending large-scale disaster and its suffusing character, highly evocative of an inescapably fated future. For instance, the HDR 2007/2008 statement that, 'The supreme reality of our time is the spectre of dangerous climate change' (p. 21), places the debate on climate change on an unfriendly footing. The other is the unequivocal acceptance of climate affecting the poor nations more than the rich nations. Such a demarcation, geographically or income-wise, makes the understanding of the climate change implications one-sided and parochial.

The preponderance over the poor nations getting affected more than the rich nations is bolstered by the very economic and social structure of income-deficient nations. In such nations, agriculture dominates and urban poverty is ubiquitous. Risks from climate change shape agricultural productivity and hence livelihoods (as in cases of excess/deficient rainfall) and the urban slum-dwellers bear the brunt of losing their possessions and life due to heavy floods. The imminent and immediate consequences of 'climate shocks' on human welfare can be understood from what the HDR 2007/2008 specifies: 'threats to health and nutrition, the loss of savings and assets, damage to property, or the destruction of crops' (p. 74). Ultimately, uncalled for changes in climate will wear away 'human freedoms and limit choice', and eventually hold back 'the efforts of the world's poor to build a better life for themselves and their children'

(p. 1). The caution to be posted in understanding this is that it would hardly suffice to point at the erosion of welfare of the poor people as a result of climate change 'shock' per se, as though government policies have proved to be all that magnanimous otherwise. The message that the report conveys implicitly is the existing lack of governmental support to the poor, which only makes their exposure to climate change an overwhelming task.

Majority of the labelled 'poor' nations find their existence in the Asian and the African continents, and climate change can impinge on the welfare of the citizens of these nations. A case in point is the statistics provided by the report: 'Flooding affected the lives of some 68 million people in East Asia and 40 million in South Asia. In sub-Saharan Africa, 10 million were affected by drought and 2 million by flooding' (p. 76). In a report published by ScienceDaily.com (1 February 2008), the study by researchers at Stanford University's Program on Food Security and the Environment (FSE) revealed '... two hunger hotspots where climate impacts on agriculture look particularly dire: Southern Africa and South Asia'. South Asian agriculture becoming a casualty to climate change is well documented, and so is the apprehensive, yet veridical fact that the snow caps of the Himalaya are melting. In such a scenario, one cannot help shudder at the pseudo-judiciousness of the linking of rivers in India! At a fundamental level, there is also the trade-off between energy security and 'climate security goals' in developing countries. Not all nations can afford to adopt climate-friendly technology, when even basic issues like complete electrification have not been achieved, as exemplified by the drive of China and India drive to exploit the coal reserves for producing energy. In cases like these, climate change goals seem far-fetched.

In HDR 2007/2008, there are two significant issues that engage a reader's interest, not in the general sense of arousing curiosity, but as a spark that would make one think in a panoptic manner. One of them is the question of media coverage of climate-change events. While media mileage can help in securing aid funds, they also perform the duty of creating awareness about mounting climate-related problems. The coverage for hurricane Katrina was far wider than Sidr in Bangladesh, thus acting as a hurdle against ac-

cepting climate change to be a world-wide phenomenon. Another significant issue raised is the one on women and girls becoming sufferers due to climate-change shocks in developing nations. Female populations are victims, as in loss of lives (restricted mobility), and also by not being able to recover from the shock, especially due to 'restrictions on the legal rights and entitlements of women to land and property'. This can cause penury and human deprivation for them and for their family as well.

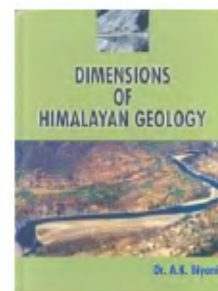
While mitigation (reducing carbon-dioxide emissions) is considered a solution to climate-change problems, adaptation is another that can save one from changes that are already happening or will happen within a short time-frame. Both the proposed solutions expose the hegemonic attitude of the developed nations. A significant inclusion in the report is a special contribution by Archbishop Desmond Tutu (p. 166). Tutu vehemently attacks the double standards of the West in encouraging adaptation, which, according to him, is a 'euphemism for social injustice on a global scale'. Adaptation in the rich nations is all about securing one's dwelling place from the flood waters, or installing cooling systems to ward-off heat. In contrast, adaptation is a painful process for people of the poor nations. For instance, reduced rainfall can force them to cut on 'already inadequate household nutrition'. In a case like this, pinning one's hopes on adaptation strategies will only bolster the existing 'climate change apartheid', rues a concerned Tutu.

HDR 2007/2008, by endorsing climate-change shocks to be an important determinant of human development, has steered away the subject matter of climate change from dismal and monotonously academic/scientific authorship, to mould it into issues of social justice, human rights and human development. This report will help shift the focus from checking the accuracy of the prognostications, to implementing action plans that ameliorate the conditions of the victims. However, the report by UNDP makes every effort to cover up for the inaction and indifference of the developed world by focusing excessively on the portentous effects of climate change on the developing nations of Asia and Africa. At a more nuanced level, the report calls for a multilateral framework beyond 2012, explicitly presaging the death of the Kyoto Protocol, which is a millstone around the neck of

the hegemonic United States of America. There is also the neo-liberal idea of establishing a carbon market that can work to contain carbon release into the atmosphere, notwithstanding the significant role for regulators and policy makers of the government. On balance, working today to save tomorrow will safeguard the future generations which will 'see our response to climate change as a measure of our ethical values', echoing Samuel Johnson's resonant avouchment that 'The future is purchased by the present'.

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**Dimensions of Himalayan Geology.** A. K. Biyani. Satish Serial Publishing House, 403, Express Tower, Commercial Complex, Azadpur, Delhi 110 033. 2007. 330 pp. Price: Rs 1895.

The splendour and glory of the magnificent Himalayan mountains have been immortalized by the great ancient Indian poet Kalidasa: 'In the northern part there is a mighty mountain, Himalaya by name, the abode of perpetual snow – fittingly called the Lord of Mountains, animated by Divinity as its soul and internal spirit or, in other words, Divinity incarnate. Spanning the wide land from the scale of earth, sea, he stands as it were, like the eastern to eastern'<sup>1</sup>.

The Himalayan mountain system is part of the world's largest mountain range. The Himalayas embodying the concentration of lithospheric mass borders the Tibetan Plateau to the south. The Himalayas terminates both in the east and west with spectacular syntaxial belts, with arcuate disposition of the mountain ranges extending over 2500 km. The Everest