The Digital Divide: Facing a Crisis or Creating a Myth? Benjamin M. Compaine (ed.). MIT Press Sourcebooks, MIT Press, Cambridge, Massachusetts 02142, USA. 2001. 357 pp. Price not given.

For a very long time the nations of the world are divided on many grounds such as geographical, political, economic, ethnic, racial, culture and education. In addition to these divisions, in the recent past there have been divisions on the basis of 'Haves' and 'Have nots'. This division is with respect to technology, information, communication and knowledge. With the rapid developments in technology, especially telecommunication and information, the new divide that has been much talked and written about during the last five years or so, is the 'digital divide', one on the basis of those having access to digitized information and those not having access. Digital divide is claimed to be widening the gap between 'information-rich' and 'information-poor' countries. The gap is becoming more and more of concern to the developing nations, as we are now in a knowledge society and nations are at the cutting edge of gaining access to information produced and communicated through different channels.

The book under review presents a picture of the prevailing situation with regard to digital divide in the United States. Majority of the 20 articles grouped under five chapters are reprints of earlier works published in magazines and newspapers and reports from the National Telecommunications and Information Administration. The findings and the implications of these are discussed in the remaining articles. These deal with the history, measurement and policy implications of the 'digital divide' between those having access to the recent technologies and those who do not.

The first chapter entitled 'Set up: Documentors of the digital divide' includes three articles, two of which are the reports prepared by the National Telecommunication and Information Administration. The first, a report published in 1995 entitled 'Falling through the net: A survey of the "have nots" in rural and urban America' gives statistics of the percentage of US households with a computer and a modem, among different income groups (in rural, urban and central-city areas), different races/origins, different age groups and educational attainments. The findings reveal, and not surprisingly that the lowest telephone penetration was among the poor in central cities and rural areas, and also among the young (25 years or under) and rural senior citizens (55 years or older). The second report published in 1999 (based on data collected till 1998) entitled 'Falling through the net: Defining digital divide' updates the report published in 1995; it is found that, overall, US households are significantly well connected by telephone, computer and internet than the findings of the 1995 survey. One important conclusion of significant merit and consideration by countries falling into the group of 'have nots' is, to quote from the book, 'The 1998 data also underscore the importance of Administration's efforts to ensure that all schools and libraries have affordable access to the Internet. Under the E-rate programme (a Federally-managed program), telecommunication carriers are providing eligible schools and libraries with a discounted rate for telecommunication services, internal connections among classrooms, and Internet access. As a result, the E-rate program is helping to connect more than 80,000 schools and libraries and is enabling children and adults to both learn new technologies and have new points of access'. The third article traces the evolution of digital divide and examines the relationship of race to Internet access and usage over time.

Chapter two entitled 'The context: Background and texture' comprising four articles deals with information, gaps access to on-line services, telephone penetration in a particular area (Camden) and the concept of Universal Service which refers to making available to the extent possible, to all people of the US, an efficient nationwide and worldwide telephone and radio communication at reasonable cost. The existence or otherwise of information gap is discussed from many points of view. It is mentioned that the information gap or knowledge gap issue is perceived by the academic community. The usage of telephone, electricity, computer in schools, radio and television has been shown to have gone up and the cost of the same has come down between 1950s and 1990s. The role of public policy has been brought out with examples. It is indicated that the type of government action that might be taken, if any, is not consistent or obvious across technologies. Regarding setting of priorities, it is suggested that there are other aspects of society which are equally or more important than setting right the perceived digital divide. To quote from the book, 'All kinds of gaps already exist but are rarely discussed in these terms. Most of these gaps are related to economics. The issue is not one of information or knowledge gaps, anymore than it is one of a protein gap or transportation gap. We don't read op-ed articles proposing to close the steak gap or the automobile gap. Societies need to examine what is really important and then attempt to figure out how to provide it'. This is perhaps a major issue before developing countries specially where disparities are very wide concerning the availability and usage of basic requirements, and using the latest technology.

The United States Telecommunication Act of 1996 which dealt among other things with opening markets to competition and including for provision of local phone service to consumers has been reviewed with reference to digital divide in the third chapter. It is pointed out that the Act and its implementation are contributing to the digital divide. The working of the federally-managed programme (called E-rate) that provides significant discount on telecommunications technologies to schools and libraries in USA and the impact of E-rate funding on four school districts is described in detail in this chapter. It mentions that the funding has resulted in acceleration of network infrastructure deployment and has enabled school districts to leverage existing financial resources. The starting and rapid growth and unique qualities of electronic mail (e-mail) have been traced in yet another article. Its universal access and societal implications are discussed with a conclusion that the democracy in the nations of the world is positively correlated with interconnectivity.

Chapter four on 'Reality check' deals with disappearance of the digital divide to a great extent and data from three empirical studies have been presented. These studies indicate that there are some demographic differences in Internet access, a few differences in Internet use, with the digital divide narrowing. It is also mentioned that the persistence of the belief that such gaps exist is due to misleading by the stereotypes, misinformed about survey techniques, and well-meaning but misdirected interest groups.

Much of the blame is put on the media as not always reflecting the latest trends.

Chapter 5 wraps up the issue of digital divide with articles on gaps by which democracy is measured, and how current information is drowned by the media with old and stereotyped studies. In his article, Compaine, the editor of the book, discusses the costs to the consumers for access to information and presents data for monthly and capital costs of traditional media during 1999–2000 (books, newspapers, magazines, cable TV) and capital and operational costs for Internet access during 1999. Based on the National Telecommunications and Administrations Report released in 2000, it is concluded that from the data presented, the overall level of US digital inclusion is rapidly increasing and groups that have traditionally been digital 'have nots' are now making dramatic gains.

Though the book deals mainly with the status of digital environment and its related issues in USA and is more relevant to that country, a lot of statistical information of interest is provided. Apart from being helpful to planners in other countries, it would certainly be useful as a model to those carrying out similar studies (individuals, non governmental and government agencies).

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Symmetry in Mechanics – A Gentle, Modern Introduction. Stephanie Frank Singer. Birkhauser Verlag, P.O. Box 133, CH-4010 Basel, Switzerland. 2001. 216 pp. Price: S Fr 58/DM 76.

Classical mechanics is the oldest discipline within physics, tracing its origins to no less than Galileo Galilei and Isaac Newton. As is well known, in the evolution of Newton's ideas the three laws of Johannes Kepler on planetary motions played a crucial role. Over the centuries the mathematical formalism of classical mechanics has witnessed many developments and elaborations, and this has continued until even very recent times. While this subject may not seem as philosophically profound as quantum mechanics, the richness of its formal structures is quite amazing and truly beautiful. Many of these developments have come over the past three or four decades, well after the establishment of quantum mechanics. Concepts such as symplectic manifolds, Hamiltonian flows and vector fields, symmetries as Lie group actions and the associated group orbits, the momentum map and the method of symplectic reduction have gradually entered the physics scene and physicists' vocabulary, even though originally pioneered by the more mathematically minded.

The aim of this short, clearly written and lucid book is to lead the average (US) undergraduate student of physics as well as of mathematics through these developments using the simplest of possible examples and in ever so gentle a fashion. The backdrop is the derivation of Kepler's Laws from Newton's equations of motion supplemented with his Law of Universal Gravitation, for the case of the two-body problem. This so-called Kepler problem of classical mechanics is solved at the start of the book in the familiar physicist's manner by passage to the centre-of-mass frame, and then the reduction to a purely radial problem. Naturally the conservation of total linear and angular momenta is exploited. By the end of the book this same problem is tackled using the machinery of symplectic reduction.

Along the way the author builds up, in short chapters brimming with (partially solved) exercises, a series of increasingly sophisticated concepts – manifolds; vector fields, forms and their wedge product; the pull-back idea; the physicist's phase spaces reinterpreted as symplectic manifolds, with examples; Hamiltonian vector fields and the power of the Hamiltonian in supplying a useful constant of motion as well as leading to the canonical equations of motion; symmetry operations of a given system realized as actions by Lie groups; special features of Lie group actions on symplectic manifolds leading up to the beautiful notion of the momentum map; and some material on (matrix) Lie groups and Lie algebras. At the end, the Kepler problem is taken up again, and solved using the technique of symplectic reduction. The two Lie groups most often used as examples to illustrate various aspects are the abelian three-dimensional translation group, and the nonabelian three-dimensional rotation group; however their combination in a semidirect product to form the Euclidean group is not attempted.

This book seems ideal for self-study. It is written from the viewpoint of a mathematician, but is valuable to a student trained in physics as well. There are frequent and generally amusing comparisons of the styles and temperaments of physicists on the one hand and mathematicians on the other – interest in the special features of the particular as against generality; practically gay abandon as against caution; use of infinitesimals versus proper derivatives, and so forth. The Lagrangian approach is not brought in at all, and the physicist's term 'canonical transformation' is also avoided. It may have been useful to say that the Cartesian product of two linear vector spaces is also known as their direct sum. There is frequent reference to the more or less standard undergraduate curricula in physics and in mathematics (in US colleges); and the examples chosen to illustrate the text are quite elementary. Lastly, it would be good to remember that Sophus Lie (like Abel) was a Norwegian, not a French, mathematician.

All in all a nice little book which accomplishes well what it sets out to do.

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A Passage to Himalaya. Harish Kapadia (ed.). Himalayan Club, Oxford University Press, Delhi. 2001. 351 pp. ISBN 0195657748. Price: Rs 500.
Himalayan Journal. Harish Kapadia (ed.). Himalayan Club, Oxford University Press, Delhi. 2001. vol. 57. 292 pp. ISSN 0195659805. Price: Rs 500.

If Forster's *Passage to India* (1924) was a fiction built upon the facts of the early 20th century India, *A Passage to Himalaya* is a selection of factual stories and articles that sound like adventurous fiction. Take, for example, the following

quote from Chris Bonington's article (The South Face of Annapurna 1, 1970): 'I'm sorry Chris', he said. 'I just won't make it. The oxygen, even at full flow doesn't seem to make any difference, I'll just have to go down' (p. 105). And if you ask why go up there in the first place, you may read John Nanson's ballad (p. 170):

'Of those who choose to climb up high is asked the pointless question why?
Answer disdains such querulous confusion and denies the mystic spiritual fusion.
Experienced where man's not interfered, where elements and self are fearfully neared.'

The book, *Passage to Himalaya*, has been published to celebrate the Himalayan Club (www.himalayanclub.com) as it enters the new millennium. The Himalayan Club, now based in Mumbai, was founded in 1928 by a group of British officers, mountaineers and naturalists in order 'to encourage and assist Himalayan travel and exploration, and to extend knowledge of the Himalaya and adjoining mountain ranges through science, art, literature and sport.' Field Marshal William Birdwood was its first president, and M. S. Gill is its current president. Among the Himalayan Club's activities is the annual publication of *Himalayan Journal* (vol. 57 in 2001). Kenneth Mason was its first editor and Harish Kapadia is its present editor. Kapadia has also edited the book *A Passage to Himalaya*, an anthology of some of the best writings in the past issues of *Himalayan Journal*.

The book contains six articles on the foundations of the Himalayan Club, 32 articles on mountain-climbing experiences, expeditions, treks and adventures, five articles on social sciences, four stories of Himalayan inspiration, 13 pieces on persons and obituaries, seven book reviews, and three letters. Lacking in this volume are articles on the geologic history and environmental problems of the Himalaya. (D. N. Wadia's article in *Himalayan Journal*, vol. 26, and one of A. D. Moddie's articles on the Himalayan environment would have taken care of these shortcomings.)

'The Word Himalaya' by Geoffrey Corbett, first published in 1929, is still quite informative, and Soli Mehta's warning (in 1972) that 'Himalaya, Not Himalayas' should be used in our writings is still very relevant today. Many of the climbing adventures come from the horse's mouth: here you meet W. H. Tilman, Wilfrid Noyce, Kenneth Mason, Charles Houston, A. D. Moddi, Amir Ali, Bill Aitken, Harish Kapadia and others sharing stories of joy and peace, struggle and heights in the Himalayan landscape. Mountain lovers with an interest in writing will enjoy reading Margaret Body's 'Recollections of an Editor' and her working with mountaineering giants like Eric Shipton, John Hunt, Captain Noel, Edmund Hillary and Chris Bonington.

Adventures and activities in the Himalaya (whether for the sake of sports or science) reflect humanity's individual diligence and collective genius. Kenneth Mason describes this clearly: 'Every new achievement has a long history of preparation behind it. A great summit may be seen from the plains and fixed; a surveyor locates the approaches to its base; travellers remark on its beauty and pass it by; perhaps a mountaineer, unprepared to come to grips, may play about its skirts. Between this stage and the day when the summit is reached many years may elapse' (p. 10).

And adventures and achievements need to be shared by telling them. Harish Kapadia puts it this way: 'Each mountain has a history and as a mountaineer spends much time in the range there are nostalgic memories. This allows for introspection and the history of the range is recreated by their observations' (p. 16). Kapadia himself has been a true practitioner of this statement; he has several Himalayan books to his credit, including *High Himalaya Unknown Valleys*. What Kapadia says about the mountaineers and their nostalgic writings is also true for Himalayan scientists.

The 56 volumes of the *Himalayan Journal* are a treasure of Himalayan writings, and it is not easy for an individual to possess or read all of them that have been published over a period of a century. *A Passage to Himalaya* gives a flavour of this literary treasure; it is a beautiful collection and fun to read.

The second book, *Himalayan Journal* (vol. 57, under review here), is similar in format to the previous volumes edited by Kapadia. It contains a series of 15 articles on the Himalayan mountains and mountaineering, a section on Expeditions and Notes (27) during the past year, Book Reviews (30), In Memoriam (5), and Correspondence (2). Perhaps introducing the titles and authors of the 15 articles would best describe the scope and direction of *Himalayan Journal* and the international nature of its authorship: 'A lateral approach to Himalaya' (Bill Aitken), 'Vintage mountain recall' (A. D. Moddie), 'Dirtbags on the Dablam' (Aaron Halstead), 'Exploring Nepal's last known mountains' (Sadao Yoshinaga), 'Kang Guru expedition' (Daniela Pulvirenti), 'Nilkanth west ridge' (Martin Moran), 'Shiva's line' (Thomas Huber), 'The rising Ganga and the outer sanctuary' (John Jackson), 'In quest of a legendary route' (P. B. Gangul), 'Rushing up Bhagirathi' (Yuri Koshelenko), 'Arwa spires' (Al Powell), 'A solo mountainbike ride across the Indian Himalaya' (Darren Miller), 'The high altitude gold courses' (Harish Kapadia), 'Kangri Garpo range' (Tamotsu Nakamura), and 'Twenty years of mountaineering in China' (Kinichi Yamamori).

The most moving part in Memoriam in this book is perhaps Harish Kapadia's writing on the death of his own son (Lt. Nawang Kapadia), a young Himalayan mountaineer, a member of the Himalayan Club, and a soldier of the Indian Army, who was killed in Kashmir on 11 November 2000. 'In any philosophy or religion the saddest moment for a father is to carry the body of his son for cremation,' Kapadia writes, 'I had to undergo that experience, and the hammer-blow of fate' (p. 282). Nawang Kapadia's death in the Himalaya is perhaps a symbolic and sad event to remind us all that the Himalaya does not need violence, bloodshed, war, religious fanaticism, or political selfishness, but rather the Himalayan mountains and peoples need love, respect, peace, cooperation, and prosperity. Kapadia's excellent editorial work in the annual volumes of *Himalayan Journal* (each one of which is a 'passage to Himalaya') and the Himalayan Club's efforts in presenting the Himalaya as a haven for purifying the human spirit is an important step in the right direction.

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