are the celebrated Rogers–Ramanujan identities which are described in detail on page 65 of the book under review:

'Dear Burchnall

I sent the theorem 5 (which is the foundation of this paper and is also the basis of Hardy's and Watson's proofs of Ramanujan's theorems giving product expressions for

$$1+\frac{q}{(1)}+\frac{q^4}{(2)!}+\frac{q^9}{(3)!}+\ldots$$

$$1+\frac{q^2}{(1)!}+\frac{q^6}{(2)!}+\frac{q^{12}}{(3)!}+\ldots$$

and other related theorems) to the London Math Socy in 1905. It was returned to me by next post from the Council meeting (never sent to a referee). I gave up membership, kept the paper for 15 years then sent it to Glaisher who put it in the *Messenger of Mathematics*.

In 1920 I wrote to Ramanujan, 3 weeks before his death (I did not know of his illness), pointing out there was some connection with his theorems. He wrote a long letter in reply showing how he came to guess theorems: I am glad that Hardy in his *Ramanujan, Life & Works* (1940) does tardy justice to theorem (5). Last summer during a tedious evacuation into Welsh borderland, I spent some weeks at it & found the transformation into form (1) & (2) & (3). Bailey of Manchester made a flattering note on this transformation.

Yours
F. H. Jackson'

How I would love to have the missing long Ramanujan letter alluded to by Jackson. How wonderful to possess a letter '... showing how he came to guess his theorems'. This tantalizing, missing letter dovetails with other accidents, including a missing page of a Ramanujan letter to Hardy that originally contained the Rogers–Ramanujan identities.

At the end of the day then, we are left with this wonderful book of letters, along with many unanswered questions about the enigmatic genius of Ramanujan. We must emphatically thank the authors for providing us with this rich historical treasure.

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Science and Engineering Indicators 1998. National Science Board, National Science Foundation, Arlington, VA, USA. 1998.

This is the thirteenth in the series of biennial science indicators reports, submitted to the President and the Congress of the United States by the National Science Board. Designed to provide a broad base of quantitative information about science, engineering, and technology for use by policymakers in government, industry and academia, this report provides meticulously collected information and analysis that have a bearing on a variety of critical trends and issues, such as (1) increasing globalization of science, technology, and the economy; (2) greater emphasis on science and engineering education and training; (3) structural and priority changes in the science and engineering enterprise; and (4) increasing impact of science and engineering on our daily lives.

The topics covered include: science and mathematics education from the precollege level, through graduate school, and beyond; worldwide increase in S&E educational capabilities; public attitudes and understanding of science and engineering; migration and R&D employment; funding of R&D; and international trends in industrial R&D and competitiveness in the marketplace. In keeping with the needs of the times, the major theme of the report is international comparisons and global trends.

A significant departure from the earlier reports is the inclusion of a whole chapter on the economic and social significance of information technologies, which addresses both positive and negative aspects of the new technologies. This chapter points out that there is significant educational inequity in access to computers and the Internet – between schools attended primarily by minority or economically disadvantaged students and schools primarily attended by white or nondisadvantaged students. What is more, the poor and minority students cannot compensate for this disparity in their schools in their homes as very few blacks, Hispanics and other poor people have computers at their homes. Indeed, a recent report of the National Telecommunication and Information Administration of the US Department of Commerce points out that between 1994 and 1997 although access to computers, modems and online access has increased countrywide, the disparity between the privileged, largely the whites and non-Hispanic professionals, and the blacks, Hispanics and inner city population has increased considerably. This evidence is often lost on the champions of the digital revolution who harp on the democratizing influence of the information revolution.

Other new features in this year's report include enhanced and new indicators of intersectoral and international collaboration/partnerships, new indicators of Internet and World Wide Web use, coverage of the restructuring of the defence industry and its impact on the nation's S&T enterprise, greater emphasis on indicators of international mobility, new venture capital indicators, and indicators of the impacts of information technologies on education.

According to the report, both science and technology are becoming increasingly global. The American S&T workforce is becoming more global; more and more foreign doctoral recipients, especially those from India and China, plan to remain in the United States. Almost 30% of papers published in core journals of the world involve international collaboration. Industrial firms are increasingly using global research partnerships as a means of strengthening core competencies. Cross-national patenting and foreign direct investment in R&D are also on the rise.

Mathematics teaching at school level continues to be a matter for concern. Students often need remedial math and science preparation when they enter college. Industry invests two out of every three of the nation's R&D dollars and performs three-fourths of the nation's R&D effort. As the growth in federal support of academic R&D is slowing, new funding mechanisms are gaining prominence and cooperative

R&D has become an important tool in the development and leveraging of S&T sources. Actually, links between industry and academia are increasing. The report is improving all the time. The quality of the text and the voluminous data provided in the tables are improving. How I wish a similar document is produced for S&T in India! The entire volume is available in electronic form at http://www.nsf.gov/sbe/srs/stats.htm.

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Basic Demographic Techniques and Applications. K. Srinivasan. SAGE Publications India Private Limited, M 32, Market, Greater Kailash I, New Delhi 110 048.

Demography refers to the study of human populations, their size, structure and development. The data required for demographic studies began to be available only in the eighteenth century and that too in a few countries. The population census is the core of demography and gives a picture of the total population and some of its characteristics at a given point of time. Sweden is credited with having taken a population census in 1749; the United States in 1790 and England and France in 1801. It is only when the census data can be studied together with vital statistics that the factors related to the dynamics of population in time and space can be well understood. England passed the registration of Births, Marriages and Death Registration Act in 1837 and the beginnings of registration of births in any country dates back to that time. Even in the United States, birth registration was poor till 1915 when the Bureau of Census set up the Birth Registration Area and made a successful attempt to improve registration of births.

With the setting up of the Population Commission by the United Nations in 1946 and with the technical and the financial assistance provided by many donor agencies, there has been significant demographic developments even in the developing world. A population census is now taken once in ten years in practically all countries in the world. There has been a considerable increase in the number of demographers in many developing countries because of the training centres set up with the assistance of the United Nations. Unfortunately, the registration system has not worked satisfactorily in most of the countries. Demographic techniques to estimate birth and death rates have been evolved by researchers and at present we have some knowledge of the demographic situation in most parts of the world.

According to the author, K. Srinivasan, the book *Basic Demographic Techniques and Applications* is based on 20 lectures and 10 laboratory exercises that he gave to graduate students in the Executive Programme in Health and Population for developing Countries (EPDC). That the course addressed itself to the topics related to health and population is apparent from the contents of the book despite the title given to it being restrictive making no reference to health management.

Health measurement is in itself an arduous task and even if this subject had been handled in other courses given by EPDC, a certain amount of effort identifying the methodologies emphasized by the health experts would have assisted the lecturer in tailoring his lectures in demographic techniques to meet the essential needs of health management. Some health topics such as AIDS and family planning are no doubt mentioned and the problems that would arise in their control are also stated but their relationships to specific demographic techniques that would be relevant have not been brought out. A lecture course entwining two topics like health management and demographic techniques calls for a closer liaison between the two topics.

Looking into the contents of the book, the reader will observe a straightforward, sequential presentation of indices and formulae that is now the practice in any textbook in demography. That the book does not stress the problems that arise in dealing with the demographic data of developing countries is clear from the frequent suggestion it makes for reference to *The Methods and Materials of Demography* by Henry S. Shryock, Jacob S. Siegal and Associates which for the most part use the statistics of the United States for illustration. A large part of the book is used for the numerical application of the demographic techniques explained in it to the 1991 data of Kerala. Whether so much space should have been devoted to illustrate the methodologies described is a moot point which requires consideration in any attempt to revise the book. It is the reviewer's view that the average reader would have gained more if the author had cited data from different countries or made mention of the changes that had occurred in demographic characteristics in some countries, so that the reader could appreciate the usefulness of demographic analysis.

One of the strengths of the book is the references the author has made to publications not so well known as the *Demographic Year Book* and the *Population and Vital Statistical Reports* published by the United Nations. Passing references to important demographic publications made in the book would assist the intelligent reader to broaden his knowledge to the techniques the book provides. The book can only be considered as an introduction to demographic techniques and can be useful for students undergoing courses in vital statistics or students in economics or sociology who need to have some idea of demographic techniques. It is doubtful if it will be of much use for students who have enrolled for training in demographic institutions.

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Biomass Energy Systems, Proceedings of the International Conference. New Delhi, 1996.

Publishing the proceedings of a conference is now a routine affair. I wish someone went through the economics of this routine and found out the cost–benefit ratio. Among all the renewable resources, time is, in my perception, the