

least renewable. Time spent is gone forever. The job of editors in such publications is unenviable, but I feel there is need for using more modern information technology to make better use of such conferences.

The book gives some information on every aspect of the subject and to that extent it is very useful. But searching for the good stuff is difficult, because there is also a lot of less useful or even mediocre material. This makes the editor's job difficult, he has to include every paper presented at the conference, which have their own economic priorities. The other problem is there are papers on diverse subjects, from purely academic to those that describe the commercial performance of a plant and some only giving a concept or rather a desire.

The introduction to most papers spends a lot of space on the importance of biomass, energy and so on; these are repetitions in almost every paper, and I wish there was a way to eliminate these in the publication. The biomass, supply and demand and policy issues take up the major part of the book, almost one third. I found this the least interesting and could find no new issues.

The depressing fact, not a reflection on the organizers of the conference or this book, is that in the last 20 years, the progress as seen by the papers has been negligible. The section on biomass processing and liquid fuels is an example. From this point of view, the section on municipal solid wastes is refreshing. It shows much more change, relatively.

It is sad to find that the few papers that give actual data from a commercial plant operating in India are based on imported technology. Worse still, 'developing countries would require not only foreign technology but also foreign investment' (K. C. Khandelwal, *MNES*, p. 308). D. V. Kulkarni gives a paper on power generation from municipal solid wastes, through biogasification. The paper is delightfully vague in saying how far the plant he describes has been erected and is performing.

The paper by M. Sen and R. K. Datta of Burn Standard Co. Ltd. is better. It describes pilot scale experience on cylindrical traditional digesters working on low total solids (10%) and then gives the performance on plug flow type horizontal digesters with total solids of 30-

35%. Again the paper does not say explicitly the size of the pilot scale operation but uses terms like 'This approach leads to the use of a biogasifier of 200 cu m volume to handle 50 tons/day of MSW for producing 300 kW of electricity'. Does this mean the earlier results are lab scale and this will be the pilot plant? Annexure to the paper describes 700 kg (per 6-7 hours?) for 5 kW plant. Hopefully this pilot plant is running routinely.

The biogasification of prehydrolysed liquor plant, operated for at least one year commercially, is new but similar to the technology for sugar factory wastes, already reported by the same company - Western Paces, elsewhere. This is the foreign technology that is operating in India.

I recall the comments of Richard Feynman, 'For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled.' This is probably relevant to our situation as well.

Now to the question I raised at the beginning, can we not use modern information technology for such conferences and make the work more efficient and at lesser costs? I feel it can be used and I am making the following specific suggestions.

1. Like poster sessions in some of the seminars, a few multi-media computers should be set up at the conference site, and participants should be encouraged to make multimedia presentations on these. The presentations will be far better than the slide and talk presentations with their constraints on time and failures in slide/OH projectors, etc. Even key video shots can be included in such presentations.
2. The main papers should also be multimedia presentations on the computer, but projected on to a big screen. (Alternatively, a cheaper way is to connect multiple monitors at different locations, as we do for loudspeakers.) Not only can such presentations be brief and precisely timed but they also communicate better.
3. The main papers, as also poster sessions will have live discussions.
4. The editing and publication job becomes easier, faster and less expen-

sive. The papers are already on the computer, along with pictures, video, etc. The editors and DTP men will take over and combine the total information in HTML (giving the so to say 'live' cross-references). This will take much less time than the usual 1-2 years delay between the conference and the publication of the proceedings.

5. Finally, these proceedings should not be published as paper editions, but as CDs. Those who want paper editions can get prints from the CDs at any library.

The above will not only save time, money and paper but also the invisible cost of unsold volumes, taking up space and then given away as complimentary copies. The CDs are not only easier to use and store and communicate better, but are also easily distributed and stored. The CD costs have come down so drastically that today it is possible to 'write them' as per order and not necessarily printed in 500 lots.

Unless we start using the IT to make our work more efficient, we will have the same stereo type conferences and publication ritual for decades.

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Cellular and Molecular Biology of Gonadal Development and Maturation in Mammals: Fundamentals and Biomedical Implications. S. S. Guraya, Narosa Publishing House, New Delhi. 1998. 346 pp. Price: Rs 550.00.

There has been a great deal of interest in understanding the process and regulatory mechanisms involved in gonadal sex differentiation and development in vertebrates since beginning of the century. The continued interest in the subject with the application of advanced technology has resulted in a vast number of publications and reviews on different aspects of gonadal differentiation and development. S. S. Guraya has attempted to integrate the enormous amount of information that is generated

on gonadal sex differentiation and maturation using techniques of morphology (light as well as electron microscopy), cytogenetics, molecular biology, histochemistry, biochemistry, endocrinology and immunology in mammals, including man. This book is therefore timely and the author has done a commendable job in integrating and summarizing all aspects of gonadal differentiation under one cover.

The book is divided into four parts and fourteen chapters, each dealing with different aspects of gonadal differentiation and development. Part I deals with the concepts and theories of gonadal differentiation. The present theories of regulatory mechanisms still do not explain the actual developmental processes which occur during differentiation of indifferent gonads into ovary or testis. The author has been successful in pointing out these lacunae and emphasize on the need for multidisciplinary approach to look into this aspect.

Part II deals with the origin, migration, and structure of germ cells, and development and differentiation of indifferent gonads. Two important events occur during gonadal formation, viz. migration of germ cells and formation of genital ridge. A number of studies suggest that cells from three different sources (coelomic epithelium, mesenchymal tissue underlying coelomic epithelium and cells of mesonephric origin) contribute to the genital ridge. Yet there is no convincing evidence for precise

cellular source contributing to different compartments of developing ovary and testis. The author points out that use of molecular probes may help in elucidation of the precise contribution of various cell types in the formation of the gonads.

The ovarian development and differentiation involve the processes like oogonial proliferation, oogenesis, folliculogenesis, growth of the follicles, etc. Though the histogenesis of these processes is fairly well understood, the factors influencing oogonial multiplication, onset of meiosis, folliculogenesis are yet to be understood precisely. Part III consisting of four chapters deals with development, differentiation and maturation of the ovary. It highlights specific gaps in our understanding of these processes.

Part IV deals with development, differentiation and maturation of testis and its comparison with the ovary. It is divided into 7 chapters. These chapters review the development and differentiation and maturation of the testis; prespermatogenesis and spermatogenesis; Sertoli cells, interstitial cells and Leydig cells, respectively. In spite of a great deal of work done on testicular morphology and physiology, our understanding of the precise mechanisms underlying the formation of testicular cords; origin of Sertoli cells/blood testis barrier, formation of Sertoli cell junctions during seminiferous epithelial cell cycle; formation and regulation of basal

lamina; autocrine, paracrine and endocrine factors involved in the regulation of differentiation, development and maturation of the testis are still not clear. The author has succinctly pointed out these lacunae to be filled by future researchers. Chapter 13 gives a comparative aspect of steroid hormone synthesis during the development and maturation of the ovary and testis. The concluding chapter of the book pertaining to the maturation of hypothalamo-pituitary-gonadal axis stresses on the basic understanding of this functional axis and its possible application in clinical endocrinology related to reproductive health and disorders in human.

Each chapter of the book is a thorough update review of work with an interdisciplinary approach and outlines the lacunae in specific areas. The references cited in the book are extensive, with more than 1800 citations. Therefore, the book is very useful to researchers and teachers especially to reproductive and developmental biologists, endocrinologists, molecular biologists, clinical and veterinary scientists for years to come. It was a great pleasure reading this excellent book.

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