

BOOK REVIEW

Harkishan Singh: *Pharmaceutical History of India*, Vallabh Prakashan, Delhi, 2011, 322 pages, Price Rs. 450, ISBN978-81-85731-55-1

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Prof. Harkishan Singh's debut book on the subject was a joint publication with AS Chawla and VK Kapoor in 1985, entitled '*Medicinal Chemistry Research in India*'. He was working then in the Department of Pharmaceutical Sciences, Punjab University, Chandigarh. Study of historical development of pharmaceutical sciences and industry became his full time involvement following superannuation from the university in 1985. It has resulted in publication of a series of valuable publications on the subject starting with '*Pharmacopeias and Formularies*' in 1985. The present book is the ninth volume in his single author publications on the subject.

Prof. Singh has reviewed development of specific areas of pharmaceutical sciences in the earlier volumes. Thus the second and third volume dealt with the growth of pharmaceutical education and pharmacy practice, respectively. The next four volumes were devoted to biographical studies on pioneers of pharmaceutical sciences in India. The highlight of these volumes is the effort of Prof. Singh to verify all facts from original sources and to go down to smallest important details.

The present volume also has maintained these unique characteristics of earlier volumes. It presents a kaleidoscopic view of the overall growth and development of the subject in the country. Details of England and other countries have been provided wherever necessary to provide the rationale for developments here. The book starts with initial establishment of colonial pharmacies by the Portuguese and British colonizers and training of compounders and other required medico-pharmaceutical personals to manage the pharmacies and hospitals. Mention is also made of the monumental publication of '*Coloquios dos simples e drogas he cousas medicinais da India*' by the distinguished Portuguese physician Garcia

da Orta in 1563 following his stay in Goa for nearly 3 decades. It got translated in all the major European languages French and English.

The next few chapters have chronicled the development of pharmacopeias and regulatory procedures in the country. Prof. Singh has highlighted the major contribution of the Drugs Enquiry Committee of 1930-31 and subsequent committees including the Bhole Committee and the Hathi Committee and the Nayudamma Committee of 1978. This has been followed by a review of the development of facilities for Pharmacy education at undergraduate, graduate and postgraduate level and research. One chapter (Chapter 12) has been devoted to the role of Pharmacy Council of India (PCI). The review includes PCI recommendations for Education Regulation (ER) in 1981 and 1991 which has provided for more professionally oriented courses for these studies. Similarly the role of AICTE has been discussed in another chapter (Chapter 15). Its recommendations up to the decision to introduce Graduate Pharmacy Aptitude Test (GPAT) 2010-2011 have been included in the chapter.

Prof. Singh has stated in his preface that the present volume presents the pharmaceutical history in a simple coordinated form and that most of the chapters have been condensed from coverage in earlier books with appropriate updating. This is very evident in the chapters dealing with development of major centers of pharmacy education in the country (Chapters 13, 14). He starts with department of Pharmaceutical Sciences at Banaras Hindu University (BHU) in 1932 and concludes with the setting up of National Institute for Pharmaceutical Education & Research (NIPER) at Mohali in 1994. There is a variable cut off date up to which the head/chairman has been named for various institutions. For example, details have been provided till 1986 for BHU, 1985 for Nagpur, 1990 for LM College Ahmedabad, 1991 for Andhra University and 2006 for Saugor. Even for his own old institution at Chandigarh, the last reported chairman is for 2006. It would have nice if all were updated till the time of finalizing the present volume.

A brief chapter has also been devoted to Ethical aspects and the development of the Pharmacist's Oath in 1955, rightly considered by him to 'the spirit of the Code of Pharmaceutical Ethics'. The Oath was slightly modified by PCI in 1999. The book provides versions of the original as well as the modified oath.

Prof. Singh has devoted three chapters (18-20) to the functioning and role of pharmacies in hospitals, retail and rural centers. He has highlighted the

contributions of pioneers like SH Merchant and NS Gayatonde in the formative years of hospital pharmacies when even galenicals were prepared in-house. He has traced the changed role of hospital pharmacies to manage procurement, storage and distribution of drugs. Brief mention has been made of the emerging discipline of clinical pharmacy and organization of drug information service in the hospitals.

The role of pharmacist as a health educator has been emphasized in the chapter on retail and community pharmacies. The patient should be given information not only for the usage of medicine but also their proper storage. It would have been useful if proper disposal of unused portion of drugs was also included in the information to be given to the patient. He has stressed the need of providing specific definition of over-the-counter (OTC) drugs in the drug rules since they may 'adversely interact with the physician prescribed medicines'. He also has suggested, rightly, that retail pharmacist can play greater role in not only distributing the contraceptive aids but also in conveying correct information about family planning.

The chapter on Pharmaceutical industry (Chapter 19) has covered development of the industry from import oriented colonial days to the modern globally competitive stature. He has discussed the role of pioneers like PC Ray, BD Amin, KA Hamied etc but a surprising omission is AV Mody. He contributed not only to establishment of Unichem Laboratories but also supported research in many institutions of the country when research funding from Government agencies was difficult to obtain. Mention has been made of contributions of Haffkine Institute and among the public sector institutions. Contributions of Hindustan Antibiotics and IDPL merited some discussion. IDPL Hyderabad had established a modern R&D facility under the leadership of the late Dr. DR Sridhar, couple of whose products reached clinical evaluation stage. The facility, unfortunately, had to be shut down prematurely when IDPL became a sick industry. Similarly, CIBA had set up an excellent research unit whose at least one product (Sintamil) was successfully marketed.

Prof. Singh has not mentioned the contributions of several other public sector institutions in growth of pharmaceutical industry in the country. The major contributors have been CSIR's Central Drug Research Institute, Lucknow (CDRI) and Regional Research Laboratory Hyderabad (now renamed IICT). CDRI has provided globally competitive technology for generic drugs like ephedrine,

clofazimine and propoxyphene and licensed several new molecules including centchroman, centbucridine, arteether etc. to the industry. It has been responsible for safety and clinical evaluation as well getting the necessary regulatory approvals for marketing of Chandonium iodide, which was synthesized by Prof. Singh (p. 197). Similarly, methaqualone was synthesized at IICT and initially evaluated at KG Medical College Lucknow. IICT has developed and licensed technology for a number of drugs and intermediates also to the industry. Incidentally, CDRI and IICT are the mentor laboratories for the new NIPER set up at Raibareilly and Hyderabad respectively.

The final chapter provides thumbnail sketches of 15 persons who, in Prof. Singh's assessment, have played a significant role in development of pharmaceutical science and industry in the country. He has published more detailed information about them in earlier volumes of the series. He has omitted SN Biswas, who had been included in his Volume 2 of Builders and Awareness Creators of Modern Pharmacy. KN Gaiind and AV Mody should have found a place in the list of these pioneers. Similarly, the volume makes no mention of the contributions of the late Dr. ML Dhar who played a significant role in developing research strategies of CDRI and later of IDPL.

The present volume provides a good executive summary of growth and development of various areas of pharmaceutical education and industry in the country. It will be an useful reference book for students, research workers and other professionals associated with any aspect of pharmaceutical sciences in the country.

The book is profusely illustrated and some of the photographs are rare and have not appeared in earlier volumes. The book has been produced excellently and is singularly free from printers devils. The previous volumes in the series gave good bibliographical details which are sadly totally missing in the present volume. A number of documents and statements have been mentioned in the text but the necessary references have not been provided. Their inclusion would have increased the value of the book, especially for the research workers.

In summary, it is an enjoyable and useful volume and Prof. Singh is to be complemented for the painstaking research and verification of facts from original sources in preparing this volume. It is hoped that more such volumes will continue to emerge in future years from his devoted pursuit of the subject.