History of Pharmacy in India and Related Aspects. Vol. 4. Mahadeva Lal Schroff and the Making of Modern Pharmacy. Harkishan Singh. Vallabh Prakashan, AP 53A Pitampura, Delhi 110 088. 2005. 216 pp. Price: Rs 500.

Harkishan Singh, a renowned medicinal chemist and science historian, has authored several books. However, the book under review is important to those related to academia and the pharmaceuticals industry. It inspires the reader and helps in developing a sense of determination in entrepreneurs. This research monograph, depicts the life and personality of Mahadeva Lal Schroff. The author has also tried to cover the bottlenecks which come in the way of development of the pharmacy industry in India even today.

The book is divided into 11 units with four appendices and 19 illustrations. The first unit describes the process of European colonization in India related to the field of pharmacy, starting with the arrival of the Portuguese in 1498. The availability of the Hindustani version of *London Pharmacopoea* in India in the year 1824 is described, to control pharmaceutical activities in India. This forced the Indian community to import drugs from overseas and pushed Indian pharmacy to rudimentary stage. The author has narrated the adequacy of pharmaceutical component in health care system during the British rule according to observations of Schroff and his significant role in changing that scenario through lectures and publications.

Unit-2 describes the childhood and adulthood of Schroff, particularly his sense of nationalism and his specific contributions in shaping pharmacy profession, helping pharma industry, etc. Schroff also motivated the society to raise a public forum of pharmacists and started a journal with the sole objective to collect necessary source material for evidence-based claims to modify the then poor status of pharma profession in India.

Unit-3 provides evidence to the fact that 'Mahadeva Lal Schroff was the father of pharma education in India'. Schroff was a great nationalist and freedom fighter and because of these very characteristics, he could come in contact with Pandit Madan Mohan Malviya, founder of Banaras Hindu University, Varanasi. Schroff joined BHU in July 1931. Although he was a chemical engineer, 'Schroff was given the responsibility to start a course of pharmacy at BHU, by Malviya. Although the author mentions that 'Schroff never organized an experimental research group', to my mind, he was a great experimental researcher as his laboratory was the entire society and the pharma industry as a whole. The outcome of these experiments was published and propagated through his thoughts and writings and through his participation in the then statutory bodies. The author has shown the industrious attitude of Schroff by describing the history of development of the Pharmacy Department in BHU; starting from money raising for the building to making the curriculum for starting a pharmacy course.

Unit-4 refers to Schroff's role in consolidating other components of pharmacy profession through Pharmacy Council and by helping the Pharmaceutical Association. Schroff was always concerned about the quality control of drugs, standardization parameters, etc. in the development of Indian pharmacy. The author has narrated the role of Schroff in influencing the role of the Pharmacy Drug Act in India and Indian Pharmacopoeia committee.

Unit-5 describes the role of Schroff in formulating rules and regulations through the Pharmacy Council of India. The author has nicely arranged references related to contribution of Schroff with reference to his writings and editorials. He has also mentioned the views of Schroff on Ayurveda and Unani medicine and emphasized that the claims must be validated on a scientific basis. His concept on ayurvedic medicine are still relevant and the world community is trying to validate the claims using modern science and technology tools. I would like to mention the views of S. N. Tripathi, the then Dean of the Faculty of Ayurveda at BHU, who mentioned during the Second World Congress of Yoga and Ayurveda in 1987, held at BHU that ayurveda needs the amalgamation of science and technology and the role of best molecular biology laboratories of the country to validate the claims related to its basic concepts and drug action. I feel, the author has carefully narrated the real need of the time by describing the views of Schroff.

Schroff discouraged use of allopathic medicine by ayurvedic practitioners, which was recently endorsed by the Hon'ble Supreme Court of India. He also realized the importance of pharmacognosy for development of the Indian system of medicine. Schroff was of the firm belief that pharmacy and medical system should be considered separately in any institution. He also supported use of provincial languages to educate pharmacists for better results, which I feel is pertinent, even today. Overall, the views of Schroff, must be re-looked through this book and must be implemented by different statutory authorities in the country.

YAMINI BHUSAN TRIPATHI

Department of Medicinal Chemistry,
Institute of Medical Sciences,
Banaras Hindu Unviersity,
Varanasi 221 005, India
e-mail: yaminitripathi@epatra.com

Polymer Composite. M. C. Gupta and A. P. Gupta. New Age International (P) Limited, 4835/24, Ansari Road, Daryaganj, New Delhi 110 002. 2005. 152 pp. Price: Rs 75.

Composites are fascinating subjects for study and polymer composites have become the cumulative title at the interface of chemistry, physics and biology. Composites are well known to mankind since prehistoric period and were practised then as well. However, with the advent of polymers and polymer science, the concept and technology have undergone enormous changes in understanding the basics, viz. the role of matrix and reinforcement, bonding mechanism, morphological features, environmental effects, etc. Polymer composites due to their light weight, chemical and corrosion resistance as well as heterogeneous compositions, provide unlimited scope and possibility for deriving any characteristic material behaviour. This unique flexibility in designing, tailoring and other characteristics namely, the ease of manufacturing, high specific strength, stiffness, shape moulding, cor-

rosion resistance, durability, adaptability and cost-effectiveness, have attracted the attention of materials scientists, engineers and technologists. They have become materials for the 21st century to meet the requirement of space, missile, marine and medical-aid technologies.

The book under review has been divided into ten chapters followed by four appendices. The thoughtfulness of the authors is evident right from the beginning as Chapter 1 entitled 'Introduction', provides a core description of composite materials, viz. role of matrix in composites, limitations of conventional engineering materials, different matrix materials, reinforcements, types of composites and composites vs traditional materials, with selected examples of the application of fibre composites. Chapters 2 and 3 deal with the polymer matrix and reinforcement materials of various types. For example, thermosetting and thermoplastic resins and their comparisons, design of high temperature matrix resins and the concept of group additivity approach to estimate the glass transition temperature, fibres, whiskers, flakes and fillers and development of rigid rod reinforcing fibres. Chapter 4 deals with the design properties of composites and composite systems where micromechanical model for elastic properties, relation of matrix element and material constants, discontinuous fibres, thermophysical property, tensile strength, composite systems, particulate-reinforced composite material and its subdivision based on particle size and nature, true particulate composites along with applications, characteristics and predicting properties of fibre-reinforced composites, fibre-reinforced system, laminar composites, including rule of mixtures, wood, concrete and asphalt were all discussed in detail. Scientific basis for the fabrication of carbon–carbon composites, methods of fabrication, matrix control in C–C composites, carbon fibres as reinforcements, structural model for high modulus and pitch-based carbon fibres, typical characteristics and applications of C–C composites as biomaterials, in aerospace, transportation, machinery and apparatus, and in cryogenics have been discussed in Chapter 5. Fabrication methods of polymer composites are covered in Chapter 6. Chapter 7 entitled 'Processing science and quality assurance of composites', deals with interfaces and inter-phases surface characterization, processability testing and science, curing and test for gel time and post-fabrication quality control. Environmental effects on composites in Chapter 8, provides the service life and reliability, chemical resistance of unreinforced resins, chemical attack on fibres, hydrothermal effects, temperatures, galvanic corrosion and adverse climatic conditions on composites. The purposes of testing and various methods are described in Chapter 9. The last chapter, i.e. Chapter 10 includes a brief introduction to intelligent or smart materials.

As usual, this book deals in detail about polymer composites and is intended as an introduction to the field of polymer composites. A hallmark of this book is that each chapter brings into focus the areas that need to be explored further. Moreover, examples and appropriate problems given at the end of a few chapters are thought-provoking. Although designed primarily for polymer technologists and scientists, the book may prove useful for undergraduate and postgraduate students of materials science and engineering, polymer science and chemical technology disciplines. As the book avoids the heavy bibliography-laden-reviews style, it would be useful to students of general polymer chemistry, who are interested in gaining basic understanding and insights into polymer composites. However, it will be worthwhile if the authors incorporate at least a few references at the end of each chapter as further reading in the next edition. Furthermore, there are several typographical errors which should be corrected by useful editing in the next edition.

ASIT BARAN MANDAL

Chemical Laboratory,
Physical and Inorganic Chemistry Division,
Central Leather Research Institute,
Adyar, Chennai 600 020, India.
e-mail: abmandal@hotmail.com