

BOOK REVIEW

Pharmacopoeias and Formularies. **Harkishan Singh** (Vallabh Prakashan; Delhi : 1994) pp. xvi + 159. Price : Rs. 225; US \$ 35.

The book is the first volume in a proposed series on History of Pharmacy in India being written by Professor Harkishan Singh. It is a well documented history of the British and Indian Pharmacopoeias and the National Formulary of India. The author has consulted many original texts in libraries in India and England which are not easily available and has brought together a large amount of archival information and illustrations in this sleek volume. It reveals many interesting facts. For example, the first official Pharmacopoeia of India was published in 1868 whereas the first British Pharmacopoeia was published in 1864. The Bengal Dispensatory and Pharmacopoeia was, however, published as early as 1841. It is interesting to note that a Hindostanee version of London Pharmacopoeia was published in 1843 simultaneously in Hindi and Urdu scripts. The book abounds in such useful information. The post-independence history of the Indian Pharmacopoeia and the National Formulary has also been well traced. All statements have been documented by original references.

The book is written in a lucid style and is well produced. It will be of use not only to students and teachers of

Pharmaceutical Sciences but to all those interested in History of Science. It will be a valuable source book for studying the development and evolution of Pharmacopoeias during modern times and the transition from descriptive texts to highly technical modern Pharmacopoeias. Prof. Singh must be complemented on this well researched publication and I will look forward to other volumes in this useful series by him.

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Ghani: The Traditional Oilmill of India. **K.T. Achaya**, (Oléarius Editions Kemblesville, PA : 1993) pp. 128+92 illustrations. Price : US \$ 30.

Any book on the history of a specific technology requires situating the technological practices in a cultural setting. The book under consideration sidetracks this hard task by attending more to the technical aspects of the Ghani mills. This is not to underestimate the value of the book but to alert readers regarding what it is not. This lacuna is to some extent overshadowed by information provided by the book in areas like the history of terminology of Ghani, variations in the actual technological practices across India, principles and practices of Ghani operation, recent modifications made in the design of ghani, prospects of the Ghani mills in modern Indian context

etc. To that extent this is a remarkable book by an ex-scientist turned historian of food and allied sciences, and technology. Dr K.T. Achaya has introduced us, through ten chapters in this book, to a snapshot of the various facets of Ghani – an important technology which is indigenous and ancient.

In the first chapter the author introduces the readers to the making of and components in a Ghani, as well as explains the operation of a Ghani. The role of animals in traditional Ghani operation is emphasized. In the next chapter we are told about the historical genesis of the term *Ghani*. The ancient practices which employ various oilseeds crushing devices are also described. The author also explains how the Ghani technology evolved over a period of two *millennia* and how the terminology changed over this time even for the practitioners of oilseed crushing operators. Thus, the expressions like *Kolhu* or *Chekku* for the practitioners are rather of recent origin and use. In the third chapter variations in the design of Ghani across various geographical areas in India are very clearly brought out. The kind of materials used and the mode of crushing oilseeds and collection of oil, as well as various kinds of oilseeds crushed are documented. There are four major regional variations: the South Indian, Gujarat-Maharashtra type, the Bengal, and the Punjab. We are also provided with a table (pp. 39-40) describing and comparing the performance of the above kinds of Ghani in terms of efficiency understood in terms of oil extracted per hour.

In the fourth chapter the principles and practices of Ghani operation are discussed in some detail. Roles of different factors, which influence oil extraction, which include pressure generation, water, heat generated by friction etc. on the efficiency and quality of oil production are explained. The time of operation, and the mode of operation to ensure maximum oil extraction from the Ghanis are described. In the fifth chapter, the author describes the recent modifications made in Ghani design. Role of Khadi and Village Industries Commission (KVIC) both in developing a new mechanical design for traditional Ghanis as well as for electric power driven Ghanis are discussed. The comparative performance table (p. 61) brings out that ghani driven by overhead power produce oil at a cheaper rate. The table IV (p. 65) essentially emphasizes the superiority of power Ghanis over the traditional Ghanis in terms of cost of production. In the next chapter, the author describes the intricacies in processing of specific oilseeds in Ghanis. We get a rich information package describing how *sesame*, rape-mustard, copra, linseed, castor, niger, safflower oils etc. are extracted from their seeds. The author hints at the reason as to why Ghani oil was and may still be preferred by discerning persons but does not develop that cultural aspect of technology any more. The chapter on Ghani oilcakes discusses how oilcakes have been traditionally used as food, feed, or fertilizers. Approximate chemical compositions of different types of

oilcakes produced from different kinds of oilseeds employing different processes like extraction or expeller are tabulated and compared (see pp. 81-2, and p. 84). We are also told about the artisans who are associated with oilseed crushing by Ghani for centuries as family occupation/trade. Their social groups and the nature of their family and communities are mentioned. In the next chapter prospects of the ghani are discussed. It is shown that percentage of oil seeds crushed in Ghanis have steadily declined from 97 during the period 1900-1910 to about 5 during the period 1983-84. We are told that although the Ghani operations are now subsidized by the KVIC, the Ghanis have to be economically viable and competitive in the market place in order to survive. The book ends with a chapter on other traditional oil-extraction techniques in India. These include boiling with water, by roasting, plank and tree presses, screw presses etc.

There are some interesting and important features in this book which need to be highlighted. The Maps of the Indian sub-continent as well as the historical and literary Chronology of India add an important dimension to the book. The glossary at the end of the book is extremely useful to make sense of the book. The extended bibliography only enhances the value of this book. The illustrations and the photographs in the book enrich the book immensely. The author must be thanked for paying attention to details, delving deep into the history of a traditional technology and presenting us in a clear and lucid language the fruits of his research.

There are some minor problems in this book. For example, the rationale behind the way the efficiency of a Ghani is calculated is not apparent. It is here that one may wonder whether the efficiency should be calculated only by the amount of oil (by weight) produced per hour – kg of raw feed. It may be more accurate to calculate the efficiency by determining the amount of oil (by weight) produced per animal - hour - kg of raw feed. If we introduce this new criterion, then Ghanis of the West India turn out to be as efficient as the Ghanis of South India. The justification of employing animal - hour is simply that a Ghani driven by more than one animal employs more animal power than the one which employs only one animal. As a result, the author's argument (p. 40) while comparing efficiencies of Ghani is suspect. Also the author brings out, may be unwittingly, the proverbial gender bias in even recommendation of the types of Ghani that might be more user friendly. He points out that simplified nature of Ghani is preferred because then women can make use of it.

However, these problems are indeed minor. This book is an invaluable addition to the collection of history of Indian technology. It should provide much needed basic material to launch a more thorough and insightful work on the nature of indigenous technology, the relation between technology and society at large and the technology as a mirror of nature through the conceptualization by humans in a social group.

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