D Vijaya Rao (ed): Armies, wars and their food. Cambridge University Press India Pvt Ltd, New Delhi, India, 2012 (ISBN: 978-7596-918-6) Pages xx+534

D. P. Attrey

Revised: 7 September 2012 / Accepted: 8 September 2012 / Published online: 23 October 2012
© Association of Food Scientists & Technologists (India) 2012

The book ‘Armies, Wars and their Food’, is a rare compilation on Food Logistics, which will serve the intellectual needs of defence personnel, the food scientists & technologists and the students of science and of military history. The author, Dr D Vijaya Rao, a Defence Food Scientist, has done a yeoman’s service by bringing this book on such a subject, which has not been attempted in this fashion before. The importance of the book is evident from the fact that the foreword has been written by none other than Dr M.S.Swaminathan, the best agricultural scientist India has ever produced. Dr Swaminathan has referred to the ‘Kartoffel Krieg’, the famous Potato war of the 100 year war of Europe and has categorically stated, “in all famous wars the strategy of the winning side has been to cut off the essential supplies”, especially the food, “forcing the enemy to withdraw”, thus highlighting the importance of the food for the Armies, the world over.

The author is a keen observer and has collated, with a great zeal and passion, the ideas, events and material derived from various sources—from the ancient to the contemporary to present a succinct narration that would interest not just the military minded, not just the scientifically inclined, and certainly not just the inquisitive students of military history or of nutrition and the food science and technology, but equally all those too who enjoy reading a well researched book of general interest.

A truly knowledgeable and passionate scientist, Vijaya Rao traces the ancient knowledge of military history and

craft with respect to the development of local armies and their logistics and brings the reader up to date in to the 21st century. Her understanding of most of the logistic issues of the armies is remarkable considering the fact that she has no military background. Her grasp of the operational strategies of war, linking them with the logistics and the supply chain is really commendable. Her hold on the topic of discussion is great. From the text in the book, the difficulty of the author in finding the references to the food supply system of the ancient armies is evident due to the scarcity of literature on these topics. Nevertheless, she has tried to discover whatever she could, comprehend and correlate with the theme of the book. The military documents are not easy to access and it is not always possible to get permission to quote information so obtained in a public domain book. The book clearly shows the efforts made by the author in this direction.

It is an excellent review of the armies, wars and their food and logistics from the ancient Indian literature, especially the *Arthashastra*, *Puranas*, *Nitisaara* and the *Sukranitis* etc. The author effortlessly brings the readers to the modern times, where she has explained the core elements of food and nutrition and their importance in relation to the kind of work carried out by the personnel in the Armed Forces, as well as the technologies required for the scientific development of modern processed foods for various situations, linking these to the role of food logistics in the Defence Forces in a very simple language. She has also highlighted its impact on the development of the modern food industry.

Causes and logistics of the important ancient wars have been compared with the wars during the 18th, 19th, 20th and the 21st centuries. War strategies of various empires of Ancient China (Pre and Post Sun Tzu times), the Roman empires, the plunderers of central Asia, and during various civilizations, including those of the Aryans, have been discussed in depth. Evolution and the development of natural food chains and their strategic use in bringing the power to

D.P. Attrey is the Director of Research Food Technology and Director of Amity Institute of Seabuckthorn Research.

D. P. Attrey (✉)
Amity Institute of Seabuckthorn Research,
Amity University Uttar Pradesh,
Sector-125,
Noida-201303, (U.P.), India
e-mail: dpattrey@amity.edu

the kings the governments have been reviewed very logically. Although the author has touched upon the Iraq war, she could have discussed the recent wars in Sri Lanka, Afghanistan and Middle East also, with respect to food supply and logistics, and analyzed the lessons learnt on these fronts. It appears that she was handicapped due to non-availability of authentic literature. Also the author has reported the military rations of the Pakistan Army after the partition, but she could not bring the latest developments in the army rations of Pakistan, may be due to the same reason of non-availability of authentic literature.

Selecting and controlling suitable battle locations to meet the logistic needs of men and the animals, reaching there through long marches with huge armies and control of cropped fields by way of getting the harvest for own use or to destroy the same to prevent the use of grains by the enemy, used to be the main strategy of the wars. The Major emphasis was on the control of pasture lands and water sources near the battle fields. To locate the armies near these sources was essential for providing enough fodder and water to the animals. War animals seemed to be valued more than the foot soldiers. The types of foods provided to men and animals and the role of accompanying traders in meeting all the logistic requirements of marching columns through long logistic trains and during the battles, has been described in detail. Use of meat as part of the horse ration in old times has also been reported. Intoxicating the elephants and the horses before the battle was part of the battle craft in the ancient times. It continued even up to the early 20th century.

It was easy to defeat the enemy through long sieges, thereby causing hunger by cutting off the supply chain, which eventually forced the enemy to surrender or withdraw. Even the secret war messages were sometimes sent in the food. Especially touching are the circumstances in which the sieged troops and their families in the medieval periods had to resort to killing their own children, the sick, the elderly and the infirm and eating them. The sieged Romans always ensured strict food discipline and no food was to be wasted. They supplied flour instead of bread and vinegar to flavor water in lieu of wine to the soldiers, who were purchasing and cooking their own food. This reduced the cost and the logistic problems of the generals and the kings to a great extent. Although the ancient methods of preparing food were crude, they laid the foundation of modern food technologies.

The author has discussed in depth the need for larger armies, the methods of building them, various war components, especially the elephants, horses, bullocks and chariots etc, various types of weights, measures and volumes (which differed from country to country) and the logistic problems in undertaking long marches without the mechanized transport and the processed foods, over the ages. The author has provided great insight in to the sizes of the armies along with the data on salaries, methods of procuring food and the

logistic problems. The ancient soldiers used to purchase or arrange for their own food. The author has indicated that these problems were tackled in novel ways which laid the foundation of the modern food processing technologies.

Walking the reader through ancient and medieval military history she brings us to the advent of East India Company and the British rule in India and then very logically to the present day Indian Army, where the animal transport has been replaced by the mechanized transport and the war equipment has become highly sophisticated, including battle ships and other naval crafts, battle tanks and the supersonic fighter bombers and the various types of weapons and missiles. We observe a gradual progression from the primitive to the simple traditional fare eaten through the ages, from the nutritionally deficient soldier foods to the development of modern processed foods for different type of situation in the Defence Services. The author, herself an eminent food scientist of Defence Food Research Laboratory of DRDO, has made immense contribution in developing such foods and done a commendable job in providing foods for various situations and various types of tastes of our soldiers. Systematic account of food requirements and food logistics of modern armies, various wars of modern times, especially the food supply system of our Defence Services has also been presented effectively.

Supply of food to soldiers of varied ethnicities and culinary habits is a challenging task. That men are specially trained in food preparation and food service are little known facts outside of military circles. The Army Supply Corps is a core support group in the Armed Forces responsible for all supplies and logistics. The author has explained with photographs the existing system of food preparation, food service and supply system in three Services. The system of inspections and lacunae in the same e.g. in the meat inspection etc could have been highlighted as an important public health issue and remedial measures could have been suggested.

The book has the following 5 sections:

The 1st section deals with the Growth of the Communities and Knowledge, the Armies and the Wars in the ancient periods. This section describes the ancient knowledge and arts of epic wars, especially in the Vedic period. Description of the rise of the ancient armies and their wars, as described in the holy books of India, is commendable. The author slowly brings the readers from the historical armies to the present day modern armies and their logistics.

The 2nd section deals with the Food per se, where the author discusses the origin of food habits, diets and beliefs. She has presented the nutrient requirements, the food ingredients and development of various types of rations for various situations. She slowly brings out the changes which took place in the army rations from the medieval periods to the modern days. She discusses the types of food stuffs, the nutrition provided with these, evolution of military rations,

including operational and combat rations, with special reference to India. She has discussed the high altitude biological and operational problems and food supply problems existing in Siachen sector in particular. Especially commendable is her discussion as a food scientist about the nutritional requirements, including review of the latest knowledge on intake of fats, like a fine review of omega fatty acids, especially the alfa linolenic acid and the linoleic acid along with their role in the diet / rations with respect to the health of the troops.

The 3rd section deals with the Food Supply Chain for the Indian Army, Navy and the Air Force. The history and role of Army Service Corps and the Remount and Veterinary Corps have been described elaborately. The food supply chain has been brought out adequately in various types of formations and various strategic situations. The responsibility for inspections of various types of foods for ensuring proper hygiene and safety of the fresh foods could have been brought out in a more elaborate way including suggestions for improving the system. However, most of the points related to the food supply chain for the three defence services have been covered adequately.

The 4th section describes the development of Indian Food Industry. She has discussed how the technology is assisting the logistics by providing various options to improve the fighting capabilities. The author has also related the logistics for the modern armies to the developments in the food industry and the positive role played by DRDO in this effort in India.

The 5th section deals with the Logistics and the Food Supplies in Wars, both past and the present. Important conflicts of history of important Armies of the world have been described wonderfully, especially with respect to the food supply and the logistics during these wars.

This book will definitely serve as a good treatise for the students of military history in general and those of the military logistics in particular. Even the present day military commanders will benefit immensely from the knowledge provided in this book. It is highly recommended that all the professionals in the army and those related with the army, in any way, must read this book to know about the battle logistics. Other readers can also have a peep into the ancient 'armies wars and their food' and the conditions prevailing for winning the war.