Overall, what this study in its empirical support of a tripod structured Thai economy has done is to open up a brand new horizon for grasping the socioeconomic character of that country during its modern period. Let me remind the reader, however, that the strength of the work not only lies in the ingenious underlying hypothesis, but also in the two years spent by the author in the field searching out, sifting through and piecing together all the available primary and secondary evidence written in a number of completely unrelated languages. In addition, some other lessons that this work has taught us is, first, that the reason for the strong merchant-oriented capitalist tendencies observed among Chinese entrepreneurs is not to be found in national character or racial studies, but rather in the historical conditions under which these people were forced to operate; and secondly, that the role played by multinational corporations in any economy cannot be filed solely under the all-to-convenient term "dependency," but must be evaluated according to their diversified and complicated functions.

One final interesting point is the way the analysis is developed by a subtle comparison of the experiences in the West and Japan, resulting in a quite successful attempt at understanding the peculiar development pattern of Thai capitalism. The book is an international contribution to the scientific understanding and historical treatment right along side Ingram's *Economic Change in Thailand, 1850–1970.*[1] (Kenji Koike)

[1] James C. Ingram, *Economic Change in Thailand, 1850–1970* (Stanford, Calif.: Stanford University Press, 1971).

Livestock Development in India: An Appraisal by S. N. Mishra and Rishi K. Sharma, New Delhi, Vikas Publishing House, 1990, vii+203 pp.

The important influence that livestock has on the Indian economy is reflected in the long history of research on the subject. *The Report of the Royal Commission on Agriculture in India* (1928, hereafter abbreviated as the RCA report), which will be described later, and the way in which it formulates the features of the Indian cattle economy is such a landmark in this history that it still exerts great influence on contemporary scholars.

The RCA report points out the irrationality of the excessive proportion of cows in the Indian bovine structure, and as such its formulations gained wide acceptance as theoretical underpinnings for many studies that emphasize the structure's irrational and uneconomic aspects. In opposition, M. Harris used the perspectives of cultural anthropology in his paper "The Cultural Ecology of India's Sacred Cattle" (1966)[1] to argue that the irrational, uneconomic, and exotic aspects of the bovine structure had been overly emphasized and that it should be explained rationally from ecological system perspectives. Harris's paper triggered the debate over India's "surplus" cattle from the latter half of the 1960s on. S. N. Mishra, one of the authors of the book under review was part of this controversy, and once advocated that the number of cattle in India were indeed excessive at least in relation to the available feed, fodder basis. Now, he and Rishi K. Sharma have written *Livestock Development in India:*

[1] *Current Anthropology*, Vol. 7, No. a (1966).

An Appraisal to evaluate the livestock development strategy since 1951. There have been general outlines of livestock development policy prior to the appearance of this book, such as the *Report of the National Commission on Agriculture: Part VII, Animal Husbandry* (1976),[2] but *Livestock Development in India* is an eagerly awaited addition because of its more thorough critique of the way livestock development policy has been and because of the fact that it takes its period of analysis all the way to 1990.

Let us first take a brief look at the importance of livestock in Indian society. One-sixth of the world's cattle and one-half of its buffalo are concentrated in India. The 1982 Indian livestock census shows that this country has the world's largest number of bovine species owned with 191 million head of cattle and 69 million head of buffalo.

The usefulness of the bovine species to Indian society is evident not only in its numbers, but in the three functions that bovine contributes mainly in the form of traction, manure, and other animal products. Another feature of the Indian bovine is that the differentiation of the three functions has not been fully developed, and each category of bovine is expected to have several functions. For example, bullocks and cows are expected as a source of manure, leather, meat, and bones, while bullocks provide tractive power and cows produce milk and young stock. Failure to adequately differentiate these functions holds down the quality and productivity of each function at low levels. Although the level of demand for these functions and the set-up of circulation of animal products may impede this differentiation of functions, the major obstacle is believed to be connected with the level of productivity of feed, fodder. Since the feed, fodder basis is correlated to agricultural productivity to a considerable extent, a weak feed, fodder basis is an indicator of low productivity. The structure is such that the level of all bovine functions is both a factor in and a result of restrictions on agricultural productivity levels.

The RCA report's formulation of the bovine economy is as follows. First, the need to acquire and maintain a given number of bullocks determines the number of cows and calves. Second, the number of head is determined by feed distribution with priority being given to bullocks and male young stock. Third, the primary function of cows is reproducing bullocks, production of milk being a secondary function. The report also points to the creation of a vicious circle through the maintaining of surplus cows in order to have a given number of bullocks.

Authors Mishra and Sharma retain the overall framework of the RCA report's formulation in their evaluation of livestock development strategy and analysis of changes in the bovine stock structure in the five year plans since 1951. Livestock development strategy from then is divided into two periods according to its major characteristics. The first period is 1951–66 when the objectives of the strategy were acquiring tractive power, increasing milk production, and supplying urban areas with cheap, sanitary milk. The strategy of the second period from 1966 on is summarized as crossbreeding–cum–commodity-aid. Tractive power was excluded from this period's strategic objectives and urban milk supply was made more important than increasing milk production. Strengthening the feed, fodder basis was not considered important and Operation Flood Programme, targeted at supplying milk to urban areas, had to be augmented by the import of powdered milk and butter oil from overseas. Planned crossbreeding also fell below target giving a number of crossbred cows that was only 5 per cent of total cows. Authors say the cause of this failure was that the crossbred

[2] Government of India, *Report of the National Commission on Agriculture 1976: Part VII, Animal Husbandry* (New Delhi: Ministry of Agriculture, 1976).

bullocks were not well suited for tractive power, and are more critical of livestock development strategy in its second period.

The two most important factors restricting change in the bovine structure are the level of requirement of draft animals and level of feed, fodder basis. Although there was some change in the ratio of cattle to buffalo and ratio of calves to adults, there was little change in the overall bovine structure.

Mishra and Sharma point out that one of the reasons for this lack of change is that despite the progress in agricultural mechanization in some regions there has been no major change in the demand for bullocks throughout the nation as a whole. The need to acquire tractive power is definitely a great regulator of the present bovine structure.

However, a relative shortage of feed, fodder may not be a clear second factor restricting the present bovine structure because production of green fodder, concentrates, and dry fodder has more than doubled from 1951 to 1982. Attention should be given to the increasing ratio of cows to bullocks in Punjab and Haryana where relative progress is being made in mechanizing farms and strengthening the feed, fodder basis. These two states are strengthening their feed, fodder basis by moving toward increasing the number of not only she-buffalos but cows to increase milk production rather than in the direction of having a smaller number of cows to reproduce a given number of bullocks, i.e., the direction of intensive cattle composition. Whether this is regarded as a phenomenon occurring because the feed, fodder basis is not strengthened enough yet or whether it is seen as grounds for arguments against the ideas that weak feed, fodder basis is a factor restricting the bovine structure will change the entire direction of future research. India's "surplus" cattle controversy is not yet concluded.

I contend that there is no way to prove weakness in the feed, fodder basis when a given feed, fodder basis is reproducing the existing number of livestock and livestock structure and when both are in equilibrium. Weak feed, fodder basis is effective as a factor for explaining the bovine structure only when an international comparison is made of levels of livestock feed input and livestock products or when the present feed, fodder basis in connection with bovine structure can be theoretically positioned as a historical stage in the development of Indian agriculture. Applying the theories of historical development in agriculture to Europe, for example, pays attention to the system of cultivation and systematizes the concepts of various rotational cropping systems that have a direct link with the bovine structure. Developing a cultivation system and obtaining more sophisticated feed productivity naturally brings changes to the forms of livestock maintenance and management. Better models are needed to gain a clearer awareness of the outlook for the bovine structure and the direction of development in Indian agriculture. Only work of this kind will deal with the problem of "surplus" cattle meaningfully. The research on livestock development strategy and changes in livestock structure outlined in *Livestock Development in India: An Appraisal* will provide important references for further enhancement of research on livestock.

(Takashi Shinoda)