Agriculture in the Far East

Agricultural Development in China, Japan and Korea. Papers from a conference, Taipei, Dec. 1980. CHI-MING HOU and TZONG-SHIAN YU, Eds. Academia Sinica, Taipei, Republic of China, 1983 (U.S. distributor, University of Washington Press, Seattle). xiv, 878 pp., illus. $40.

Early theories of development tended to view expansion of industry as the path to economic growth. Agriculture was seen as subsidiary, serving primarily as a source of labor, food, raw materials, and investable resources for the growing industrial and urban sectors. After more than two decades of development experience, however, it is now widely accepted that agriculture plays an active role, providing demand for industrial products and employment for much of the labor force. During the process of development, agriculture must experience internal change characterized by technological transformation, commercialization, investment in productive and human capital, and the changing composition of inputs and outputs.

Agricultural Development in China, Japan and Korea presents 23 papers on the nature of agricultural development and its role in the growth process. Among the authors are a number of notable economists. Yujiro Hayami and Kazushi Ohkawa contribute papers on Japan, and John Fei, Gustav Ranis, Nai-ruenn Chen, and Chi-ming Hou are among the authors of papers on comparative economic development. Although apparently no economists from the People's Republic of China participated in the conference, the section on the PRC includes papers written by prominent U.S. sinologists such as Robert Dernberger, Nicholas Lardy, Kang Chao, and Peter Schran.

The volume emphasizes three aspects of agricultural growth: input-output relations of agricultural production; agricultural institutions and policies; and interdependence between agriculture and industry. Regional coverage, as the title indicates, is confined to these three East Asian countries, with Taiwan and Mainland China treated separately. Mainland China aside, these countries count among the most successful late-developing nations. Their experiences, therefore, provide insight into the path toward successful growth and the role of agriculture therein.

Although the timing and pace of their agricultural development have differed, the overall similarities of the three countries are striking. Similarities in secular trends are revealed in the papers on input-output relations, which use more or less identical methods to investigate the historical evolution of agricultural input-output relations. For all three countries, these studies identify an agricultural transition demarcated into two broad phases. The first phase is characterized by rapid growth in the use of nonfarm inputs such as chemical fertilizers and pesticides, accompanied by diffusion of newer seeds and improved water control. Agricultural technology becomes increasingly labor-intensive and land-saving, leading to rapid growth in land productivity. Mechanization occurs primarily in land preparation tasks such as plowing and weeding. Staple grains remain the major component of agricultural output, although production of nonstaple products such as fruit, vegetables, and livestock begins to become more important.

The second phase is characterized by shifts toward labor-saving techniques. In order to ease labor shortages at peak seasons, mechanization now expands to tasks such as planting, harvesting, and threshing. Growth in labor productivity accelerates while land productivity levels off. Use of nonfarm inputs continues its upward trend, but livestock feed as opposed to fertilizer accounts for much of the growth. Finally, the composition of agricultural output shifts markedly from staple grains to nonstaple products. The proportion of rice and other grains in total output falls from earlier levels of 80 to 90 percent to less than 50 percent. Meanwhile, the proportion of livestock increases to between 20 and 40 percent and the proportion of fruits and vegetables to about 20 percent of total output.

As mentioned above, these countries' agricultural progress has not been uniform. At present, Japan and Taiwan are clearly well into the second phase; however, the first phase of Taiwan's agricultural development transition started considerably later and took place more rapidly than Japan's. Korea is less advanced into the second phase. Mainland China has, according to the papers in this volume, apparently never emerged from the first phase. It is interesting to note, however, that since recent reforms in the late 1970's production of nonstaples in the PRC has grown extremely rapidly, indicating change in output composition along the lines of that observed during the second phase elsewhere.

Some explanations for the similarity of Korea's, Taiwan's, and Japan's paths of agricultural development can be gleaned from the papers treating agricultural institutions and policies. Most obvious is the similarity in initial agricultural conditions and natural resource endowments in all three countries: agriculture was initially labor-abundant, land-scarce, and dominated by rice culture. Land-saving, labor-intensive technologies adopted during the first phase of agricultural development were thus appropriate. The fact that Japan, which pioneered the development and diffusion of these technologies at home, promoted similar agricultural development policies in Taiwan and Korea while occupying those countries during the interwar period undoubtedly reinforced the similarity. Agricultural policies pursued in these countries included development of agricultural research and extension systems; education of the rural population; improvement of marketing and rural infrastructure, especially with regard to irrigation; and policies preventing deterioration of the terms of trade for agriculture. Finally, the institutional structure of agriculture in all three countries was and continues to be characterized by smallholder farming. Small family farms were receptive to the labor-intensive new technology.

Transition to the second phase in all three countries was prompted by successful industrialization and increasing affluence. Industrial expansion increased labor demand to the point where agriculture began to experience labor shortages and wage rates started to increase. These developments, together with reduced rates of population growth, prompted the switch from land-saving to labor-saving technologies. As incomes rose, patterns

of consumption changed. Consumer demand for more income-elastic products like meat, fruits, and vegetables rose more rapidly than the demand for grain. Changing demand patterns induced the shift in the composition of agricultural output from staples to nonstaples and also prompted the increased importance of livestock feed in current farm inputs.

As discussed in the papers on sectoral relationships, the nature of the interaction between agriculture and industry changed as agriculture moved from the first phase to the second. Throughout both phases the agricultural sector provided labor to industry, but only in the second phase did this lead to significant rural labor shortages and wage increases. During the first phase technological change was largely promoted by supply-side policies designed to create the agricultural surplus needed to support industrialization. By the second phase, however, the direction of agricultural development was increasingly led by demand. This transformation in the nature and direction of industrial-agricultural interactions constitutes an additional element of the agricultural transition.

Of the papers in this volume on Japan, Taiwan, and Korea, the set examining secular input-output trends is the most comprehensive and consistent. These papers trace out each country's agricultural development path and allow useful comparison among the countries. The papers on institutions, policies, and rural-urban interactions are more variable in quality and less comprehensive. Although individual papers stand on their own, as a group they do little to explain differences among countries in the timing and pace of agricultural development. Moreover, they do not provide an adequate basis for intercountry comparison of government policies toward agriculture or for comparison of the impact of those policies on agricultural development.

The six papers treating agricultural development in the PRC are diverse and, owing to the distinctive character of that country, not fully comparable with the others. This reviewer found Tang and Huang's analysis of input-output changes between 1952 and 1979, Lardy's examination of intersectoral resource flows, and Schran's analysis of recent changes associated with the four modernizations of particular interest.

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New World Cultures

Indians of the Upper Texas Coast. LAWRENCE E. ATEN. Academic Press, New York, 1983. xxiv, 370 pp., illus. $39.50. New World Archaeological Record.

The prehistoric and historic cultures of the upper Texas coast have the distinction of being among the least known from any region north of the Rio Grande. None of the natives of the area survived in a cultural sense into the 20th century, only a few of its acculturated 19th-century survivors related anything about themselves to anthropologists or others, and earlier accounts by shipwreck survivors (among them Cabeza de Vaca), Spanish missionaries, French traders, soldiers, and others are relatively scarce, fragmentary, and often of questionable reliability. Archeological investigations of the upper Texas coast were slow to get under way, and despite salvage programs and environmental assessment surveys that have accelerated the accumulation of data since the mid-1960's knowledge of its prehistory is poor.

Given such relatively meager data, it would seem unlikely that any scholar would have the audacity to undertake a "detailed synthesis of the region's culture history" (p. xvii). But the author of this book has done so, and the results are surprisingly informative and successful. His broad, holistic approach serves to alert archeologists of the benefits to be gained by overstepping disciplinary boundaries to utilize every scrap of relevant evidence. In this instance the discussion and explanation of "Late Quaternary environments" (chapter 8), and particularly of the terrace stratigraphy of the region, are particularly helpful, presenting information that is probably necessary to the understanding of its early cultures. Part 1, which consists of five chapters devoted to The Ethnohistoric Framework, is, though less successful, even more crucial in that it attempts to establish a cultural framework against or through which the prehistoric past may be viewed. Implicit, perhaps, in this emphasis is the recognition that too often areal syntheses have not made explicit, if in fact there was any awareness, that ethnographic models and assumptions were being employed.

Although generally a succinct and accurate summary of the historic natives of the upper Texas coast (the easternmost band of Karankawas and the Atakapan-speaking peoples—Akokisa, Bidai, Atakapa proper, and some minor "other groups"), part 1 contains some perplexing lapses and errors. Thus, the hypothesis that the Karankawas were Carib speakers who had colonized the Texas coast from the sea a generation or so before Europeans arrived is given far more credence than it deserves. Aten states that "no independent evidence is available at present to evaluate this possibility" (p. 29), despite archeological evidence that suggests that Karankawas were ancient inhabitants of coastal Texas. And, logically considered, the likelihood that Carib-speaking voyagers might forget and forgo their maritime culture in a few years to become littoral foragers (or *strandloopers*, the term Aten prefers, p. 11) is virtually nil.

Oddly too, Aten overlooks the significant fact that the poorly known Bidai, unlike other Atakapan speakers, raised substantial crops of corn. Apparently it is assumed that in terms of sociopolitical integration, population, and whatever archeological profile their ancestors might have left they did not differ significantly from other ethnic groups of the upper Texas coast. This seems unlikely. It would be more realistic to consider the Bidai, other than linguistically, to be an outlying or provincial group of the Hasinai Caddo, with whom, incidentally, they were sometimes aligned (or misaligned) by early observers.

Apart from its significance as the first sophisticated attempt to summarize the culture history of the upper Texas coast, this volume will likely become a model for those who aspire to create similar syntheses for other regions. This may be its major contribution.

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Paleohydrology

Background to Palaeohydrology. A Perspective. K. J. GREGORY, Ed. Wiley-Interscience, New York, 1983. xvi, 486 pp., illus. $57.

Paleohydrology is the study of the movements of water and sediment in various environments before the time of continuous hydrological records. Paleohydrology can encompass periods as short as decades or as long as millions of years. It is an interdisciplinary field based on geology, geomorphology, hydrology, sedimentology, ecology, and archeology.

This is an important book, not so much for the quality of its content as for