Farming systems

In the last decade, anthropology has experienced a resurgence of interest in ecology and the physical and biotic environments of human populations (eg, Conklin 1963, 1967, Flannery 1965, Geertz 1966, Rappaport 1967, Shimkin 1969, Vayda (ed) 1969). Simultaneously, the anthropological view of economic systems has widened to include marketing systems as legitimate entities for study (eg, Dewey 1962, Forman and Riegelhaupt 1970, Mintz 1959, 1960, Ortiz 1967, Skinner 1964-5, Smith 1971). Efforts to bridge the narrowing gap between these literatures have not been numerous, largely because most ecologically oriented anthropologists have been engaged (and reasonably so) in micro-studies. The noble effort of Geertz in Agricultural involution (1966) to relate population-, economic-, and landscape-system changes in Java illustrates the potential of meso- and macro-studies, but these are just beginning to be undertaken on an empirical basis, and suffer greatly from data limitations.

It is clear that farming systems constitute a very important link between Economy and Environment; the vast majority of the world's population participate (however minimally) in market exchange, and increasingly are dependent upon markets for continuous supply of food; in western Europe and North America this dependence is nearly total, and more than half of the retail value of food goes to processors, distributors, and shippers. Increase in market-dependence in the population (eg, because of increasing urbanization, local specialization, etc) necessitates changes in the farming system which produces agricultural commodities (eg, intensification of production,

changes in factors of production, changes of scale). The result is a change in the demands made upon the array of physical resources (eg, leading to abandonment of marginal land, investment in irrigation, chemical fertilization and pest control), which may be directly observed as transformation of the physical landscape, and indirectly through its effects upon the distribution of the human population upon the physical landscape.

Harvey (1966) presents an excellent discussion of geographical and economic approaches to land-use studies, and notes that work on the behavioral aspects of agricultural activity has been primarily descriptive, while that on the economic aspects has tended to be normative; the same may be said of anthropological studies of farming systems. Anthropologists have made notable contributions to what is known about the great variety of agricultural systems, but most of their empirical work has been among peasants and subsistence cultivators; in addition, most farming-system studies have been concerned only with the production process in agriculture, and marketing is rarely discussed. Modern agriculture has attracted few researchers, principally because it is the exception (and usually a recent intrusion) in the areas where anthropologists usually work, but also because the field is willingly conceded to agricultural economics as beyond the analytic tools and capabilities of anthropology.

Study of farming systems in contemporary North America requires that the connection betwedn production and marketing activities be made explicit, because the viability of productive enterprise is dependent upon production for market sale. Market participation

involves farmers in supra-local economies: the prices received for commodities are (in part) a function of demand in external markets, and external demand is a function of the availability of alternative (ie, cheaper) sources of supply. In order to remain a viable production unit, a farmer must consistently make a profit; in order to do this, he must be responsive to changes in external demand and to new opportunities to increase the efficiency of his operation. The North American farmer must continually expand and intensify his production if he is to remain competitive in the market for agricultural commodities; he must somehow find the capital to acquire more land, better facilities, and more machinery.

The following quotes epitomise the situation in which the farmer finds himself in a highly-articulated market economy with a rapidly-developing technology:

> I don't want to be a crybaby, but in 1950 I sold corn for $1.45 or $1.50 a bushel. Three years later I bought a brand new tractor for $2400. Now, the same tractor will cost $7000 or $8000 and corn's worth a dollar.
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> A few weeks ago when potatoes was down to a dollar a barrel, the stores right here in Fort Kent was retailin' 'em at 59¢ a peck --that's $6.49 a barrel.

The farmer's share of the consumer's food dollar declines, but the costs of inputs to agricultural production and the exactions of processing and distribution continue to rise. The consequences for the farmer are that he must invest in and utilize technological advances to produce more efficiently in order to continue to make a profit from his operations; he must rationalize his production by changing his inputs and/or his process in order to produce more and/or better-quality products per unit of fixed resources, or else

he must remove himself from sole dependence on production for market sale. This generalization applies to all agricultural commodities, although specific requisite inputs and fixed resources vary considerably.

The process of increase in scale of enterprise and substitution of machinery for human labor may be summed up as "rationalization". Since the end of World War II, the transformation of North American agriculture implied in this process has greatly decreased the number of farms and the proportion of the labor force engaged in agriculture, but greatly increased the overall efficiency of agricultural production. The small family farm is uneconomical and obsolete, and is rapidly being replaced by "agribusiness" enterprises which are equipped to deal with the risks and capital requirements of modern agricultural production (Shepherd 1962, Doll et al 1968).

This transformation process and its consequences for human population systems has not been studied in detail. Demographers have noted that much of the urban growth of the last 30 years is due to the cityward migration of rural people, especially the young, largely the result of "push" factors and particularly "mechanization or automation of tasks previously performed by more labor-intensive procedures" (Bogue 1969:753); it is generally recognized that the opportunity structure of the North American economy has been predominantly urban --or perhaps more accurately, non-rural-- for the last 30 years. Poignant popularizations of the process (eg, Lyford 1962), enthusiastic agribusiness boosterism (National Geographic 1970), and radical critiques of the means by which the transformation has been accomplished are not wanting, but detailed study of the antecedents and effects of

the process in a specific area are nonexistant. The proposed research seeks to remedy this deficiency by intensive examination of the transformation of agriculture in the Annapolis Valley region of Nova Scotia during the period 1946-1971.