Changes in prehistoric Southwestern architecture have been interpreted as the result of increasing dependence on agriculture through time which promoted greater sedentism. Recent archaeological research has produced data that point to changes in labor organization rather than agricultural productivity as the factors that most likely favored new forms of domestic architecture. In fact, some of the most striking temporal shifts in residential architecture may have been associated with declining agricultural productivity.

KEY WORDS: American Southwest; pithouses; intensification; households.

ARCHITECTURAL CHANGE AND AGRICULTURAL INTENSIFICATION

Among archaeologists of the American Southwest there is a widespread view that prehistoric vernacular architecture was closely linked to subsistence economies, especially the degree to which an economic system allowed long-term group sedentism; protracted sedentism is assumed to produce greater investment in housing and other permanent facilities, as well as more functionally specific activity areas (e.g., Plog, 1973). Pit structures are poorly suited to the expansion of habitation space compared to surface rooms (Schiffer and McGuire, 1992) and therefore situations in which settlement growth is necessary or anticipated should favor alternatives to pithouses. This assumption has been particularly important in efforts to explain...
the replacement of pit structure dwellings by contiguous blocks of surface rooms, a development referred to as the “pithouse-to-pueblo transition” in the Southwest, but which is clearly an example of more general patterns of settlement change in arid regions throughout the world (Byrd, 1994).

Gilman (1987) compiled an extensive array of ethnographic data about societies that build pit structure dwellings and observed that pithouses are generally used by groups that depend on stored food to support extended seasonal periods of residential immobility. She used this ethnographic relationship to argue that the pithouse-to-pueblo transition was likely an accommodation to greater storage needs and specialized food processing stemming from intensification of agricultural production (Gilman, 1987, p. 548; see also Hunter-Anderson, 1977).

Gilman’s proposition is generally attractive, and has been very influential, simply because farmers have to increase storage capacity in order to realize any long-term value from higher yields and therefore energy investment in storage architecture would likely signal a corresponding increase in storable produce (see Flannery, 1972). However, Gilman did not identify any particular per capita consumption rates or exact levels of productivity that would make the costs of pithouse architecture unacceptable, and she equates agricultural intensification with greater amounts of stored food rather than increases in the amount of labor per unit of marginal return (Gilman, 1987, p. 554). While the model highlights a significant relationship between spatial complexity and sedentism, the role of agricultural intensification is not clear-cut.

In defense of Gilman’s model, the archaeological record does indicate that the expansion of storage capacity within pit structures was limited by the constraints of subterranean building methods, and that efforts to increase storage by appending new pit structures were not particularly efficient. However, we cannot use potential food storage capacity as a proxy for agricultural intensification as that creates a circular logic. To determine whether the need for more storage space and greater spatial functionalization was driven by increased agricultural productivity, we have to have lines for evidence for evaluating food production that are independent of architectural patterns.

I think the first step in such an evaluation should be to separate the issue of storage capacity from the concept of economic intensification. Large crop yields or high levels of domesticate consumption might be the product of intensification, but not necessarily. In economic theory, intensification usually refers to decreasing marginal returns per unit of input; for example, when an increase in the amount of labor in a production process leads to a decline in the average per capita productivity. Overall yield might still increase but the process could be experiencing diminishing returns or yields could increase rapidly without any significant intensification if the marginal returns to labor