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A Cross-Cultural Examination of Chayanov's Theory

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Saling 1978; Saling and Tyson 1981; Saling and Bonert 1983; Salk 1970, 1973).

Although it is unlikely that the leftward holding bias is caused by neonatal head-position biases or maternal manual preferences, there is at least one other human asymmetry which could form a part of the basis of holding preferences: Weinstein (1963) has shown that the left female breast is more sensitive to pressure than the right breast; like the holding bias, the pressure asymmetry is biased to the left in both right- and left-handed females. It is noteworthy in this respect that there are higher norepinephrine concentrations on the right than on the left in the somatosensory regions of the human thalamus (Oke et al. 1978); these areas mediate tactile sensation on the left side of the body. We are currently entertaining the hypothesis that the leftward holding bias is embedded within a somatosensory gradient of this nature (also, see Lockhard et al. 1979).

A potentially viable hypothesis should also mention possible motor contributions to the lateral holding bias. Because holding is a tonic postural configuration, it seems likely that part of an underlying neural asymmetry would be located at the level of the extrapyramidal system. Animal studies (see Pearlson and Robinson 1982 for a review) have demonstrated a number of neurobiochemical asymmetries at this level of the nervous system; however, data for the human brain are still lacking.

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A Cross-cultural Examination of Chayanov's Theory[1]

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Over half a century ago, the Russian economist A. V. Chayanov developed a controversial theory aimed at explaining the allocation of land and labor by peasant farmers. According to Chayanov, the number of consumers (*C*) and workers (*W*) in a peasant household strongly affects its total volume of production (*P*). The number of consumers influences the minimal output that a household must produce, while the consumer-worker ratio influences the amount each household produces beyond a socially defined "consumption standard."

Although anthropologists have long been interested in the operations of kin-based rural household economies, they largely ignored Chayanov's theory until two decades ago, when some of his most important work was translated into English (Chayanov 1966 [1920s]).[2] Since that time there has been an upsurge of interest in Chayanov's ideas. Sahlins has discussed them in two influential publications (1971, 1972), and numerous anthropologists (e.g., Minge-Kalman 1977, Durrenberger 1980, Lewis 1981, Stier 1982) and other social scientists (e.g., Harrison 1975, Hunt 1979, Patnaik 1979) have tested the theory in different locales. These writers, however, have differed greatly in their interpretations and tests of Chayanov's ideas. Moreover, social scientists examining Chayanov's theory intraculturally (e.g., Durrenberger n.d.) or cross-culturally (e.g., Sahlins 1971) have used data from at most three or four communities. For these reasons, little is known about the extent to which Chayanov's ideas are generally applicable.

Peggy Bartlett, Carole Browner, and Paul Durrenberger provided useful comments on earlier versions of this paper. Marjorie Remacle-Taylor helped with the data analysis. These people are not responsible for any deficiencies of the paper and do not necessarily agree with all the ideas presented here.

[2] Chayanov did have some influence on work done by Japanese and Dutch social scientists in the 1930s.

This brief paper is an attempt to operationalize Chayanov's theory and to test it in a variety of societies. Six hypotheses derived from Chayanov's theory are tested using 12 data sets collected by social scientists and census takers.[3] These data sets support Chayanov's central idea that the economic behavior of family farms is influenced by their numbers of consumers and workers but suggest that he may have erred in the relative emphasis he placed on different aspects of household demography.

Chayanov's theory concerns the economic behavior of partially monetized family farms that do not hire labor (Chayanov 1966 [1920s]:51). The theory is based on detailed studies of Russian farms carried out by Chayanov and others from 1870 to 1920. Chayanov contended that 90% or more of the farms in Russia at that time used only unpaid family labor and thought his model stood for the most typical farm in what was one of the largest peasant countries in the world (p. 112).

According to Chayanov (pp. 78, 105–6), peasant households that do not use hired labor aim above all at producing enough to attain the minimal locally acceptable standard of living. Chayanov noted (pp. 105–6) that this *socially defined* "consumption standard" varies from community to community but was not explicit about what determines the consumption standard in any particular community. It seems reasonable to assume, however, that in most peasant communities, the "consumption standard" is somewhat higher than the standard of living of the poorest inhabitants.

Chayanov claimed (pp. 53, 230) that the minimal output a peasant farm family must produce to attain the consumption standard is determined by the number of consumers in the household and the amount of rent and taxes they must pay. The volume of economic activity of households having trouble attaining the consumption standard thus depends "on the number of consumers and not at all on the number of workers" (p. 78). If a sizable percentage of households (the "poor") in a particular peasant community have difficulty producing enough to attain the minimal socially acceptable standard of living, there should be a positive relationship between C and P. Since Chayanov asserts (pp. 79, 106) that consumption demands are ordinarily one of several factors influencing the total output of household workers, he evidently thought that in most peasant communities many households do have some difficulty attaining the socially defined "subsistence requirement."

Hypothesis 1: C and P will be positively correlated.[4]

Chayanov argued that household production beyond that necessary to satisfy the minimal socially defined subsistence requirement is determined by subjective comparisons of the marginal utility of each additional unit of output with the "drudgery" (marginal disutility) associated with each additional unit of labor input. Chayanov assumed (following classical economics) that the marginal utility of each additional unit of output decreases, while the drudgery associated with each additional unit of labor input increases. When a household reaches the point at which the utility of an additional unit of output is outweighed by the drudgery associated with more labor, it ceases production (p. 83).

Chayanov thought (p. 105) that when labor productivity is low and households have difficulty attaining the consumption standard, the number of consumers is the major demographic determinant of interhousehold variations in production per worker. When socially defined subsistence needs can be met fairly easily, however, the consumer-worker ratio is the major demographic determinant of those variations. Since workers in households with high consumer-worker ratios must spend relatively large amounts of time attaining the consumption standard, the drudgery (marginal disutility) associated with their labor inputs beyond "subsistence" is higher than that of household with lower consumer-worker ratios. Households with high consumer-worker ratios therefore produce relatively small surpluses. This argument makes the debatable assumption that the marginal utilities of output beyond the consumption standard are unrelated to a household's consumer-worker ratio.

Sahlins (1971:34) has interpreted Chayanov as claiming that $P/W = KC/W$, where K is the average amount of production necessary to support a consumer at a socially acceptable standard of living. Since $K = (P/W)/(C/W) = P/C$, this interpretation (which Sahlins calls "Chayanov's rule") implies that P/C will be constant for households within any particular community. As Smith (1979:478) points out, this assumption of an "inert norm of domestic livelihood" ignores Chayanov's ideas about the effects of drudgery on household production. Smith (1979:478) and Harrison (1975:399) more plausibly conclude that Chayanov's theory implies that as consumer-worker ratio rises, output per worker will also rise but output per consumer will fall. Households with increasing consumer-worker ratios must increase their production per worker in order to prevent production per consumer from dropping below the consumption standard.

Hypothesis 2: P/W and C/W will be positively correlated.[5]

Since households adjust production per worker to prevent production per consumer from dropping below the consumption standard, P/W should vary more between households than P/C.

Hypothesis 3: The coefficient of variation (standard deviation divided by mean) of P/W will be greater than that of P/C.

The relatively large amounts of drudgery associated with labor inputs beyond "subsistence" for households with unfavorable consumer-worker ratios suggests that, other things being equal, their production per consumer will be relatively low. Chayanov himself, however, was not altogether clear about what he expected to be the relationship between C/W and P/W. He rather ambiguously wrote (p. 79): "it is exceedingly significant and entirely of a pattern that an increase in worker's output caused by an increase in number of consumers does not cause a parallel increase in well-being and in some budget inquiries (Novgorod) *even leads to a reduction in it.*"

Hypothesis 4: C/W and P/C will be negatively correlated.

Although Chayanov recognized that the number of workers in a household places a ceiling on total possible production (p. 53), his theory places little emphasis on how the number of producers affects economic behavior. He did briefly note, however, that in households with many producers, returns per unit of labor may increase because of the possibility of "complex cooperation in work" (p. 60). The greater efficiency of households with many workers means that the drudgery associated with each additional unit of their output is relatively low. This implies that for two households with the same number of consumers, the one with the greater number of workers will produce more.

[3] These six hypotheses use the terminology of modern statistics. Since Chayanov did not ordinarily use this terminology, I cannot be entirely certain that he would have accepted all these hypotheses. Although it might be argued that these problems of "translation" (operationalization) preclude a definitive test of Chayanov's theory, an examination of the extent to which these hypotheses hold in different societies provides at the minimum some important cross-cultural evidence about the economic effects of household demography.

[4] This argument will not hold if in a particular community all households can attain the consumption standard rather easily. In such circumstances, Hypotheses 2, 3, and 4 would also not be expected to hold. My argument about the way consumption standards are ordinarily set suggests that communities of this type are uncommon.

[5] It is possible for the direction of correlation between C/W and P/W to differ from that between C and P (see, for example, the Lahu data set, table 3). This does not imply that the correlation between C/W and P/W is independent of that between C and P. Schuessler (1973) and Stier (1982) have discussed the complex subject of ratio variables in some detail.

Hypothesis 5: W and P will be positively correlated.

Hypothesis 6: The correlation between C and P will be greater than that between W and P.

In recent years there has been considerable controversy over where Chayanov's theory can be expected to be useful. Several anthropologists (e.g., Durrenberger 1980) have applied the theory in communities in which farmers hire some labor, while others (e.g., Sahlins 1971, 1972) have argued that Chayanov's ideas help explain household economic behavior in nonmonetized communities. A number of writers (e.g., Harrison 1975, Patnaik 1979), however, claim that Chayanov greatly overemphasized the economic effects of household demography even in early 20th-century Russia. These writers agree with Lenin (1956 [1899]) that class differentiation is the most important cause of intracommunity variations in production in peasant societies.

The 12 data sets assembled for this paper (see tables 1 and 2) allow a preliminary assessment of the extent to which Chayanov's theory is generally applicable. All major world areas except Latin America are represented, and the level of sociocultural complexity ranges from relatively isolated New Guinea horticulturalists to commercial Swiss farmers.

Three data sets (Kenya, Bambara, Swiss) were found by an examination of recent anthropological journals and a search of the 139 articles citing Chayanov listed in the Social Sciences Citation Index from 1975 to 1981. Another three (Tonga, Ka-

TABLE 1

THE DATA SETS

NAME	N	LOCATION	SOURCE(S)	YEAR(S) COLLECTED
Tonga	20	Mazulu, Zambia	Scudder (1962), Sahlins (1971)	1956–57
Kenya	23	Mbere, Kenya	Hunt (1979)	1972–74
Bambara	43	Dukolomba, Mali	Lewis (1981)	1974–75
Kapauku	16	Botukebo, New Guinea	Pospisil (1963), Sahlins (1971)	1955
Tsembaga Maring	41	New Guinea	Rappaport (1968), Sahlins (1971)	1962–63
Swiss	10	Le Levron, Switzerland	Minge-Kalman (1977)	1970s
Lisu #1	20	Ban Lum, Thailand	Durrenberger (1979, n.d.)	1968–70
Lisu #2	21	"Evil Peaks," Thailand	Dessaint (1972), Durrenberger (n.d.)	1968–70
Shan	28	Thoungmaaksan, Thailand	Durrenberger (1978)	1976–77
Lahu	12	Sha ohk'a, Thailand	Walker (1970), Durrenberger (n.d.)	1966–69
Iowa 1880	148	Johnson County, Iowa	United States Census	1880
Iowa 1870	98	Johnson County, Iowa	United States Census	1870

TABLE 2

ECONOMIC DESCRIPTION OF DATA SETS

NAME	PRINCIPAL CROP(S)[a]	IMPORTANCE OF CASH CROPS[b]	IMPORTANCE OF HIRED LABOR[b]
Tonga	millet, sorghum, maize	very minor	minor
Kenya	millet, sorghum, peas, maize, beans	very minor	very minor
Bambara	sorghum, millet	minor	minor
Kapauku	sweet potatoes	none[c]	none[c]
Tsembaga Maring	sweet potatoes, yams, taro	none	no data
Swiss	potatoes, hay	major	none (households hiring labor omitted from sample)
Lisu #1	rice, opium	moderate	moderate
Lisu #2	rice, opium, maize	moderate	moderate
Shan	rice, soybeans, garlic	moderate	moderate
Lahu	rice, maize, opium, chillies	moderate	moderate
Iowa 1880	maize	major	moderate
Iowa 1870	maize	major	moderate

[a] Livestock are important in many of the communities included in the data sets.

[b] These are my judgments reached by examining the ethnographic sources "Cash crops" are those sold for national money. "Hired labor" is paid for with national money.

[c] Pospisil would dispute this assessment, since he regards Kapauku shell money as cash (see Pospisil 1963).

pauku, Tsembaga Maring) were found in an article by Sahlins (1971). The four Thai sets (Lisu #1, Lisu #2, Shan, Lahu) were provided to me by Paul Durrenberger, who has used them to test Chayanov's theory somewhat differently than is done here (see Durrenberger 1980, n.d.). I compiled the remaining two data sets from the 1870 to 1880 United States censuses of Johnson County, Iowa.

Although these data sets provide considerable evidence concerning the cross-cultural applicability of Chayanov's theory, several problems of data quality limit the extent to which conclusions can be drawn. The data sets do not represent a random sample of all societies to which the theory might apply, and there is no way of knowing how well the communities from which data were collected typify the societies they represent. The data sets also suffer from the problems of comparability and quality control that are inevitable in cross-cultural studies. They differ somewhat in their measures of *C*, *W*, and *P*.[6] Moreover, I cannot be certain that the data collectors have always accurately delineated units of production and consumption. For these reasons, the findings reported here must be regarded as tentative.

Tables 3 and 4 show that the 12 data sets strongly support the hypotheses derived from Chayanov's theory concerning the relationships between *C* and *P* and *W* and *P* (Hypotheses 1 and 5). The Pearson correlation between *C* and *P* is positive for all data sets and statistically significant at the .05 level in 9. The correlation between *W* and *P* is positive and statistically significant at the .05 level in 11 of the 12 data sets.

The data also provide considerable support for two additional hypotheses derived from Chayanov's theory. The theory implies a positive correlation between *C*/*W* and *P*/*W* (Hypothesis 2) and a negative correlation between *C*/*W* and *P*/*C* (Hypothesis 4). The correlation between *C*/*W* and *P*/*W* is positive in 11 of the 12 data sets but is greater than .3 in only 4. The small size of many of the data sets combined with modest positive correlations causes this relationship to be statistically significant at the .05 level in only 5 cases. The correlation between *C*/*W* and *P*/*C* is negative in 9 data sets and statistically significant at the .05 level in 6. An alternative way to state this result is that there is often a statistically significant positive relationship between *W*/*C* and *P*/*C*.

[6] A longer version of this paper (Chibnik 1983) presented at the third annual meeting of the Society for Economic Anthropology contains an extended discussion of theoretical and methodological problems associated with measuring *C*, *W*, and *P* and a detailed description of the data sets. Copies of this longer paper are available on request.

The data provide no support for the remaining two hypotheses derived from Chayanov's theory. The theory implies that correlations between *C* and *P* will be greater than those between *W* and *P* (Hypothesis 6). In many data sets these two correlations are quite similar because of high correlations between *C* and *W*. Nevertheless, in 7 of the 12 data sets the correlation between *C* and *P* is *less* than that between *W* and *P*. Chayanov's theory also implies that *P*/*W* will be more variable than *P*/*C* (Hypothesis 3). In 7 of the 12 data sets, however, the coefficient of variation of *P*/*W* is less than that of *P*/*C*.

Table 4 shows that the data sets do not vary much in the extent to which they are "Chayanov-like." None of the data sets support all six predictions derived from Chayanov's theory. Five predictions hold up in six data sets, four predictions in five, and three in one.

The preceding analysis provides ammunition for both proponents and critics of Chayanov's model of family farming. Although data from diverse societies support Chayanov's basic argument that household composition influences the economic behavior of family farms, the effects of demographic factors on intracommunity variations in production are often rather modest. The data suggest, moreover, that Chayanov erred in the relative emphasis he placed on working capacity and consumption requirements as determinants of household economic activity. The cross-cultural materials also show that Chayanov underestimated the extent to which his theory applies to family farmers quite unlike his rather narrowly defined "peasants."

Household demography and economic behavior. Even if demographic variables are the only determinants of variations in household economic behavior in a particular community, Chayanov's theory does not imply that correlations between *C* and *P*, *W* and *P*, *C*/*W* and *P*/*W*, and *W*/*C* and *P*/*C* should equal 1.0. A Pearson correlation between variables *X* and *Y* will equal 1.0 only if the relationship between *X* and *Y* can be represented by the equation $Y = aX + b$, where *a* and *b* are constants (Blalock 1972:377). The hypotheses I have derived from Chayanov's theory, however, are not stated in this "linear" form. For example, the hypothesis (1) that *C* and *P* will be positively correlated does not assert that "an equation of the form $P = aC + b$ will predict household production." Although Hypothesis 1 is based on the argument that some (not all) households in a peasant community increase *P* in response to increases in *C*, no assumption is made that the relationship between *C* and *P* is linear. The small or nonexistent effect of *C* and *P* among households having little trouble attaining the consumption standard because of their favorable consumer-worker ratio also reduces the correlation between *C* and *P*.

TABLE 3

RELATIONSHIPS AMONG *C*, *P*, AND *W*

DATA SET	CORRELATIONS[a]					COEFFICIENTS OF VARIATION[b]	
	C and *P*	*W* and *P*	*C* and *W*	*C*/*W* and *P*/*W*	*C*/*W* and *P*/*C*	*P*/*W*	*P*/*C*
Tonga	.82*	.85*	.92*	38*	−.51*	22.2	26.7
Kenya	.65*	.40*	.63*	.38*	.00	60.6	49.7
Bambara	.94*	.95*	.97*	.23	−.69*	34.4	54.9
Kapauku	.67*	.67*	.96*	.30	−.01	51.5	52.4
Tsembaga Maring	.55*	.71*	.86*	.17	−.39*	39.9	42.0
Swiss	.36	−.68	−.56	.88*	−.23	48.5	31.0
Lisu #1	.56*	.45*	.85*	.53*	.01	38.9	31.1
Lisu #2	.32	.39*	.65*	.23	−.43*	52.5	58.7
Shan	.66*	.59*	.94*	.29*	− 02	57 3	57.7
Lahu	.44	.55*	.94*	−.38	−.51	62.8	70.4
Iowa 1880	.29*	.28*	.93*	.29	.06	143.4	118.0
Iowa 1870	.38*	.43*	.88*	.02	−.18*	94.9	94.2

* Significant at the 05 level

[a] One-tailed tests were used, with the alternative hypotheses being that the correlations between *C* and *P*, *W* and *P*, *C* and *W*, and *C*/*W* and *P*/*W* would be positive and that the correlation between *C*/*W* and *P*/*C* would be negative

[b] The figure given is 100 (standard deviation/mean)

TABLE 4

EXTENT OF SUPPORT FOR THE SIX HYPOTHESES

DATA SET	HYPOTHESIS					
	1	2	3	4	5	6
Tonga	S	S	N	S	S	N
Kenya	S	S	S	N	S	S
Bambara	S	S	N	S	S	N
Kapauku	S	S	N	S	S	N
Tsembaga Maring	S	S	N	S	S	N
Swiss	S	S	S	S	N	S
Lisu #1	S	S	S	N	S	S
Lisu #2	S	S	N	S	S	N
Shan	S	S	N	S	S	S
Lahu	S	N	N	S	S	N
Iowa 1880	S	S	S	N	S	S
Iowa 1870	S	S	S	S	S	N

NOTE *S*, supports, *N*, does not support.

Nevertheless, correlations between *C* and *P*, *W* and *P*, *C/W* and *P/W*, and *W/C* and *P/C* are sufficiently far from 1.0 in all data sets to suggest that demographic factors are not the only variables affecting the economic behavior of family farms in most communities.[7] Although Chayanov (p. 69) recognized that factors other than household composition influence peasant economic behavior in Russia and elsewhere, he may still have overemphasized the importance of demographic variables.

Because of limitations of the data, my analysis of the relationship between household demography and output in different locales does not control for intracommunity variation in wealth and class status. Patnaik (1979) has argued that many of the demographic effects reported by Chayanov for early 20th-century Russia are spurious because he did not control for such variation. According to Patnaik, for example, positive correlations between *C/W* and *P/W* do not necessarily support Chayanov's theory. Patnaik asserts (pp. 381–88) that (1) richer peasants tend to have larger families because of lower mortality rates; (2) larger families tend to have higher consumer-worker ratios because they contain a greater proportion of children and old people; (3) richer peasants therefore tend to have higher consumer-worker ratios in their households; and (4) richer peasants also have relatively high output per worker because of their larger amounts of capital and land. Patnaik therefore concludes that correlations between *C/W* and *P/W* in early 20th-century Russia were not the result of the effects of consumption demands. Instead, both consumer-worker ratio and output per worker were positively correlated with class status and wealth.

Complex interrelationships of this sort may negate some of the significant correlations between household demography and output reported in this paper. Nonetheless, the cross-cultural consistency of these relationships in both stratified (e.g., Swiss, Iowa) and unstratified (e.g., Tsembaga Maring) societies tends to support Chayanov. Furthermore, an examination of the Iowa data sets (Chibnik 1983:23–25) casts doubt on the cross-cultural validity of Patnaik's assertions about the relationship between wealth and household demography.

Relative effects of W and C. The data suggest that Chayanov may have underestimated the effect of a household's working capacity on its economic behavior and overestimated the effect of household consumption requirements. The correlation between *W* and *P* is higher than between *C* and *P* in 7 of the 12 data sets, and *P/W* is less variable than *P/C* in 7 of the 12 data sets.

One possible interpretation of the high correlations between *W* and *P* in many data sets is that most societies have norms specifying the minimum (and perhaps also maximum) amount of work that males and females of different ages should do. If in any particular community socially defined norms of work limit choice about labor inputs as much as socially defined norms of consumption, correlations between *W* and *P* should be as high as those between *C* and *P*.

In some societies norms of minimal production are enforced by taxes in cash and kind. In other societies such norms are prerequisites for "Sahlins-like" social and political arrangements among households of varying consumer-worker ratios (see Sahlins 1971, 1972). In years of low crop yields, these norms enable households with unfavorable consumer-worker ratios to know that they probably can obtain "surplus" food from households with more favorable consumer-worker ratios.

Households faced with worsening consumer-worker ratios may be about as willing to lower their living standards as they are to increase work effort. This would explain why *P/W* is not more variable in the data sets than *P/C*. An alternative interpretation of this result would be that households with unfavorable consumer-worker ratios keep consumption levels near community norms both by increasing *P/W* (while *decreasing P/C*) and by obtaining some food and income from households with more favorable consumer-worker ratios.

General applicability of Chayanov's theory. Chayanov restricted his theory of peasant economy to partially monetized farms that sell some of their output but do not hire labor. The data sets examined here suggest that household demographic consumption affects the economic behavior of farm households both in societies in which crops are rarely sold (e.g., Tonga, Kenya) and in societies in which farmers hire considerable amounts of labor (e.g., Shan, Iowa 1880). There is little difference in the relative importance of household composition as a determinant of economic behavior between the societies that come close to meeting the conditions of Chayanov's model and those that do not.

Although Chayanov's theory thus appears to apply to a wide variety of family farms and societies, I would not expect it to be equally applicable everywhere. As he himself conceded (p. 112), his theory requires serious modification in situations in which farmers cannot readily acquire land (see also Thorner 1966:xxi–xxii). In such circumstances, as numerous critics (e.g., Harrison 1975, Patnaik 1979) have argued, class differences among rural residents and social and economic relations between family farmers and landlords strongly affect intracommunity variations in household production. Nevertheless, the data analysis presented here suggests that even in quite stratified societies (e.g., the Swiss and Iowa cases) household composition considerably influences family farm production.

[7] This conclusion is supported by analyses of the Iowa data sets (Chibnik 1983:19–21) showing that household capital (as measured by "value of implements") is as important a determinant of farm output as *C* or *W*.

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Toward Ethnographic Cartography: A Case Study[1]

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In the field of ethnographic documentation, ethnographic cartography is clearly an important tool; I need only refer to the various European ethnological atlases to provide emphatic proof of this. I shall attempt here, on the basis of research carried out at the Institut für Völkerkunde in Vienna, to indicate some of the possibilities of this method, particularly for urgent anthropological research, and to provide some possible starting points for discussion of this broad theme.

Why is ethnographic cartography useful? In answering this question two facts must be taken into account. The first is that there are still today areas that are not yet ethnographically accessible or are virtually unknown. The second is that, as a result of the exploitation of raw materials needed for industry—for example, petroleum—traditional cultures are currently being exposed to far-reaching changes. The challenge to ethnologists is to document the traditional cultures that remain before they sink into oblivion. The choice of methods to be employed in this task will be determined by the terrific speed at which cultural changes are taking place. Certain methods of information-gathering cannot be used because they require too much time. The method chosen must, on the one hand, fulfill the ethnological imperative of researching the cultural phenomena in their own context and, on the other hand, permit the completion of documentation in a reasonable length of time. Ethnographic cartography seems to me to fulfill these criteria.

The Arabian petroleum-producing countries today are marked by a lack of extensive ethnographic knowledge and rapid cultural change. For this reason, during my stay in the Ra's al-Khaymah Emirate, United Arab Emirates, in 1978, I undertook to examine and map the distribution of some surviving elements of the material culture (Dostal 1979, 1983*b*). On the basis of the experience gained, I developed a project entitled "Ethnographic Atlas of 'Asīr," which was carried out from 1979 to 1982 in cooperation with the Department of Archaeology and Museology of King Saud University, Riyadh (codirector of the project: A. R. al-Ansari), in the southwestern province of Saudi Arabia (Dostal 1983*a*, Gingrich 1981). Two factors were decisive in the choice of this region: it was one of the ethnographically least known areas of the country, and it is culture-historically significant in that it lies within the area of influence of the pre-Islamic southern Arabian high culture. In what follows I will briefly describe some aspects of the data-gathering process and offer a few preliminary examples of the kind of documentation this method can provide.

This kind of ethnographic documentation calls for data-gathering methods that permit precise definition of the spatial distribution of the phenomena in question to exhibit the sociocultural context of a local culture. With regard to distribution, field survey was necessary in this case, because the country has none of the infrastructural prerequisites for such information networks (teachers interested in ethnography, local interested groups) as were available, for example, in the preparation of the Austrian ethnological atlas (cf. Wolfram 1981, pt. 6, section 3). With regard to the cultural context, a questionnaire was developed to elicit data of the following kinds: (1) general (topography, type and structure of settlements, etc.); (2) economy—cultivation (types of fields, irrigation techniques, storage, crops, methods, division of labor by sex, agricultural calendar) and animal husbandry (types of animals, processing of animal products, division of labor by sex, etc.); (3) material culture—agriculture, animal husbandry, household, architecture, clothing, jewelry—including the origin of the people producing the objects and the method of acquisition; and (4) social structure (family organization, mode of marriage, marital residence, wedding customs, birth customs, kinship terms, social organization, customary law). The questionnaire was tested for reliability in a pilot study and modified accordingly. Being rather comprehensive, it had to be employed by a team of researchers each taking responsibility for a particular section.[2]

Given the time pressure imposed by the very rapid pace of cultural change, we could not hope to become well acquainted with every settlement in the area. To record the spatial distribution of the cultural phenomena as accurately as possible, I therefore decided to gather information in two ways: through a "deep" sample and through a "checking" sample. The deep sample involved use of the questionnaire just described, augmented by collections of cultivated and useful wild plants and samples of the stone, wood, and earth materials used in house construction. The checking sample employed a list of questions prepared from the results of the deep sample to establish the spatial distribution of cultural phenomena covered by the latter, to record the extent of variation of these phenomena, and to permit an assessment of the extent to which such variations should be considered deviations. The complexity of the deviant phenomena was taken as a criterion for this assessment. Where deviation was established by a checking sample, a new deep sample was required, and of course the interval between

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[2] The Austrian members of the team were A. Gingrich, J. Heiss, and E. Stadler; the Saudi Arabian members were Abdul 'Aziz al-'Ashban, Muhammad Ibrahim al-Hamam, and Abdullah Salim Ghanim al-Zahrani.