

The Conditions Favoring Matrilocal Versus Patriloccal Residence

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This paper describes the results of a series of cross-cultural tests of several different explanations of matrilocal versus patriloccal residence. The first explanation tested was the traditional assumption that division of labor determines residence. The results did not support that assumption. The results of other tests suggest rather that patriloccal residence is favored by internal warfare, whether or not such warfare interferes with a normally patridominant division of labor; and matrilocal residence appears to be favored by purely external warfare if such warfare compels the women to do at least as much subsistence work as the men.

ONE EFFECT of a particular pattern of marital residence is to assemble a particular group of kinsmen in one locality. The nature of the group so assembled is known or strongly suspected to be causally related to a number of other aspects of social organization, including the prevailing rule of descent, the ownership and use of productive property, and the degree to which local descent groups are subject to segmentary fission. Although a hundred years of fieldwork have told us much about cross-cultural variation in residence, the conditions that give rise to the relatively small number of different patterns are still only incompletely known. Interpretations have been periodically offered, but for the most part they have not been systematically tested. This paper describes the results of a series of cross-cultural tests of several different explanations of matrilocal vs. patriloccal residence.¹

DIVISION OF LABOR AND RESIDENCE

Perhaps the simplest and most commonly entertained explanation of marital residence is the one that assumes that the division of labor by sex largely determines where a couple resides after marriage (Lippert 1931:237; Linton 1936:168-169; Murdock 1949:203 ff.; Driver and Massey 1957:425 ff.; but see Gough 1961:552-553 for a skeptical view of this interpretation). Ac-

cording to the division of labor interpretation, if a particular sex does most of the work in subsistence activities, the pattern of residence should tend to localize consanguineally related members of that sex. That is, where males predominate in the division of labor, residence should tend to be patriloccal (viriloccal) or avunculocal. Where females predominate, residence should tend to be matrilocal (uxoriloccal). And where neither sex predominates, the pattern of residence should localize neither sex, as in bilocal (ambilocal) and neolocal residence. The data compiled by Driver and Massey (1957) for aboriginal North America support the division of labor interpretation, at least with respect to matrilocality and patrilocality. But we do not know whether a world-wide test would provide similar results. (A related test, but of rules of descent rather than residence, is alluded to by Aberle [1961:705-706] who says he found no support for the division of labor interpretation.)

To test the division of labor interpretation of residence, we employed a sample consisting of the first 455 societies processed for the *Ethnographic Atlas* (Murdock 1962-1963), because the *Ethnographic Atlas* provides information on sex division of labor and patterns of residence, as well as on a number of other variables. The information on residence could be extracted from the

atlas directly (for the procedure followed, see below). The information on division of labor required a little more work to extract, because the atlas does not directly provide an over-all rating of division of labor.

Because we wanted a measure of the relative contribution of each sex to the total subsistence economy, we constructed an index that weighted the contribution of each sex in each of the five primary subsistence activities by the relative importance of that activity in the total subsistence economy (cf. Heath 1958 and Brown 1963). The contribution of the sexes is indicated in the *Ethnographic Atlas* by a series of alphabetic symbols in columns 54-62 (Murdock 1962-1963(2):389). Focusing on the participation of women, we assigned scores to the alphabetic symbols as follows (from most female participation to least): *F* equals 100, *G* equals 75, *D* and *E* equal 50, *N* equals 25, *M* equals 0 (*I*, *O*, and *P* were ignored). Where no information on division of labor was given for a particular type of subsistence activity, a score of 50 was arbitrarily assigned to the participation of women. Estimates of the relative importance of the different activities present in a society were obtained from column 7 of the atlas, which classifies the percentage of the diet derived from each type of subsistence activity according to a 0-9 scale (Murdock 1962-1963(1):115). We took the score denoting the relative participation of women in each type of subsistence activity and multiplied it by the relative importance (0-9) of that activity in the total subsistence economy. These weighted scores were summed over all subsistence activities to provide a total division of labor score for the society. (The largest score a society might receive is 1,000, indicating that women do all the subsistence work. A score of 0 would indicate that men do all the work.)

In order to test the division of labor interpretation of residence, we trichotomized our division of labor scores. A range from 450-550 approximates equal participation by men and women. A score above 550 indicates that women do more work than

men. And a score below 450 indicates that men do more work. For the purpose of the present test, we classified patterns of residence in the following way. We grouped the prevailing patterns of residence, that is, those denoted by capital letters in the atlas (Murdock 1962-1963(1):117-118), according to whether the members of one sex, who are consanguineally related, are localized after marriage, and, if so, which sex is localized. We classify the patterns of residence in this way because, according to the division of labor interpretation, the sex that does more work should be the one most frequently localized after marriage. So, the atlas categories *M* and *U* (matrilocal and uxorilocal) are grouped as indicating that females are localized, the categories *P*, *V*, *A*, and *D* (patrilocal, virilocal, avunculocal, and the option between patrilocal or virilocal and avunculocal, respectively) are grouped as indicating that males are localized, and the categories *B*, *C*, and *N* (the option between patrilocal or virilocal and matrilocal or uxorilocal, the option between uxorilocal and avunculocal, and neolocal, respectively) are grouped as indicating that neither sex is localized.

According to the division of labor interpretation, then, we should find that it is the men who are most frequently localized if they do more subsistence work than women, that women are most frequently localized where they contribute more to the subsistence economy, and that neither sex tends to be localized where both sexes contribute equally to the subsistence economy. The actual association between the trichotomized division of labor scores and the three-fold classification of residence is shown in Table I. The obtained distribution of cases consists of the numbers not in parentheses; the distribution that would be expected by chance, given the obtained marginal totals, consists of the numbers in parentheses. Although the *total* distribution of cases in the table would occur infrequently by chance ($\chi^2 = 12.63$, $.01 < p < .02$), the division of labor interpretation does not predict the *actual* values in the *crucial* cells. In other

TABLE I. DIVISION OF LABOR AND LOCALIZATION OF THE SEXES

Division of Labor	Localization of the Sexes			Total
	Females Localized	Neither Sex Localized	Males Localized	
Men do more than women	28 (33.04)	40 (30.62)	105 (109.34)	173
Neither sex predominates	23 (16.04)	7 (14.87)	54 (53.09)	84
Women do more than men	4 (5.92)	4 (5.49)	23 (19.59)	31
Total	55	51	182	288

$$\chi^2 = 12.63; .02 > p > .01$$

words, the cells that are crucial to the division of labor interpretation of residence (those on the upper right to lower left diagonal) show obtained values smaller than those we would expect by chance. Where men do more than women in subsistence, the patterns of residence that localize males should be found more often than expected by chance; that is, there should be more than 109.34 cases. But, in fact, the patterns in question occur slightly less often than expected (105 cases). Where the sexes do an equal amount of work, we should find that residential patterns localizing neither sex should occur more often than expected by chance (14.87 cases), but they occur less often (7 cases). Similarly, where women do more than men, localization of females occurs less often than expected by chance (4 vs. 5.92 cases).

The meaning of the italicized words in the preceding paragraph deserves some elaboration. A contingency table, such as Table I, may be statistically significant, that is, unlikely in total to be due to chance, but it does not necessarily support a particular interpretation. So, in the example just described, the total distribution of cases suggests *some* nonchance association between the threefold variable of residence and the trichotomous variable of division of labor, but, as it happens, the particular interpretation we were entertaining is *not*

supported. A statistically significant table supports a particular interpretation only if the obtained values *in the cells crucial to the interpretation* are greater than the values we would expect in them by chance.

If the test just described were the only empirical test of division of labor as a predictor of residence, we could conclude with some confidence that the interpretation is not supported cross-culturally. Yet, Driver and Massey (1957) did find some support for the interpretation in North America. As compared with all other patterns of residence, they found matrilocality to be associated with what they call "matrilocality" in the division of labor. Similarly, they found patrilocality (as compared with all other patterns) to be associated with "patrilocality" in the division of labor. However, their comparison of bilocal vs. all other patterns of residence was not associated with an equal division of labor. Given that the predicted relationship between division of labor and residence does not appear in our worldwide sample, and that such a relationship does appear in North America (at least with regard to matrilocality and patrilocality residence), the question now is: How do we account for the difference between North America and the rest of the world?

One reason for the difference between our results and those of Driver and Massey might be that the form of the test is dif-

ferent in the two studies. In order to compare our results with theirs, therefore, we reclassified our cases in the manner they used, comparing matrilocal vs. all other patterns and patrilocal vs. all others. (The comparison of bilocal vs. all others was not made because it was not related to equal division of labor even in North America.) And on our measure of sex division of labor, we compared matridominance vs. other and patridominance vs. other, as Driver and Massey did.

For the relationship between matridominant division of labor and matrilocal residence in North America, Driver and Massey (1957:432) obtained a phi coefficient of association of .49. For our worldwide sample (see Table II), a phi coefficient of only .05 was obtained. (The category of matrilocal in our test included the atlas categories of matrilocal and uxorilocal, *M* and *U*). And, whereas Driver and Massey

(1957:433) obtained a phi coefficient of .21 for the relationship between patridominant division of labor and patrilocal residence, we obtained a phi coefficient of only .04 (see Table III). (The category of patrilocal in our test includes the atlas categories of patrilocal and virilocal, *P* and *V*.) Because the results of our tests are different from those of Driver and Massey, and because our classifications have been made comparable to those of Driver and Massey, we can now conclude that the difference between our results and theirs cannot be explained in terms of different coding procedures. Some other kind of explanation must be sought.

One possible solution to the problem is the possibility that the hypothesized relationship between division of labor and patterns of residence is found only in North America. To check this possibility, we examined the North American cases in our worldwide sample. Since we had only five

TABLE II. DIVISION OF LABOR AND MATRILocal RESIDENCE (WORLDWIDE)

Division of Labor	Pattern of Residence		Total
	Matrilocal	Other	
Women do more than men	4	27	31
Other	51	206	257
Total	55	233	288

$\phi = .05$; n.s.

TABLE III. DIVISION OF LABOR AND PATRILocal RESIDENCE (WORLDWIDE)

Division of Labor	Pattern of Residence		Total
	Patrilocal	Other	
Men do more than women	100	73	173
Other	71	44	115
Total	171	117	288

$\phi = .04$; n.s.

cases from North America in which women do more than men, we grouped those cases that have equal division of labor with those in which females predominate. Inasmuch as the hypothesis predicts that the more women do in subsistence, the more likely they will be localized after marriage, it is valid to dichotomize the continuum of division of labor at any point.

The result of this test (see Table IV) was strikingly similar to that obtained by Driver and Massey. Their phi coefficient for the relationship between matridominant division of labor and matrilocal residence was .49; ours was .45. And, when we examined the relationship in our North American subsample between patridominant division of labor and patrilocal residence (see Table V), our phi coefficient was very similar to Driver and Massey's coefficient (.19 and .21, respectively). The fact that our results for North America are similar to Driver and

Massey's suggests then that both studies are measuring division of labor and patterns of residence in much the same ways and that our small sample of North American cases is representative of their much larger sample. Thus, division of labor and residence may be somewhat related in North America, as is conventionally assumed, but the relationship between these two variables is certainly not the predicted one in the rest of the world.

In fact, the different areas of the world show no consistent association between division of labor and female vs. male localization. For example, South America shows a nonsignificant trend consistent with the division of labor interpretation, but Oceania shows an almost significant trend in the opposite direction. Because there is variation from area to area in the direction and statistical significance of the relationship, we are obliged to conclude that the conventionally assumed relationship between divi-

TABLE IV. DIVISION OF LABOR AND MATRILocal RESIDENCE (NORTH AMERICA)

Division of Labor	Pattern of Residence		Total
	Matrilocal	Other	
Women do more or as much as men	12	9	21
Other	6	37	43
Total	18	46	64

$\phi = .45; \chi^2 = 13.02; p < .001$ (two tails)

TABLE V. DIVISION OF LABOR AND PATRILocal RESIDENCE (NORTH AMERICA)

Division of Labor	Pattern of Residence		Total
	Patrilocal	Other	
Men do more than women	21	22	43
Other	6	15	21
Total	27	37	64

$\phi = .19; \chi^2 = 2.37; .10 > p > .05$ (one tail)

sion of labor and female vs. male localization obtains (if at all) only under certain still unspecified conditions.

RELATIVE STATUS OF THE SEXES AND RESIDENCE

The division of labor interpretation of male vs. female localization may be thought of as a special case of a more general hypothesis, namely, that any conditions that enhance the status of one sex relative to the other will tend to produce patterns of residence localizing that sex (see Murdock 1949:204-208). In the preceding section, we saw that sex division of labor by itself does not account consistently for female vs. male localization, even though it presumably is one of the major determinants of relative status of the sexes (Murdock 1949:205-206). But what about the other conditions that Murdock thinks affect the relative status of the sexes and hence patterns of residence? This question is the subject of this section.

According to Murdock, the conditions that enhance the status of males are polygyny, movable property such as herds or slaves or money, multilocal political integration, and warfare (and, of course, male dominance in the division of labor). If the "relative status" interpretation is correct, each of these conditions should predict male localization.

To start with polygyny, Murdock (1949:206) says that it is "particularly congenial to patrilocal residence, where women are isolated from their kinsmen and tend to be economically and socially inferior to men." Note that this argument merely suggests an association between the two conditions; it does not indicate how polygyny would favor the development (or borrowing) of patrilocal residence, and in fact the phrase "women are isolated" presumes the prior existence of patrilocal residence. Using data from the same *Ethnographic Atlas* sample we employed before, we tested for an association between polygyny and male localization. The presence of polygyny is indicated

by an upper or lower case *P*, *Q*, *R*, or *S* in column 14 of the atlas (Murdock 1962-1963(1):116), and male localization is assessed as above. The association between these two variables is indeed statistically significant— $\phi = .28$, $\chi^2 = 35.32$, $p < .001$ (cf. Otterbein 1968:281).²

Let us look next at the presence of movable property, such as herds of large domestic animals or slaves, as a predictor of patterns of residence localizing males. (Murdock considers money to be another form of movable property, but we could not examine its influence on residence because the *Ethnographic Atlas* did not tell us anything about the presence or absence of money.) Murdock (1949:206-207) says that movable property can be accumulated by men (Why not by women too?), and with such property "prosperous men can offer a bride-price to the parents of girls which will induce them to part with their daughters." Note that this argument does suggest how the presence of movable property would favor the development (or borrowing) of patterns of residence localizing males, if one accepts the assumption that only men can accumulate such property. Again using data from our atlas sample, it appears that the presence of large domesticated animals—every kind except pigs (Murdock 1962-1963(2):271)—is indeed associated significantly with patterns of residence localizing males, as compared with other patterns of residence ($\phi = .19$, $\chi^2 = 13.09$, $p < .001$). Slavery too, as Murdock suggests, predicts male localization. The data from our *Ethnographic Atlas* sample show a significant association between localization of males and the presence of slaves, the latter being indicated by *H*, *I*, or *S*, but not *-f*, in column 71 of the atlas (Murdock 1962-1963(2):114). The phi coefficient for this association is .42 and the chi-square equals 71.90 ($p < .001$).

With regard to level of political integration as a predictor of patterns of residence localizing males, Murdock (1949:207) says: "Political expansion increases the power and prestige of the men and normally establishes a rule of patrilineal succession, both of

which favor patrilocal residence." This argument, like the argument for movable property, does indicate how multilocal political integration would favor the development (or borrowing) of patterns of residence localizing males. The data from our *Ethnographic Atlas* sample show a significant association between male localization and the presence of multilocal integration—1.4 in the second digit of column 32 (Murdock 1962-1963(1):269). The phi coefficient for this association is .54 and the chi-square equals 106.14 ($p < .001$).

Let us turn now to the last of the conditions that Murdock suggests should favor patterns of residence localizing males, namely, warfare. His argument in this case (Murdock 1949:207) is that warfare "enhances men's influence and brings them captive (and hence patrilocal) wives and plunder wherewith to buy other women." This argument is not too persuasive because there seems no reason to exclude the possibility that men could not live bilocally, neolocally, or even matrilocally and bring in captive women as wives. Nevertheless, we decided to make a provisional test of Murdock's suggestion that warfare favors patterns of residence localizing males. In making this test, we used data coded by K. F. and C. S. Otterbein (1965) in their study of feuding and warfare. (*The Ethnographic Atlas* does not provide information on warfare.) The Otterbeins rated the frequency of warfare as continual, occasional, and never or rare for a sample of fifty societies found in both the Human Relations Area Files and the *Ethnographic Atlas*. They define warfare, after Malinowski (1941:522) as "an armed contest between two independent political units, by means of organized military force, in the pursuit of a tribal or national policy." We assume that, if warfare is a factor that enhances the status of males, the more frequent the warfare, the greater the likelihood of patterns of residence localizing males. Contrasting those of the Otterbeins' sample cases with and without continual warfare, there is no relationship between warfare and the localization of males; the

cases localizing males are not more often associated with continual warfare than are the cases not localizing males (16 of 24 vs. 17 of 25 cases, respectively).

In summary, of the six conditions suggested by Murdock as favoring patterns of residence localizing males, four (polygyny, herding, slavery, and multilocal political integration) proved to be significantly associated with such patterns. But only two of those four (herding and multilocal political integration) actually predict more than half the cases localizing males; that is, only herding and multilocal political integration are good predictors of male localization. Moreover, if Murdock were correct in assuming that high status of males favors patterns of residence localizing males, all the conditions suggested by him as enhancing male status should have predicted localization of males. Because not all of them do so, and only two of them do so well, it would seem that the explanation of residence in terms of relative status of the sexes is not very compelling.

WARFARE AND DIVISION OF LABOR

Earlier we mentioned the possibility that division of labor may be related to residence only under certain, still unspecified conditions. Now we turn to what those conditions may be. (Note that we are henceforth comparing the two extremes of localization, namely, prevailing patrilocal [virilocal] and prevailing matrilocal [uxorilocal] residence, as defined in the *Ethnographic Atlas* [Murdock 1962-1963(1):117-118].)

In the Otterbeins' (1965) sample, when warfare is continual and males predominate in the division of labor, residence is usually patrilocal (11 of 13 cases); and when warfare is continual and females predominate in the division of labor, residence is usually matrilocal (7 of 11 cases). This result is statistically significant ($p = .021$, one tail, by Fisher's Exact Test). In contrast, when warfare is not continual, there is no relationship between division of labor and residence (when males predominate in the division of

labor, five of the eight cases are patrilocal; but when females predominate, four of the five cases are also patrilocal). Because matri-dominant vs. patridominant division of labor appears to predict matrilocal vs. patrilocal residence only when warfare is continual, we suspected that each consistent combination of division of labor and residence may be associated with a different type of warfare. That is, one type of warfare may be associated with one kind of division of labor (and the consistent pattern of residence), and another type of warfare may be associated with the other kind of division of labor (and residence). This section describes our investigation of how type of warfare may affect division of labor.

To begin with, we assume that division of labor is normally patridominant. We do so for two reasons: (1) the majority of cases in our *Ethnographic Atlas* sample have such a division of labor (see Table I); and (2) it seems likely that, unless warfare interferes, men will do more subsistence work than women if only because women usually have to spend part of their days in the care of children and in other universally ascribed duties around the home. Because warfare is presumably always a male activity, we suspected that warfare under certain conditions would so interfere with subsistence labor that women would have to do more of the subsistence work than they would otherwise do; but in the absence of those conditions men could fight and continue to do most of the subsistence work (see Service 1962). We specify below what some of those conditions might be.

We define warfare as fighting that involves two or more territorial units so long as there is a group of fighters on at least one side. This definition is a more inclusive one than the one used by the Otterbeins (after Malinowski). For us, all kinds of territorial units may be involved, ranging from communities or local groups to small or large aggregates of communities. We eschew the criterion of a tribal or national policy (the pursuit of which is the goal of warfare in Malinowski's definition) because this cri-

terion would restrict warfare to fighting between entire tribes or nation-states, whereas we are concerned with fighting on all levels of cultural complexity. Moreover, we ignore the motivational aspects of warfare, because our interest is in the behavioral aspects and how they may affect division of labor and residence. So, for example, an attack by a party from one community on even a single person from another community would be classified by us as warfare, whereas the Otterbeins would call it feuding if it were motivated by a desire for blood revenge.

On the basis of what we learned from a pilot survey of some standard ethnographies, we made the following specific predictions about how particular conditions of warfare (interacting with the nature of subsistence work) may affect division of labor:

Women will do at least as much as men in subsistence (because the normally patridominant division of labor is disrupted) if: (1) warfare occurs frequently all year round; (2) warfare occurs at least once every two years but potentially can occur at any time (as indicated by year-round sentries or fortified villages); (3) warfare occurs frequently only at certain times of the year and work in the dominant subsistence activity has to be done at that time (column 7 of the *Ethnographic Atlas* indicates which subsistence activity is dominant, that is, provides more food than any other subsistence activity); and (4) warfare occurs at least once a year and is at least sometimes offensive, the travel to and/or the fighting itself is at least sometimes long in duration (that is, more than a day), and in addition work in the dominant subsistence activity has to be done while fighting takes place outside the community (if warfare occurs only within the confines of the community, it will disrupt all subsistence labor and hence will not prevent the men from doing more than the women).

Men will do more than women in subsistence if: (1) work in the dominant subsistence activity does not have to be done while fighting takes place outside the community; (2) warfare occurs almost always

within the confines of the community or the immediate territory exploited by it (disrupting all labor but not the normally patridominant division of labor); (3) there is a specialized fighting force, that is, a group of men who are on hand to fight at any time and who do not therefore participate in the activities performed by other men; and (4) warfare occurs no more than once a year and is almost always short in duration (that is, lasting no more than one day).

In short, our hypothesis is that men will do more than women in subsistence unless warfare prevents them from doing so.

The sample we examined to test the above predictions consisted of all the pre-vaillingly patrilocal and prevaillingly matrilocal cases (as coded in the *Ethnographic Atlas*) that were in the microfilm edition of the Human Relations Area Files in 1965. Two coders (not the authors) went through the sample cases and made joint judgments of warfare frequency, the presence or absence of year-round sentries or fortified communities, the duration of travel to and conduct of combat, the presence or absence of a specialized fighting force, the place of fighting (within or outside the community or territory exploited by it), the time(s) of the year that warfare occurred, and the time(s) that work in the major subsistence activity had to be done. We had two coders go through the sample jointly because, given the number of variables that had to be coded, two heads seemed better than one. (We had some evidence that this was the case from a few preliminary coding trials; it seemed that each of the coders individually did not record as much information as he or she did when working together with the other coder.) After the two coders jointly recorded the required bits of information, we made the predictions as to whether the warfare that was present would interfere with a patridominant division of labor.

One final point about the coding procedure should be mentioned. The *Ethnographic Atlas* gives a date for each society to which all of the coded information in the atlas presumably applies. Because the divi-

sion of labor score is computed from atlas information, the coders judged warfare for approximately the same time period. For many societies, however, the date of description in the atlas is after contact with Europeans, by which time warfare may have been prohibited. For this reason the coders were instructed to consider warfare as present if it occurred within about fifty years prior to the atlas date.

Of the seventy-five cases examined in the microfilm HRAF (these were the pre-vaillingly matrilocal and patrilocal cases, as so designated in the *Ethnographic Atlas*, for which we had division of labor scores computed from the atlas), predictions about division of labor could be made for twenty-two cases on the basis of the specific considerations listed above (see Table VI).³ (The major reason that only twenty-two cases could be used in the test was that information on a number of variables was often needed to make a prediction, and if information on even one of those variables was absent the case had to be omitted. It was for this reason that the entire microfilm HRAF sample was examined.) Of the sixteen cases in which women were predicted to do at least as much as men, ten actually had this division of labor. And of the six cases in which men were predicted to do more than women, five were predicted correctly. This result was not quite statistically significant ($p = .074$, one tail, by Fisher's Exact Test). Thus our attempt to predict division of labor, as a consequence of kind of warfare and nature of subsistence work, was only marginally successful.

The marginality of the result could have been explained away (wishfully?) as a function of the complicated way we made our predictions, that is, as a function of a presumed high degree of measurement error. But, fortunately, there proved to be an easier (and more defensible) way to explain away some of our failures to predict division of labor correctly. For six of the seven deviant cases, we had predicted that women would do at least as much as men but actually men did more. Close examination of

TABLE VI. PREDICTED AND ACTUAL DIVISION OF LABOR

<i>Predicted Division of Labor</i>	<i>Actual Division of Labor</i>		Total
	Men Do More Than Women	Women Do at Least as Much as Men	
Men do more than women	Araucanians Sg 2 (ca. 1880) Aztec Nj 2 (ca. 1520) Bambara Ag 1 (ca. 1920) Papago Ni 2 (ca. 1930) Tallensi Ag 4 (ca. 1930) 5	Azande Ai 3 (ca. 1920) 1	6
Women do at least as much as men	Aleut Na 9 (ca. 1930) Crow Ne 4 (ca. 1870) Nuer Aj 3 (ca. 1930) Rundi Ae 8 (ca. 1910) Rwala Cj 2 (ca. 1920) Tiv Ah 3 (ca. 1920) 6	Aranda Id 1 (ca. 1900) Callinago Sb 1 (ca. 1650) Creek Ng 3 (ca. 1750) Fang Ae 3 (ca. 1910) Ila Ac 1 (ca. 1920) Mandan Ne 6 (ca. 1830) Marquesans Ij 3 (ca. 1900) Mende Af 5 (ca. 1930) Nama Aa 3 (ca. 1840) Orokaiva Ie 9 (ca. 1920) 10	16
Total	11	11	22

$p = .074$ (one tail, by Fisher's Exact Test)

the ethnographic details of these cases suggests a possible explanation consistent with our predictions, namely, that warfare may not interfere with a patridominant division of labor if the dominant subsistence activity is herding or hunting. For example, a hunting party might also function (while away hunting) as a war party. And, in herding societies, disputes over waterholes might arise and lead to fighting even while the herding is being done (away from the community). Three of the six deviant cases, which had men unpredictably doing more than women, are indeed hunting and herding societies (Crow, Nuer, Rwala). If warfare in these three cases does not interfere with a patridominant division of labor because the fighting occurs while the men are out hunting and herding, we would have a situation much like purely defensive warfare, which interferes with work but not with the division of labor. It seems then that if we had anticipated this possibility and included an appropriate prediction concerning it, we would have had fewer exceptions in Table

VI and hence our hypothesis relating division of labor to kind of warfare and nature of subsistence work would have been statistically supported.

Granting then that we can predict division of labor as a function of the kind of warfare (if present) and the nature of subsistence work, and assuming that in the absence of warfare men normally do more than women in subsistence, there is still a problem about division of labor remaining unsolved, namely, why there are cases of women doing at least as much as men when warfare is infrequent or absent. Our microfilm HRAF sample indicates that when warfare occurs less than once every two years, there are just about as many cases of matridominant as patridominant division of labor (eight and seven cases, respectively, in our sample). One possible explanation of the matridominant cases (in which warfare occurs less than once every two years) is that, though absent or infrequent at the time of description, warfare was present and frequent just prior thereto, the fact that women

are reported as doing at least as much as men would then be an example of culture lag. This explanation is probably not testable, given the imprecision of the temporal data on warfare. A second possible explanation is that other activities besides warfare can disrupt the normally patridominant division of labor. For instance, if the men have to be away often on long trading trips (as in parts of Micronesia and Melanesia in the recent past) or to earn money in mines or cities (as in parts of Africa now), and work has to be done while they are away, the women might end up doing at least as much as the men in subsistence activities, even though warfare is no longer present. This second explanation is testable, and we trust that future research will provide us with the evidence needed to evaluate it.

WARFARE AND RESIDENCE

The tests described in the previous section derived from our finding that residence and division of labor tended to be consistent with each other (in the Otterbeins' sample) when warfare is continual. We then suspected that the two consistent combinations of division of labor and residence were associated with two different kinds of warfare. In pursuing this suspicion, we investigated how warfare, interacting with the nature of subsistence work, affects the division of labor by sex. The results described in this section concern how warfare might be related to residence.

Our point of departure here was Schneider's (1961) discussion of the structural differences between matrilineal and patrilineal social systems. The basic difference between the two types of system, according to Schneider (1961:7), is that the lines of authority and descent are separate in the matrilineal but convergent in the patrilineal. In matrilineal descent groups, membership is traced through the women but authority is exercised by the men. In patrilineal descent groups, however, authority is exercised by the men and they are also the links through which membership is traced.

From this basic difference, Schneider derives a number of other differences, one of which suggests how the kind of warfare may differ in matrilineal and patrilineal societies.

That difference is the greater difficulty of maintaining a monolineage community in a matrilineal than in a patrilineal society (Schneider 1961:27). In a monolineage community, the sex that is not retained after marriage moves away to another community. This state of affairs is not a serious problem for a patrilineal monolineage community, because the women who move away are not needed either to reproduce for the group or to exercise authority for the group. But in a matrilineal monolineage community, the men who move away would find it difficult to perform their authoritative roles in their natal community (cf. Kloos 1963). Hence we might expect that local exogamy is incompatible with matrilineality, in a multilineage as well as in a monolineage community. And this is indeed the case, judging from our *Ethnographic Atlas* sample. Of the 262 patrilineal societies, 114 are locally exogamous; but of the 74 matrilineal societies, only seven are locally exogamous. This relationship, which is extremely significant statistically ($\chi^2 = 29.03, p < .001$), is echoed in Aberle's (1961:715-717) finding, based on data from Murdock's (1957) "World Ethnographic Sample," that societies with matrilineal descent are locally exogamous significantly less often than societies with patrilineal descent.

Because we also know (from the *Ethnographic Atlas* sample) that matrilineal and patrilineal societies do not significantly differ in the incidence of local endogamy (there are very few cases altogether of the latter), the fact that matrilineals are less often locally exogamous means that they are more often locally agamous (indeed, almost always). Consequently, the adult males of a given descent group are more likely to be scattered in matrilineal than in patrilineal societies. That is, in matrilineal societies some of the adult males of the descent group will be living in other communities than their natal one (and those who live in the natal one will

not be living together), whereas in patrilocal societies all or almost all the adult males of the descent group will be living together in their natal community. This difference directly suggests how warfare might differ in matrilocal as compared with patrilocal societies.

Because some men of the descent group in matrilocal societies will be living in other than their natal communities, and because these men would still be likely to participate in their descent group's decision to go to war, fighting between such intermarrying (probably neighboring) communities should not be as likely in matrilocal as in patrilocal societies. This is because if warfare between intermarrying communities were to occur, the men who are living in other than their natal communities would have to participate in the initiation of warfare against the very communities in which they and their wives and children reside. Such a conflict between a man's community of orientation and his community of procreation cannot occur in patrilocal societies, and hence (functionally speaking) fighting between neighboring or intermarrying communities should occur more often in patrilocal than in matrilocal societies.

In attempting to test this expectation, we discovered that the conventional content of ethnographies usually precludes the possibility of judging whether or not there is fighting between neighboring or intermarrying communities. Accordingly, we adopted a more indirect measure. We reasoned that a society that fought only externally, that is, only with other societies, would have no warfare between intermarrying communities, whereas societies that at least sometimes fought internally, that is, within the society, would at least sometimes have warfare between intermarrying communities. Our expectation then was that matrilocal societies should tend to have purely external warfare, and patrilocal societies should tend to have a mixed internal/external pattern of warfare or purely internal warfare. In deciding where a given society left off and other societies

began, we relied upon the ethnographer's judgment. If he spoke of warfare with a group that he labeled with a different tribal or cultural name, and this other group was clearly not the society to which he was generalizing his data, we would classify such warfare as external. (Incidentally, it seems that most ethnographers differentiate societies, theirs vs. others, in terms of language differences; that is, if two groups are referred to as different tribes or societies, it usually seems that the languages spoken by them are not mutually intelligible, although there may of course be bilinguals in each group.)

To test the prediction that matrilocals and patrilocals differ with respect to warfare, the junior author examined a sample of fifty societies, forty of which had been sent to the senior author in preparation for a conference at Yale University that he was to attend in May 1965. (The subject of the conference was the utilization of cross-cultural data by political scientists; data on the forty cases, relating to political organization and warfare, were distributed to the participants some months prior to the conference.) The forty cases had been selected by the HRAF staff in New Haven from the master set of HRAF and included societies in different areas of the world as well as on all levels of political complexity. Because the forty cases included only a few matrilocals, we added ten matrilocal cases to the sample. (These latter ten were selected with the aid of a table of random numbers from the list of matrilocal societies in the *Ethnographic Atlas* that were described by at least one general ethnographic source located in the Antioch College Library.)

Of the total of fifty cases, it turned out that only eighteen could be classified in terms of the presence or absence of purely external warfare (see Table VII). But the result of the test was strikingly clear-cut. Six of the eight matrilocal cases had purely external warfare, as compared with none of the ten patrilocal cases (this result is significant at the .002 level, one tail, by Fisher's Exact Test). Needless to say, the

TABLE VII. WARFARE AND RESIDENCE

Warfare	Pattern of Residence		Total
	Matrilocal	Patrilocal	
Purely external	Callinago Sb 1 (ca. 1650) Cherokee Ng 5 (ca. 1750) Creek Ng 3 (ca. 1750) Kaska Na 4 (ca. 1920) Navaho Nh 3 (ca. 1930) Miskito Sa 9 (ca. 1920) 6	0	6
Internal or internal and external	Mataco Sh 1 (ca. 1860) Yao Ac 7 (ca. 1920) 2	Azande Id 1 (ca. 1900) Ganda Ad 7 (ca. 1880) Jivaro Se 3 (ca. 1930) Kapauku Ie 1 (ca. 1950) Murngin Id 2 (ca. 1930) Nama Aa 3 (ca. 1840) Nootka Nb 11 (ca. 1880) Nuer Aj 3 (ca. 1930) Tallensi Ag 4 (ca. 1930) Tiv Ah 3 (ca. 1920) 10	12
Total	8	10	18

$\phi = .79$; $p < .002$ (one tail, by Fisher's Exact Test)

cleanness of this result was suspect, even to us. That is, when you have to omit thirty-two of fifty cases because the required data are lacking for them, and there are only two exceptions in the remaining cases, you are obliged to be a little uneasy about the reliability of the result. Accordingly, we replicated the test on a new sample. Two new coders were employed to classify jointly the microfilm HRAF cases as to whether warfare was purely external (see Table VIII). Once again, the result was as predicted and statistically significant. Of the ninety-nine cases in the microfilm HRAF at that time (1965), thirty-three could be classified on internality/externality. Five of the six matrilocal cases had purely external warfare, whereas only three of the twenty-seven patrilocal cases had purely external warfare. This result is significant at less than the .01 level, one tail, by Fisher's Exact Test.⁴

In short, it appears that whether a society has prevailingly matrilocal or patrilocal residence can be predicted quite handily and reliably from whether it has a pattern of

purely external warfare. The question now is: How can we causally explain this relationship in a way consistent with our findings concerning the determinants of division of labor?

It seems to us that the two sets of results can be combined and interpreted in terms of a developmental model that can be visualized as a branching tree (see Figure 1). The initial state is the situation where warfare is present. (Judging from our sample data, this is the statistically normal situation: most societies as of the time of description either were still fighting or had only recently stopped fighting, the latter being the case usually because of pacification by a colonial or internally conquering power.) If the warfare is at least sometimes internal, there is only one possible resultant state for residence but two possible resultant states for division of labor. The one possible state for residence, when warfare is present and at least sometimes internal, is patrilocal. Again judging from our data, the fact that warfare is at least sometimes internal appears to

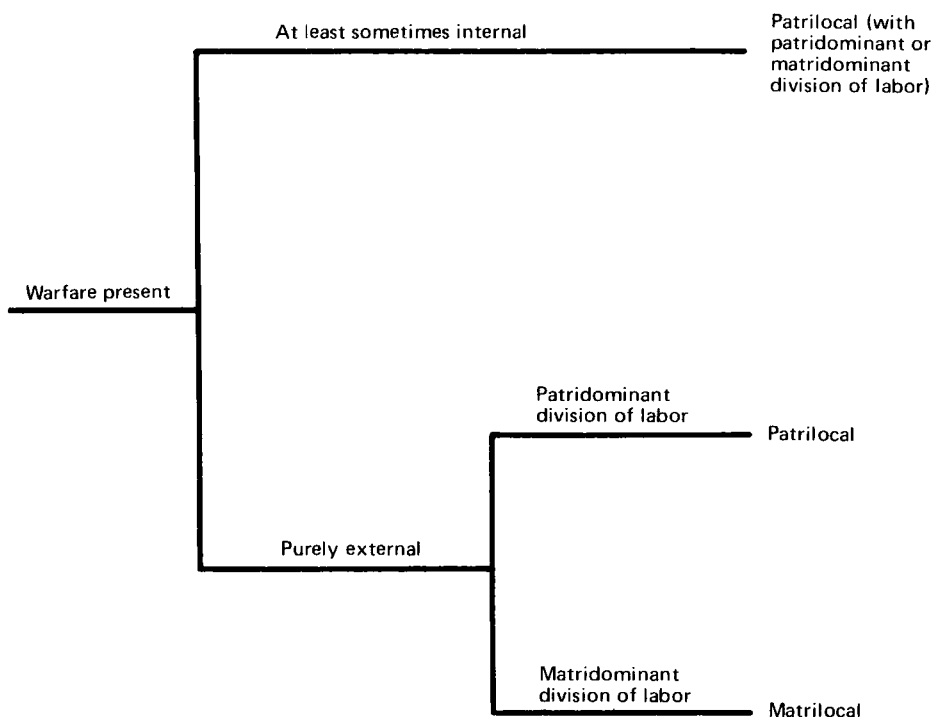


Figure 1. Developmental model of matrilineal vs. patrilineal residence and division of labor, in the presence of warfare.

require patrilineally related males to be localized after their marriages. Or, in other words, if fighting occurs between neighboring communities, families would want to keep their fighters at home for protection. As for division of labor, the two possible states are produced by the interaction between the internal warfare and the nature of subsistence work. If subsistence work has to be done while fighting occurs, the normally patrilineal division of labor will be disrupted and females will come to predominate (or at least contribute equally to subsistence). This appears to be the pattern, for example, among the herder-farmers of the Uganda-Kenya border, such as the Dodoth (Thomas 1965) and Turkana (Gulliver 1955). On the other hand, if work does not have to be done while fighting occurs, the males will continue to predominate in the division of labor.

Turning now to what happens when a purely external pattern of warfare emerges, there are two possible resultant states for division of labor and two for residence. If subsistence work does not have to be done while the purely external warfare occurs, there will be no change in either the division of labor or the pattern of residence; males will continue to predominate in the division of labor and residence will therefore be patrilineal. If, however, work has to be done while the purely external warfare occurs, the normally patrilineal division of labor will be disrupted such that the females will come to predominate (or at least contribute equally to subsistence), and the pattern of residence will change to matrilineal. This latter change will occur because, in the absence of local fighting (internal warfare), patrilineally related males do not have to be localized; that is, there would be no need to

TABLE VIII. WARFARE AND RESIDENCE (REPLICATION)

Warfare	Pattern of Residence		Total
	Matrilocal	Patrilocal	
Purely external	Callinago Sb 1 (ca. 1650) Creek Ng 3 (ca. 1750) Mandan Ne 6 (ca. 1830) Miskito Sa 9 (ca. 1920) Tapirape Sd 2 (ca. 1930) 5	Crow Ne 4 (ca. 1870) Papago Ni 2 (ca. 1930) Havasupai Nd 3 (ca. 1880) 3	8
Internal or internal and external	Yao Ac 7 (ca. 1920) 1	Aleut Na 9 (ca. 1930) Alorese Ic 2 (ca. 1940) Araucanians Sg 2 (ca. 1880) Azande Ai 3 (ca. 1920) Aztec Nj 2 (ca. 1520) Fang Ae 3 (ca. 1910) Ila Ac 1 (ca. 1920) Lau Fijians Ih 4 (ca. 1920) Marquesans Ij 3 (ca. 1900) Mende Af 5 (ca. 1930) Mongo Ae 4 (ca. 1930) Murngin Id 2 (ca. 1930) Nama Aa 3 (ca. 1840) Nambicuara Si 4 (ca. 1940) Nuer Aj 3 (ca. 1930) Nupe Af 8 (ca. 1930) Pukapukans Ii 3 (ca. 1930) Rundi Ae 8 (ca. 1910) Siwans Cc 3 (ca. 1920) Tallensi Ag 4 (ca. 1930) Tehuelche Sg 4 (ca. 1870) Tiv Ah 3 (ca. 1920) Yokuts Nc 3 (ca. 1850) Yurok Nb 4 (ca. 1850) 24	25
Total	6	27	33

$\phi = .65$; $p < .01$ (one tail, by Fisher's Exact Test)

keep the men at home after marriage for protection. Thus, because the females support the kin group, they rather than the males would be kept at home after marriage.

In sum, we suggest that patrilocal residence is favored by internal warfare, whether or not such warfare interferes with what is normally a patridominant division of labor; and matrilocal residence is favored by purely external warfare if such warfare compels the women to contribute at least as much as the men to subsistence.

WARFARE AND OTHER PREDICTORS OF MALE LOCALIZATION OR PATRILOCALITY

The developmental model described in the previous section fits our cross-cultural data. But this is not enough to render it more than just plausible. If the model is actually correct, it should account for patrilocal (vs. matrilocal) residence better than other conditions we previously found to be good predictors of male localization or patri-

locality. (These latter conditions are said to be good predictors because they predicted more than half of the cases of male localization or patrilocality.) This section describes the results of some cross-cultural tests that were made to help us evaluate the predictive-ness of our model as compared with models that might be constructed involving the other predictors.

The first of the other predictors is the presence of large domestic animals. The second predictor is the presence of multilocal political integration. The third predictor, not heretofore referred to, is the presence of compensation to the bride's kin—brideprice, brideservice, and exchange of sisters or other women (see Murdock 1962-1963(1):115-116). The sample used for this third predictor was the first 455 cases of the *Ethnographic Atlas*, among which 194 of the 280 patrilocal (virilocal) cases have compensation to the bride's kin, whereas only twenty-five of the seventy-six matrilocal (uxorilocal) cases have such compensation ($\chi^2 = 33.82$, $\phi = .31$, $p < .001$).

Despite the fact that none of the above conditions is that strongly correlated with localization of males or patrilocality (the phi coefficient for the relationship between large domestic animals and residence is .19; the phi coefficient for the relationship between multilocal political integration and residence is .54), it behooves us to test whether any or all of them may explain the relationship between matrilocal vs. patrilocal residence and the presence or absence of purely external warfare. If those conditions do not explain the latter relationship, we should find that warfare is significantly associated with matrilocality vs. patrilocality in the absence as well as in the presence of each of those conditions. In other words, if the association between warfare and residence holds up even in the absence of each of those conditions, we would be entitled to be fairly confident about our interpretation of matrilocal vs. patrilocal residence. Our confidence will be increased even more if the associations between herding (and the like) and residence *disappear* when we control on

the presence or absence of purely external warfare. That is, if none of the three conditions is significantly associated with residence in the absence as well as in the presence of purely external warfare, we shall be entitled to conclude that herding and the like do not have an independent effect on residence.

Table IX shows the relationship between the presence or absence of purely external warfare and patrilocality vs. matrilocality, controlling on the presence or absence of large domestic animals. Both parts show a significant association. The phi coefficient for herding present is .72 ($p = .015$, one tail, by Fisher's Exact Test). And the phi coefficient for herding absent is .65 ($p = .008$, one tail, by Fisher's Exact Test). In short, the association between purely external warfare and matrilocality vs. patrilocality holds up in the absence as well as in the presence of large domestic animals.

Table X shows the relationship between the presence or absence of large domestic animals and matrilocality vs. patrilocality, controlling on the presence or absence of purely external warfare. Neither part shows a significant association. Thus, the association between herding and residence disappears when we control on the presence or absence of purely external warfare; that is, in neither warfare condition does the relationship between herding and residence appear.

The same kind of result obtains when we evaluate the relative effects of multilocal political integration and compensation to bride's kin, as compared with the effect of purely external warfare. Tables XI and XIII show that purely external warfare is associated with matrilocality vs. patrilocality, whether or not multilocal political integration and compensation to bride's kin are present. And Table XII and Table XIV show that the associations between each of the latter conditions and residence do not hold up in the absence or presence of purely external warfare.

In sum, the evidence described in this section strongly suggests that the presence or

TABLE IX. WARFARE AND RESIDENCE, CONTROLLING ON HERDING*

Warfare	Herdling Present**		Total	Herdling Absent***		Total
	Matrilocal	Patrilocal		Matrilocal	Patrilocal	
Purely external	Mandan Miskito Zuni Nh 4 (ca. 1910)	Crow Aymara Sf 2 (ca. 1940)	3 2	Callinago Creek Delaware Ng 6 (ca. 1700) Tapirape	Papago Havasupai	4 2 6
Internal or internal and external		Araucanians Fang Ila Mende Nama Nuer Nupe Rundi Siwans Tallensi Tehuelche Tiv	5	Yao	Aleut Alorese Aranda Id 1 (ca. 1900) Azande Aztec Bellacoola Nb 9 (ca. 1880) Lau Fijians Marquesans Murrigin Nambicuara Nootka Orokaiva Ie 9 (ca. 1920) Pukapukans Tiwi Id 3 (ca. 1920) Yokuts Yurok	16 17
Total	3	14	17	5	18	23

*Only the cases not in Tables VII and VIII are shown with atlas identification numbers and dates of description

**Herdling Present: $\phi = .72$; $p = .015$ (one tail, by Fisher's Exact Test)

***Herdling Absent: $\phi = .65$; $p = .008$ (one tail, by Fisher's Exact Test)

TABLE X. HERDING AND RESIDENCE, CONTROLLING ON WARFARE*

Herding	Purely External Warfare		Total	Internal or Internal and External Warfare		Total
	Matrilocal	Patrilocal		Matrilocal	Patrilocal	
Present	3	2	5	0	12	12
Absent	4	2	6	1	16	17
Total	7	4	11	1	28	29

*The actual societies are the same as in Table IX; the cells are merely rearranged here
Neither significant

TABLE XI. WARFARE AND RESIDENCE, CONTROLLING ON LEVEL OF POLITICAL INTEGRATION*

Warfare	Multilocal Political Integration**		Total	Local Political Integration***		
	Matrilocal	Patrilocal		Matrilocal	Patrilocal	Total
Purely external	Creek Mandan Miskito	Crow	1	Callinago Delaware Ng 6 (ca. 1700) Tapirape Zuni Nh 4 (ca. 1910)	Havasupai Papago	2
Internal or internal and external	Yao	Alorese Azande Aztec Ila Lau Fijians Marquesans Mende Nama Nootka Nupe Pukapukans Rundi Shilluk Ai 6 (ca. 1900) Tiv	4		Aleut Aranda Id 1 (ca. 1900) Araucanians Bellacoola Nb 9 (ca. 1880) Fang Murngin Nambicuar Nuer Orokaiva Ie 9 (ca. 1920) Siwans Tallensi Tehuelche Tiwi Id 3 (ca. 1920) Yokuts Yurok	6
Total	3	14	15	4	15	19
	1	15	16	0	17	17
	4	15	19	4	17	21

*Only the cases not in Tables VII and VIII are shown with atlas identification numbers and dates of description

Multilocal: $\phi = .68$; $p = .016$ (one tail, by Fisher's Exact Test)*Local: $\phi = .74$; $p = .003$ (one tail, by Fisher's Exact Test)

TABLE XII. LEVEL OF POLITICAL INTEGRATION AND RESIDENCE, CONTROLLING ON WARFARE*

<i>Level of Political Integration</i>	<i>Purely External Warfare</i>		<i>Total</i>	<i>Internal or Internal and External Warfare</i>		<i>Total</i>
	<i>Matrilocal</i>	<i>Patrilocal</i>		<i>Matrilocal</i>	<i>Patrilocal</i>	
Multilocal	3	1	4	1	14	15
Local	4	2	6	0	15	15
Total	7	3	10	1	29	30

*The actual societies are the same as in Table XI: the cells are merely rearranged here
Neither significant

TABLE XIII. WARFARE AND RESIDENCE, CONTROLLING ON COMPENSATION TO BRIDE'S KIN*

Warfare	Compensation to Bride's Kin Present**		Total	Compensation to Bride's Kin Absent***		Total
	Matrilocal	Patrilocal		Matrilocal	Patrilocal	
Purely external	Callinago Zumi Nh 4 (ca. 1910)		2	Creek Delaware Ng 6 (ca. 1700) Mandan Miskito Tapirape	Aymara Sf 2 (ca. 1940) Crow Havasupai Papago	9
Internal or internal and external		Aleut Alorese Aranda Id 1 (ca. 1900) Araucanians Azande Fang Ila Mende Murngin Nuer Nupe Orokaiva Ie 9 (ca. 1920) Shilluk Ai 6 (ca. 1900) Siwans Tallensi Tiv Tiwil Id 3 (ca. 1920) Yurok	0	Yao	Aztec Bellacoola Nb 9 (ca. 1880) Lau Fijians Marquesans Nama Nambicuara Nootka Pukapukans Rundi Tehuelche Yokuts	12
Total	2	18	20	6	15	21

* Only the cases not in Tables VII and VIII are shown with atlas identification numbers and dates of description
** Compensation Present: $\phi = 1.00$; $p = .005$ (one tail, by Fisher's Exact Test)
*** Compensation Absent: $\phi = .52$; $p = .029$ (one tail, by Fisher's Exact Test)

TABLE XIV. COMPENSATION TO BRIDE'S KIN AND RESIDENCE, CONTROLLING ON WARFARE*

<i>Compensation to Bride's Kin</i>	<i>Purely External Warfare</i>		<i>Total</i>	<i>Internal or Internal and External Warfare</i>		<i>Total</i>
	<i>Matrilocal</i>	<i>Patrilocal</i>		<i>Matrilocal</i>	<i>Patrilocal</i>	
Present	2	0	2	0	18	18
Absent	5	4	9	1	11	12
Total	7	4	11	1	29	30

*The actual societies are the same as in Table XIII: the cells are merely rearranged here
Neither significant

absence of purely external warfare (interacting with the nature of subsistence work) predicts matrilocality vs. patrilocality, irrespective of herding, multilocal political integration, and compensation to bride's kin.

SUMMARY

This paper has described a number of cross-cultural tests of several different explanations of matrilocal vs. patrilocal residence.

We first tested the traditional assumption that the sex that stays put after marriage is the sex that contributes most to subsistence. This interpretation was not supported by the results of a cross-cultural test that employed a large worldwide sample of societies. Next we investigated the more general interpretation that male vs. female localization after marriage might be a function of conditions that enhanced the status of one sex relative to the other. Only two of the six conditions that have been suggested as enhancing the relative status of males turned out to predict more than half of the cases in which males are localized after marriage. The two such conditions are herding and multilocal political integration. Two other conditions—polygyny and slavery—predict male localization weakly. And the last two conditions—warfare and division of labor—do not predict male localization at all.

We then discovered that the presence of warfare appeared to clarify the relationship between division of labor and matrilocal vs. patrilocal residence. The cross-cultural evidence seemed to indicate that, if warfare is continual, men will contribute more than women to subsistence unless the warfare prevents them from doing so. As for how warfare might affect residence, we found that matrilocal societies have purely external warfare (that is, warfare only with other societies) much more often than patrilocal societies.

It seemed that the results relating warfare to residence and the results relating warfare (and nature of subsistence work) to division of labor could be jointly explained. The

interpretation offered was a developmental model that can be visualized as a branching tree. According to this model, patrilocal residence is favored by the presence of at least some internal warfare (that is, warfare within the society), whether or not such warfare interferes with a patridominant division of labor; and matrilocal residence is favored by purely external warfare if such warfare compels the division of labor to become matridominant.

Finally, we presented the results of a series of statistical tests that appeared to explain away the predictive relationships we had previously found between herding, multilocal political integration, and compensation to bride's kin (on the one hand) and male localization or patrilocality (on the other hand). That is, the relationship between matrilocal vs. patrilocal residence and the presence or absence of purely external warfare did not disappear when we controlled on herding and the like; but the relationships between herding (and the like) and matrilocal vs. patrilocal residence did disappear when we controlled on purely external warfare.

NOTES

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² We are not showing the entries in this and some other tables below because the ratings used are all in the *Ethnographic Atlas* and hence the tests may be easily repeated by anyone interested. (Some of our tests, but with a slightly different sample, can also be found in Textor [1967].)

³ Each society in Table VI (and subsequent tables) is listed with its atlas identi-

cation number and the approximate date (as taken from the atlas) to which our judgments and the atlas ratings apply.

⁴The reader should not be skeptical of this result simply because the number of matrilineal cases is small. All that matters is whether the sample result is statistically significant (assuming that the sample was not deliberately selected so as to "stack the deck"). As a matter of fact, a test on a small sample provides some advantage in that the result can be statistically significant *only* if the obtained relationship is strong. If the obtained relationship in a small sample were weak, the result would probably not be statistically significant. (Indeed, we would argue that if an investigator is looking for a strong relationship, he should only look at a small sample. At the very least, a small sample will show a strong relationship if it exists, and the time-consuming work of data-collection and analysis will be minimized.)

REFERENCES CITED

- Aberle, David F.
1961 Matrilineal Descent in Cross-Cultural Perspective. *In* Matrilineal Kinship. David M. Schneider and Kathleen Gough, eds. Berkeley: University of California Press. pp. 655-727.
- Brown, Judith K.
1963 A Cross-Cultural Study of Female Initiation Rites. *American Anthropologist* 65:837-853.
- Driver, Harold E., and William C. Massey
1957 Comparative Studies of North American Indians. Philadelphia: American Philosophical Society.
- Gough, Kathleen
1961 Variation in Residence. *In* Matrilineal Kinship. David M. Schneider and Kathleen Gough, eds. Berkeley: University of California Press. pp. 545-576.
- Gulliver, P. H.
1955 The Family Herds. London: Routledge & Kegan Paul.
- Heath, Dwight B.
1958 Sexual Division of Labor and Cross-Cultural Research. *Social Forces* 37:77-79.
- Kloos, Peter
1963 Matrilineal Residence and Local Endogamy: Environmental Knowledge or Leadership. *American Anthropologist* 64:854-862.
- Linton, Ralph
1936 The Study of Man. New York: Appleton.
- Lippert, Julius
1931 The Evolution of Culture. George Peter Murdock, trans. and ed. New York: Macmillan.
- Malinowski, Bronislaw
1941 An Anthropological Analysis of War. *American Journal of Sociology* 46:521-550.
- Murdock, George Peter
1949 Social Structure. New York: Macmillan.
1957 World Ethnographic Sample. *American Anthropologist* 59:664-687.
1962-1963 Ethnographic Atlas. *Ethnology* 1:1-4; 2:1-2.
- Otterbein, Keith F.
1968 Internal War: A Cross-Cultural Study. *American Anthropologist* 70:277-289.
- Otterbein, Keith F., and Charlotte Swanson
Otterbein
1965 An Eye for an Eye, a Tooth for a Tooth: A Cross-Cultural Study of Feuding. *American Anthropologist* 67:1470-1482.
- Schneider, David M.
1961 Introduction: The Distinctive Features of Matrilineal Descent Groups. *In* Matrilineal Kinship. David M. Schneider and Kathleen Gough, eds. Berkeley: University of California Press. pp. 1-29.
- Service, Elman R.
1962 Primitive Social Organization. New York: Random House.
- Textor, Robert B., comp.
1967 A Cross-Cultural Summary. New Haven: HRAF.
- Thomas, Elizabeth Marshall
1965 Warrior Herdsmen. New York: Knopf.
- Winter, Edward H.
1956 Bwamba: A Structural Functional Analysis of a Patrilineal Society. Cambridge: Heffer.