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Replication in cross cultural research

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REPLICATION IN CROSS CULTURAL RESEARCH

DESCENT, MARRIAGE SYSTEM, AND MODE OF PRODUCTION

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1. FIGURES AND THEIR INTERPRETATION BY HOMANS AND SCHNEIDER.

HOMANS and SCHNEIDER (1955) say that marriage partners are sought preferably within a group of which the head exerts no jural authority over ego (man) (pp. 21 ff.). In (currently known) societies with (predominantly) matrilineal descent system, such jural authority is exercised as a rule by the mother's brother. For this reason a man would preferably not look for a marriage partner from the mother's descent group, but would give a (relative) preference in the matter to the paternal line. In that case the marriage partner may be a daughter of father's (classificatory) sister, but not of mother's (classificatory) brother, according to HOMANS and SCHNEIDER.

The system under which a man marries (preferably) the FZD, and not the MBD, is called here FZDm.

In societies with a (mainly) patrilineal system of descent, the father usually exercises the aforementioned jural authority. HOMANS and SCHNEIDER argue that for this reason ego (man) will preferably not marry the FZD, but give (relative) preference to the MBD. The latter marriage system is here called MBDm.

Using G. P. MURDOCK's World Ethnographic Sample, H. and S. arrived at the following enumeration:

	matrilineal:	patrilineal:	total number of cult.:
FZDm	5	2	7
MBDm	4	22	26
totals	9	24	33

The result of their prediction is $5/9 > 2/24$; $P_r = 0.0086$ when using FISHER's Exact Probability Test (= FEPT).

Replication has confirmed the figures obtained by HOMANS and SCHNEIDER. Without observance of certain elimination rules (i.e. on the same basis as used by H. and S.), the result became for my Sample I: $5/13 > 0/14$; $P_r = 0.016$ (with FEPT); for my Sample II: $2/8 \sim 1/15$: right direction; and for the total: $7/21 > 1/29$; $P_r = 0.0067$. Applying MURDOCK's elimination rules — which amount to statistically stricter demands as to the material — I obtained for S I: $5/12 > 0/11$; $P_r = 0.024$ (FEPT); for S II: $1/6 \sim 1/15$: right direction; and for the whole: $5/16 > 1/26$; $P_r = 0.0232$. Amply significant on the 5% level, even if further elimination were to reject another 15 to 20% of the material, divided proportionally among the cells (DE LEEUWE: Replication in Cross Cultural Research: Sampling Method).

Now, though we are on the safe side with HOMANS' and SCHNEIDER's figures, their theory seems nevertheless a decidedly weak one. They themselves term it "not conclusive" (1955, p. 59), but in my view this does rather more than justice to their interpretation of the figures.

In the first place: basing ourselves for the time being purely on the factual ethnographic data H. and S. furnish themselves in their book, it is incorrect to claim, as they do, that the only society (out of 33) to whom their theory does not apply is the Yir-Yoront. The fact is that there are too many societies in their sample for whom data about "jural authority over ego (man)" are lacking.

Secondly, they give a definition (p. 21) of "jural authority" which is too little specific to be of much use for this purpose: "We shall say

that a person has authority over others to the extent that they in fact carry out the wishes, suggestions, orders he addresses to them" .... "By *jural authority* we mean, then, legitimate or constituted authority, and a person holds jural authority over others when, according to the stated norms of his group, he has the right to give them orders and they have the duty to obey."

To illustrate our objections we shall, on the basis of H.'s and S.'s publication (1955), subject the four cells of their 2 x 2 table to closer scrutiny.

On pp. 37 ff. the authors seek to justify their class 1 (patriliney + MBDM), comprising 22 cultures, which class is supposedly in accordance with their theory. With the exception of the Murngin and the Yir-Yoront, there would for "none" of these "patrilineal-matrilateral societies" be any reason "to suspect that the locus of immediate jural authority over ego lies in any person but his father." The authors give no proof whatever for this. On the contrary, when 'by way of illustration' they look into the personal relationships among the Lovedu — one of the 13 societies about whom they claim to have confirmatory data as to the suspected pleasant relationship between a man and a non-authoritative MB — almost nothing of HOMAN'S and SCHNEIDER'S theory remains valid for this case. It is true that the father has "authority", at least that is what HOMANS and SCHNEIDER make of it, but the ethnographic source they quote (1955, p. 37) says: "The father has authority, but his authority is never oppressive like that of European fathers, whose children live in much closer contact with them." To the FZ "honour and respect are given" (p. 38). The ethnographic source goes on: "There is a saying ... (among the Lovedu) ... 'Love lies on the mother's side of the family; ownership on the father's.'" HOMANS and SCHNEIDER — *begging the question* — then interpret, without stating further reasons, that such "love" refers to the sentiments of friendship and love for the MB too, contrary to the sentiments of honour and respect for the people of the paternal line. With the laconic assurance of "we suspect" H. and S. understand "ownership" as the "jural rights of control" over ego (man). But in my opinion "love" may just as well refer to the bare fact that a man marries within the matrilineage, while "ownership" may refer to membership of a descent group, to right of inheritance, etc. These possibilities become the more important when it appears that ego (man) should possibly honour and respect his MB no less than his FZ: "Your mother's brother may be kind to you, but you have to show him respect: if he asks you to go

on a message or to help him in the fields, you cannot refuse; while, if he needs you, you may be sent to herd for him or help nurse his small children" (ib. p. 38).

Since the father is explicitly characterised as "not oppressive", there appears to be no *contrast* between the authority of the father and that of the MB.

The Mende are likewise a society about which H. and S. claim to have gathered in principle all the required data. Now the fact is that here the personal relationships are even exactly the reverse of what they would have been if in accordance with H.'s and S.'s theory. "If, again, the sentimental tie with the mother's brother is very important to ego, he may hesitate to offend mother's brother which may give the latter *de facto* authority over ego, however little he may have *de jure*." Thus far it is all a preconceived interpretation by H. and S., without any foundation in fact, but which means that, if the hard facts were the reverse, the theory would still be correct. And so it is: "Thus we learn of the Mende, one of the societies of the present class, 'In terms of family law, to disobey one's uncle is an even graver offence than disobedience of one's father and may provoke a more serious curse'" (p. 40).

In respect of the Yir-Yoront — pp. 40-42 — H. and S. admit that ego (man) is pampered by his father and the people of the patrilineage, and tyrannised over by the mother and especially by the MB.

Add to this that for 9 of these 22 societies *no* data are known (according to H. and S. themselves) about the relationship between ego (man) and his MB. It may therefore be concluded that HOMANS and SCHNEIDER, contrary to their claim, c a n n o t prove their theory ethnographically for class 1, so that from a statistical point of view the *interpretation* they put upon their (as such significant) figure results, might lose its basis. But we will also take a closer look at the other three classes.

H.'s and S.'s class 2 comprises 2 cultures. (Nature of class: patriliney + FZDm.) H. and S. consider the Kandyu an unexplained exception to their "special hypothesis", which is that in the case of patriliney MBDm will occur and not FZDm. They do not consider their "general hypothesis" — that in the event of FZDm the people of the patrilineage will exert proportionally little authority over ego (man) — directly contradicted in this case. They are right, but it does give their interpretation insufficient support, since theirs is the burden of proof. The fact is that, according to H. and S., the "locus of jural authority" over

ego (man) is unknown to them as regards the Kandyu and that they know "almost nothing" about the interpersonal relationship among the Kandyu. Meanwhile, we wish to observe here, partly in view of what we will explain in Ch. 7 of this article, that among the Kandyu a *woman* gives her daughter to her BS. As a result the man does marry his FZD, but this has got nothing to do with h.'s and s.'s theory.

The other society in this class is the Sherente. It is true that for this culture there are indications that ego (man) soon comes under the leadership of a (classificatory) brother of his mother's, although such "boss" may just as well be the husband of his father's sister (p. 49). Thus h.'s and s.'s theory loses support here too. Again with a view to what will be discussed in Ch. 7 of this article, I would mention that among the Sherente the MB has notable authority over ego (*woman*). He gives his sister's daughter in marriage to his own son (p. 50). This too has nothing to do with h.'s and s.'s theory.

h.'s and s.'s class 3 (matriliny + MBDm) is by its nature contrary to h.'s and s.'s "special hypothesis", as they themselves observe, and it is important to them to demonstrate that the result does agree with their "general hypothesis" (see above). In the sample this class comprises 4 cultures: Garo, Kaonde, Kaska and Siriono.

As to the Kaonde h. and s. admit that there is: "no evidence whether or not they conform to our general theory" (p. 45).

Among the Kaska the father has more authority than the MB and this would, therefore, be a plus for h.'s and s.'s general theory. But we dare claim that this fact also fits the theory which we shall develop in Ch. 7 of this article and that the latter theory is preferable for reasons to be stated in that chapter. For the time being it may suffice to note that not only everything that would conform with h.'s and s.'s theory fits ours likewise, but that also the factual data which class with h.'s and s.'s theory accord with our theory, and that the latter theory moreover agrees with a number of other phenomena which belong to this subject and have not been discussed by h. and s. (cf. Ch. 2 to 6 of the present paper.) For example, among the Kaska the MB too is not without authority as regards ego (man) (pp. 45/46).

The same applies to the Siriono. There too ego is subject to the father's authority until marriage. So far the facts agree with what h. and s. suppose. But after marriage "some slight control by the mother's brother" is possible (p. 46).

The Garo (p. 47) may perhaps be bracketed with this small subgroup of 3.

There remains class 4 (matriliney + FZDm), comprising in H.'s and S.'s sample five societies. This class is formally in agreement with the special hypothesis (see above) of these authors. But also in content the results for this class are not unfavourable for H. and S., meaning that here their general hypothesis seems to be confirmed at least by some ethnographic facts. This goes for the Trobriand Islanders, the Tlingit and the Ila. As for the Haida the data offer little to go by, and for the Tismulun the required particulars are missing.

As appears from this chapter, even H.'s and S.'s general hypothesis still finds statistical support if the cases for which the required ethnographic data are lacking are left out, and the cases in which H.'s and S.'s general hypothesis is ethnographically contradicted are transferred to the cell where they belong as to content. But then H. and S. are given the benefit of the doubt, and one would hesitate to do so on finding that they, when quoting examples in class 1, even reverse certain ethnographic facts. With reference to our preceding discussion of the four classes, we find that in class 1 we have to leave out 9 cultures of which H. and S. say they lack the required factual data, and moreover the Lovedu, because it is, to say the least, impossible to find out whether the father or the MB is the bigger authority. There remain in that class 12 cultures, 2 of which (Yir-Yoront and Mende) are directly contrary to H.'s and S.'s general hypothesis. The whole of class 2 must be left out for the general hypothesis, since the necessary data are lacking for both the Kandyu and the Sherente. In class 3 Kaonde have to be left out, and the other 3 may in the most propitious case be counted in favour of H.'s and S.'s general hypothesis. In class 4 Haida and Tismulun drop out, leaving 3 in favour of H. and S.

The enumeration then is as follows:

	MB "oppressive authority"	father "oppressive authority"
FZDm	3 (out of class 4)	0
MBDm	2 (out of class 1)	10 (out of class 1) 3 (out of class 3)

The result of the prediction based on H.'s and S.'s general hypothesis will be:

$$3/5 > 0/13; P_r = 0.012 \text{ (with FEPT).}$$

When meanwhile HOMAN's and SCHNEIDER's general and special hypotheses are examined closely (1955, pp. 23, 27, 28), a test (including replication) yields figure results which, in spite of statistical confirmation, are highly unsatisfactory for H.'s and S.'s theory. According to that theory matriliney (and likewise *de jure* MB authority over ego - man . . . .) would not only be accompanied comparatively frequently by FZDm but would be hardly or not at all compatible with MBDm. Conversely, patriliney (and likewise *de jure* fatherly authority over ego - man . . . .) would not only be found relatively frequently with MBDm but would be hardly or not compatible with FZDm. For patriliney and fatherly authority the figures speak in favour of HOMANS and SCHNEIDER, but for matriliney and MB authority they do not. $3/5 \sim 0.50$; $5/9 \sim 0.50$. Replication of the research as regards the special hypothesis shows in both samples even more matrilineal societies with MBDm than with FZDm. (See the enumerations at the beginning of this chapter: only 5 out of 13 and 2 out of 8, or 5 out of 12 and 1 out of 6 matrilineal societies have FZDm.) We may claim positively that patrilineal societies have, it is true, a preference for MBDm (versus FZDm), but we also find that matrilineal societies have no preference for FZDm (versus MBDm). If we regard S I as an exploratory sample, we have tested it by S I + S II, with elimination. I think we can explain the phenomenon notably in Ch. 7.

2. DESCENT, MARRIAGEABLE RELATIVES, SUBSISTENCE TYPE AND MARITAL RESIDENCE.

If one is to arrive at a satisfactory theory about the relationships discussed in the preceding chapter, one should also search for an answer to the question where descent systems (based on lineality or otherwise) spring from and where the possible systematic relationships between descent systems and cross-cousin marriage come from.

We shall (for the time being) be speaking exclusively of first cousins (whether classificatory or not), adhering to the coding of the EA, 1967, pp. 49/50, col. 25. Cf. also our other article as regards the replication of HOMANS' and SCHNEIDER's research.

Some authors think that cross-cousin marriage originated on the basis of (unilineal) exogamy plus marriage-to-the-closest-permitted relative. FOX (1967, p. 180) hints at this. Under such a system people of one unilineal group are ceded to marry people of the same generation from a certain other similar unilineal group. The former group receives

compensation for such people, either from the group to whom it has ceded them, or from a third similar group, namely in the form of marriage partners. Since under a unilineal descent system with obligatory marriage within one specified unilineal group (but not my own), father's (classificatory) brother is the marriage partner of mother's (classificatory) sister, my closest relatives permitted as marriage partners of my own generation, will be my (classificatory) cross-cousins. (Cf. FOX, 1967, Ch. seven, III, pp. 184 ff.)

Some authors suspect that the original form of this kind of exchange of people through marriage on the basis of unilineality, i.e. directed exogamy and marriage with the closest permitted relative, has been the exchange between (each time) two equivalent and similar unilineal groups. FOX observes correctly that, to put it mildly, it is loose usage to speak of "sister-exchange" in *all* cases of that kind (ib., p. 180). I wish to add that it should neither be assumed off-hand that they have at all times manipulated women and/or that the manipulators have always been men. (Cf. DE LEEUWE, 1962, 1964, 1965.) That women are sometimes the manipulators appears moreover from the data about the Kandyu quoted by HOMANS and SCHNEIDER (1955, p. 48, taken from U. McConnel).

The various questions as to the origin of unilineality have been disputed subsequently as regards both the historical age of patriliney and matriliney, compared with one another, and the historical age of lineality compared with (certain kinds of) bilaterality, and also as regards the (main) *causes* of all these phenomena.

Supposing that unilineality plus directed exogamy and cross-cousin marriage were originally coupled in the manner described above, then there is some ground to suspect that cross-cousin marriage at least tends to rise and vanish with unilineality. Moreover, it should be borne in mind that unilineality with directed exogamy *by no means compels* one to marry the *closest* permitted relative, while, the other way round, cognatic (i.e. bilateral) kinship systems need not *exclude* cross-cousin marriage.

We will now predict that (single) unilineal systems will score proportionally more often some prescribed or preferred cross-cousin marriage system (= CCm) than bilateral systems will. For reasons to be explained presently, we also predict that verification of our prediction will not be owing to only one kind of lineality (but possibly to both separately or to neither separately). (Predictions A and A'.)

PREDICTIONS A and A'.

Enumeration for S I¹:

	bilat.	patriliny	matriliny	Result of pred. A:
CCm	14	25	23	48/184 > 14/102;
other m	88	113	23	$z = 2.5942$
				$P_r = 0.00480$
totals:	102	138	46	

Enumeration for S II:

	bilat.	patriliny	matriliny	Result of pred. A:
CCm	13	30	19	49/185 > 13/103;
other m	90	107	29	$z \sim 2.59$ (cf. res. S I)
				$P_r \sim 0.005$
totals:	103	137	48	

Prediction A twice tested and both times amply verified.

To find out whether perhaps not only one kind of lineality is responsible for this result, we make a test for the *most unfavourable* proportions. It is understood without any further calculation that one should then contrast the patrilineal systems with the bilateral systems. (Patriliny versus matriliney is not at issue in this prediction and will be discussed later.)

Result of pred. A' for S I:

25/138 $\sim$ 14/102; $z = 0.91869$; $P_r = 0.1788$; not sign.; right
[direction.]

Result for S II:

30/137 > 13/103; $z = 1.8815$; $P_r = 0.0301$; sign.

$$z_{\text{total}} (\text{for combination}) = \frac{0.91869 + 1.8815}{\sqrt{2}} = 1.98; P_r = 0.0239.$$

¹ Double unilineality, which is not involved in the theoretical discussion in this article, has been left out of the count everywhere. The systems concerned constituted nowhere more than 5% of S I or S II, each time in their totality ($N \sim 300$).

Prediction A' tested and retested, with amply significant result for combination: each category of unilineality separately scores proportionally more often a cross-cousin marriage system (versus all other marriage systems) than bilaterality does.

We will first discuss the question whether (single) unilineal systems are possibly *more archaic* (versus *modern*) than bilateral systems are. Formally apart stands the question whether unilineal systems are perhaps proportionally more often *historically older*, i.e. of earlier origin philogenetically, than bilateral systems. As a matter of fact, we are not concerned here with biological structures. As regards the latter it may be argued (as far as I know) that the absolutely oldest archaic forms are always historically older than any more modern form.

As regards human-social structures, on the other hand, it is not a priori impossible that (some) more archaic and (some) more modern forms (have) originate(d) independently of one another more or less simultaneously, each time at different places among groups of people who, for the rest, have attained equal development levels in a number of essential aspects. Whether such a thing is likely is something else and should be investigated from case to case.

As *one* characteristic of modern versus archaic in a cultural anthropological sense, I would consider survival ability, following a hint by FOX (1967, p. 151). By this is meant that the characteristic in question (versus another characteristic within the framework of the same variable) is found proportionally more frequently in the company of characteristics which we *know* to be modern (versus archaic). First of all: *how* do we know this? A) Because in the latter case we are concerned with characteristics which we *know* to be phylogenetically younger than the corresponding archaic characteristics: the computer is phylogenetically younger than the steam engine; the steam engine is phylogenetically younger than the hand-loom. B) Because we *know*, e.g. on the basis of our knowledge of the development of technology, that a certain characteristic requires a more advanced development than corresponding archaic characteristics do; so the harpoon is more modern than the *coup de poing*; the wrought-iron arrow-head is more modern than the wooden arrow-head; tillage is more modern than food-gathering.

In a series of cases the technological level notably is a clear indication for "modern" versus "archaic".

Now supposing that bilaterality, patriliney and matriliney all three (all in different societies) appear to occur on the lowest technological level known to us from ethnography, but that in the societies with the

highest technological development only bilaterality is left, then bilaterality (versus unilineality) has the highest survival ability. This might be a reason to consider bilaterality more modern by its nature than unilineality. Nature and causes of this modernity should, if possible, be further investigated.

Now there are at least two kinds of bilaterality, namely bilaterality which is reckoned from one or more ancestors (*ramage* in the EA) and bilaterality reckoned from ego (*kindred* in the EA). Both forms appear to occur on a relatively low technological level.

Using a rough impression from the ethnographic and politico-economic literature, we dare predict that bilaterality, in whatever form, is linked proportionally more often with the highest technological level known to us (versus all other technological levels) than unilineality is. The highest technological level known to us and expressed in the EA is industrialisation. (In the EA: I, or a symbol ending in i in one or more columns of the series 42 to 62. When "I" or "...i" — versus all other symbols — occurs at least once in the columns 42 to 62 for a certain culture, we consider such culture wholly or partially industrialised as regards the economy. In the annex to this article the industrialised societies are indicated by an i after column 16) (Prediction B).

PREDICTION B.

Enumeration for S I:

	bilat.	patriliney + matriliney	Result of pred.:
industr.	8	0	8/102 > 0/184;
non-ind.	94	184	$z = 4.1110$;
			$P_r = 0.0000207$
vert. tot.	102	184	

Enumeration for S II:

	bilat.	patriliney + matriliney	Result of pred.:
industr.	2	1 (patr.)	2/103 ~ 1/185;
non-ind.	101	184	$z = 1.0909$;
			$P_r = 0.1379$; not sign.,
vert. tot.	103	185	right direction.

$$Z_{\text{total}} = \frac{4.1110 + 1.0909}{\sqrt{2}} = 3.68; \quad P_{r \text{ total}} = 0.000108.$$

The prediction has been amply verified through replication and combination. The problem that the result might be attributed to only one kind of lineality does not arise, due to the extremely rare occurrence of the unilineality plus industrialisation combination.

Meanwhile it is known likewise from the ethnographic literature that bilaterality has a preference for the relatively lowest technological level which we know, at least for the relatively most archaic subsistence economy: gathering plus hunting and/or fishing, which ABERLE, 1962, called extractive economy.

Those are the societies for which, in column 7 of the EA, the sum of the final 2 figures is 3 at most, meaning that, in such a society, the subsistence economy is based for only 35% at most on agriculture and/or livestock farming (whereas industry is lacking according to columns 42 to 62). We will here call them "extractive" or "0-3".

Our prediction should read that societies with single unilineal descent system will score proportionally more often non-extractive also non-industrialised (versus extractive or industrialised summated) than bilaterality will. We also predict that this result will not be caused by only one of the two categories of simple unilineality, or only by one of the two classes of extreme subsistence economies (0-3 or industrialised). (Predictions C, C' and C'')

We shall use the same counts for a prediction D, of which we shall speak presently.

PREDICTIONS C, C', C'' and D.

	Enumeration for S I:			Enumeration for S II:		
	bilat.	patriliney	matriliney	bil.	pat.	mat.
extract. (0-3)	47	12	9	44	14	8
non 0-3 also						
non-industr.	47	126	37	57	122	40
industrial	8	0	0	2	1	0
vert. totals	102	138	46	103	137	48

Result of pred. C for S I:

$$163/184 > 47/102; z \sim 6; P_r < 1 \text{ billionth}$$

(the result is calculated only for the most unfavourable proportions and those are supplied by

S II:

$$162/185 > 57/103; P_r = 0.09530, \text{ as } z = 6.0581.)$$

Result of pred. C' for S I:

That $126/138$ and $37/46 > 47/102$ is clear without further calculation.

Ditto for S II:

$$122/137 \text{ and } 40/48 > 57/103.$$

Result of pred. C''. Here too, no further calculations are required.

For S I:

$$37/37 \text{ and } 126/126 \text{ are } > 47/56;$$

$$37/46 \text{ and } 126/138 > 47/94.$$

For S II:

the figures are accordingly.

Replication and possible combination may be left to the reader.

We deduce exploratively from the enumeration for S I that bilaterality in an absolute sense is linked more strongly with extractive subsistence economy than with industry. As a matter of fact, $47/102 \sim 0.50$, whereas $8/102 < 0.50$, which is clear without further calculation. If we keep to the usual reliability margins (with a 10% chance of a wrong answer), the percentage of cultures in the population which are at the same time bilateral and 0-3 can be approximately 40 at the lowest, while the percentage of bilateral and also industrialised cultures in the population can be approximately 15 at the highest. (Explorative prediction D.)

A test against S II verifies the prediction. Here $57/103$ is opposed to $2/103$.

ABERLE (1962, pp. 679-680) has merely observed that societies with bilateral systems (versus patriliney and versus matriliney) score proportionally more often extractive (versus all other types of economy), which is true in itself. He has not observed that bilaterality scores *relatively* even more often industry, because ABERLE has not separately coded this most modern top of the subsistence economy, and not scored it separately either.

It would appear from our above argument that bilaterality is more modern than (single) unilineality, because of the greater survival ability of bilaterality. If this is true, it remains a remarkable thing that bilaterality in an absolute sense is linked more strongly with extractive means of subsistence than with industry and that bilaterality scores proportionally more often extractive than (single) unilineality does. As for the former objection, it may be noted that the number of industrial societies is not (yet) very large in comparison with the number of 0-3 societies, which I think we may safely regard as a passing historical phenomenon: the so-called "primitive cultures" are slowly but surely disappearing, to the dismay of some cultural anthropologists; societies with industry are growing in number, both absolutely and relatively.

As for the second objection which I have just mentioned: if bilaterality (versus unilineality) is in fact more modern, then it ought to appear that the societies with extractive subsistence economy plus bilaterality are in certain respects proportionally in larger numbers modern than is the case for extractive subsistence economy plus unilineality. Or — if we want to be slightly less severe — these things should at least be true for other than industrialised societies. So we will, at a given time, have to drop the latter from the counts.

Now we know (cf. e.g. DE LEEUWE, 1970) that the level of the production forces is indicated only approximately by variables such as "technological level" and "subsistence economy". The subsistence economy sometimes permits within a certain type (e.g. extractive or e.g. tillage) a fairly wide variation in technological level, whereas factors like natural environment may in addition to technological level affect the level of the production forces and the economy.

On the ground of Marxist literature, *inter alia*, it may be presumed that a better indicator for the level of the production forces would be the measure in which each time the smallest possible number of individuals prove capable of supporting themselves without obtaining direct assistance with regard to the production share in question.

It is known through ethnography that, as the level of technological development is lower — notably when at the same time the natural environment does not easily yield fruits — it is not possible for an individual to supply, without direct assistance from others, a share in the production which adequately ensures the subsistence of such an individual. This does not mean that in twos, threes or more they would produce more per head than they would have done individually; it means that individually they would not have been able to produce

at all. As long as, say, hunting weapons are not yet sufficiently developed, one individual or the (male) members of one so-called nuclear family (jointly) cannot secure any game to speak of. The common hunt, and notably the drive, then appears to be (virtually) the only mode of hunting. Something similar goes for fishery. On the other hand it may be noted for all types of production that our modern stages of technological development demand cooperation by big groups (e.g. in agriculture, on big ships, in factories), but then the situation does differ from the one with a low production force level. In the case of, say, large-scale mechanised agriculture, modern sea fishery or today's factory production, one individual or the working members of one nuclear family are usually able to earn (= to produce, less the produced surplus value) enough to support himself and/or the entire family.

In the light of the foregoing it could be argued that where the nuclear family is able, without any direct help from others in the production share concerned, to produce enough for itself (as distinct from the nuclear family's not being able so to produce), the level of the production forces is higher (versus lower), which means that the society is more modern (versus more archaic). The (relatively) independent production by a nuclear family, as meant here, we will henceforth call, for the sake of convenience, "independent production". The corresponding non-independent production is then called "dependent".

Unfortunately, (as far as I know) this cannot be read at a glance from the EA: in the EA one has to look for indicators of this indicator. They seem to be indeed present: they should be data showing the economic weight of the nuclear family.

Originally I felt that the presence or absence of the extended family as a mass phenomenon would be an indicator of the economic weight of the nuclear family. I put the codes M, N, O, P, Q, R and S (i.e. extended families lacking) of col. 14 in the EA against the codes E, F and G (i.e. extended families present).

If bilaterality (versus unilineality) were to correlate with modernity of society — in the sense of a higher level of the production forces — (versus archaism), and if it may be assumed that the economic weight of the nuclear family in the aforementioned sense reflects the level of the production forces, and if the absence of extended families (versus presence) indicates such economic weight of the nuclear family, then bilaterality (versus unilineality) should be accompanied proportionally more often by the absence of extended families (versus presence thereof).

PREDICTION E.

	Enumeration for S I:		Enumeration for S II:		
	bil.	unilin.	bil.	unilin.	
only nucl. families	46	90	53	84	Single patriliney and single matri- liney summated.
(also) ext. families	54	93	46	95	
	100	183	99	179	

Result of the prediction for S I: $46/100 \sim 90/183$; virtually no direction and virtually wholly uniformly distributed. Result for S II: $53/99 \sim 84/179$; the right direction is hardly noticeable, the distribution is almost uniform. Prediction E has been falsified.

In which of the links did our error lie? I do not think we have to doubt a priori that the aforementioned weight of the nuclear family (what we called independent production versus dependent) correctly indicates the level of the production forces, since politico-economic society analysis has from case to case repeatedly confirmed the correctness of this point of departure: the higher the level of the production forces and especially the technological level, the more independent individual production or independent family production, as I called them, appear to be possible.

Another possible source of error is that bilaterality versus unilineality may not be modern in the sense we have described. We will still investigate this point. For the time being we maintain our hypothesis to the contrary.

There remains the possibility that the absence or presence of extended families does not correlate with independent or dependent family production. We now assume so exploratively on the basis of the result of prediction E. If our assumption is correct, it means within the framework of the theoretical explanation attempted above that presence or absence of extended families does not correlate with the level of the production forces. In view of my original point of departure, laid down in the falsified prediction E, this would be rather amazing. If presence or absence of extended families does not appear to correlate with archaism or modernity of the *economy* (another indicator of the

level of the production forces), this strengthens the exploratively found new hypothesis. This new hypothesis may be deemed to have been found on the basis of the result of prediction E for S I. S I therefore remains an explorative group. (It should be clearly understood that in this new case we set our course by the correctness of the null hypothesis.) (Prediction F.)

In the following two counts the first number under the headings "bil.", "patriline", "matriline" and "hor.tot" (horizontal totals) indicates each time the number of societies, characterised by "purely independent nuclear families" (i.e. absence of extended families). The second number indicates each time the number of societies where (also) extended families predominate as a mass phenomenon.

PREDICTION F.

	Enumeration for S I:							
	bilateral syst.		patriline		matriline		hor. tot.	
extract. subs. (0—3)	21	26	7	5	3	5	31	36
non-extr. also non-industr.	21	24	60	65	20	18	101	107
industrialised	4	4	0	0	0	0	4	4
vert. totals	46	54	67	70	23	23	136	147

Result: $31/67 \sim 101/208 \sim 4/8$. Pred. F verified, for the time being exploratively. Moreover, patriline versus matriline appears to correlate neither with presence nor absence of extended families. A non-relevant detail is that, in an absolute sense, the population contains presumably about as many societies with as without extended families.

	Enumeration for S II:							
	bilateral syst.		patriline		matriline		hor. tot.	
extract. subs. (0—3)	20	20	8	7	4	4	32	31
non-extr. also non-industr.	31	26	52	66	19	18	102	110
industrialised	2	0	1	0	0	0	3	0
vert. totals	53	46	61	73	23	22	137	141

Under the most favourable proportions (but then again exploratively) it follows from S II (industrialised societies versus all other) that the "exclusively independent nuclear families" (i.e. absence of extended families) score occurs proportionally significantly more often in the industrialised societies: $3/3 > 134/275$; $z = 2.0688$. Even if this result had not again been explorative, we would have to combine with $z_{S I}$ for the corresponding proportions. This makes $4/8 \sim 134/277$ with a z of 0.02. Z_{total} is consequently 2.0888. If we divide this by $\sqrt{2}$, the result is 1.48 $P_{r total}$ is: 0.0694. The alternative hypothesis remains, therefore, unconfirmed, and our prediction F is verified by test: the subsistence type does not significantly correlate with the presence or absence of extended families (versus exclusively independent nuclear families).

The economic weight of the nuclear family (in the sense of producing independently or dependently) may perhaps be told also from the residence of the nuclear family. If the marital residence is neolocal (versus all other possibilities), one may expect the nuclear family to produce relatively independently, proportionally more often. Neolocality versus all other possibilities should then proportionally more often be accompanied by relatively independent production (which cannot be inferred from the EA), by a higher level of the production forces (which cannot be directly inferred from the EA either), by a higher technological level (not directly inferable from the EA again), possibly by modern forms of economy (versus archaic) and — if bilaterality is more modern in comparison with unilineality — also by bilaterality. If the last-mentioned correlation were to exist, it would not immediately follow that bilaterality is more modern than unilineality, but it seems to me that this may be inferred for the time being. After all: neolocality may be deemed, at least by way of working hypothesis, to correlate very strongly with so-called independent production by the nuclear family. I for one do not know of any instance in ethnography of a society in which neolocal families do not as a rule engage in such comparatively independent production. (Even in the case of unemployment and relief in a present-day capitalistic society the neolocal nuclear family formally still produces independently!) So if — notably also if we leave the industrialised societies out of the count — bilaterality (versus unilineality) were to correlate significantly with neolocality (versus all other possibilities), the greater survival ability of bilaterality is proved again: it survives better than unilineality in the case of relatively independent production by the nuclear family, i.e. in the case

of a relatively higher level of the production forces, i.e. modernity, also within the framework of one and the same category of economies.

We shall inquire first whether neolocality of the nuclear family (col. 16 of the EA, code N and all codes ending in N) versus all other possibilities (all other codes of col. 16, EA) is accompanied proportionally more often by industrialised economy (versus all other types). (Prediction G.)

Then we shall inquire whether bilaterality (versus each form of unilineality or at least not through the influence of only one form of unilineality) occurs proportionally more often in the event of neolocality (versus all other possibilities of marital residence), even if we leave the industrialised societies out of the count. (Predictions H and H'.)

In the count following below, the first number under the headings "bil.", "matrilin.", "patrilin." and "hor.tot." give each time the number of societies with any marital neolocality worth mentioning (cf. the score book in the annex: col. 16, codes 1 and 2n). The second number gives each time the number of societies without any marital neolocality worth mentioning. (Score book: 2 of col. 16.)

PREDICTIONS G, H and H'.

Enumeration for S I:

economy	bilateral		patriliny		matriliny		hor. tot.	
extractive (0—3)	8	39	1	11	1	8	10	58
non 0—3 also								
non-industr.	9	38	26	100	5	32	40	170
industrial	8	0	0	0	0	0	8	0
vert. totals	25	77	27	111	6	40	58	228

Enumeration for S II:

economy	bilateral		patriliny		matriliny		hor. tot.	
extractive (0—3)	5	39	2	12	0	8	7	59
non 0—3 also								
non-industr.	24	33	19	103	8	32	51	168
industrial	2	0	1	0	0	0	3	0
vert. totals	31	72	22	115	8	40	61	227

The result for prediction G is for S I $8/8 > 50/278$ and for S II $3/3 > 58/288$. No calculation is necessary, considering that $3/3 > 134/275$ with a z of 2.0688. (Result for S II in pred. F, see above.) The correlation between marital neolocality on the one hand, and industrialisation on the other (versus non-neolocality and non-industrialisation) is particularly close. This is proved, according to the above, by test and retest. Thus we have strengthened our hypothesis as to the relatively modern character of marital neolocality. We had already elucidated statistically that bilaterality is relatively modern insofar as it is more closely linked with industrialisation than either form of unilineality. (Pred. B above.) It is now important to show first, if possible, that neolocality (whose relatively modern character is established for the time being) — versus non-neolocality — is linked more closely with bilaterality (versus unilineality), if we leave the industrialised cultures out of the count. (Pred. H'.)

The proportions most favourable for our prediction appear to be, according to the count for S I, those between bilaterality and matriliney.

Result for S I:

$17/94 \sim 6/46$; $z = 0.7707$; $P_r = 0.22$. Not significant; right direction.

And for S II:

$29/101 \sim$ or $> 8/48$; $z = 1.6279$; $P_r = 0.0516$. Unless rounded to 2 decimals, just not significant; right direction.

When combined ($z_{\text{total}} = z_{\text{S I}} + z_{\text{S II}}$, together divided by 1.4142) becomes $z_{\text{total}}: 1.646$ and P_r total becomes: 0.0446.

This is significant — on the borderline — but hardly acceptable, as we are eliminating only partially. (Cf. our other article, notably the conclusion.) For this reason we may not say off-hand that, upon replication and combination, societies with bilateral systems appear to score marital neolocality proportionally more often than societies with unilineal systems do.

We now test for the most unfavourable proportions in S I: bilaterality versus patriliney. Result for S I:

$17/94 \sim 27/138$; z becomes negative, but the wrong direction is not significant. For the rest it appears from the result of pred. L

(Ch. 5 of this article) that, like the bilateral systems (see above), the patrilineal ones do not significantly score neolocality proportionally more often than the matrilineal systems do.

Result — back to pred. H' — for bilaterality versus patriliney in S II:
 $29/101 > 21/136$; $z = 2.5060$; $P_r = 0.00523$.

Combination is not allowed, since the result for S I went in the wrong direction. If we test for the whole without combination — purely for the sake of comparison — the result is just not significant either: $46/195 \sim 48/274$ on the 5% level. And even if $P_{r\text{ total}}$ had been precisely 5% or slightly less, we would not have been allowed — see above — to accept this result here off-hand.

It has, therefore, appeared thus far that bilaterality versus matriliney, like bilaterality versus patriliney, when replicated, do not (or in both cases precisely on the borderline) score proportionally more often marital neolocality (versus all other residence possibilities), if we drop the industrialised societies from the count. Now if bilaterality versus the *summed* forms of single unilineality does appear to score relatively more often marital neolocality, this would verify prediction H', since then the result cannot be attributed to the influence of only one of the two categories of unilineality.

If we put here bilaterality versus matriliney plus patriliney, the result for S I is:

$17/94 \sim 33/184$; $z = 0.2646$; hardly right direction.

For S II:

$29/101 > 29/184$; $z = 2.5573$; $P_r = 0.00523$.

When combined z_{total} becomes: $(2.5573 + 0.2646)$ divided by $1.4142 = 2.00$ rounded to 2 decimals. $P_{r\text{ total}}$ becomes: 0.0228, for our purpose a quite acceptable P-value on the 5% level. Prediction H' verified by replication and combination.

Prediction H, where the industrialised societies are included in the counts and the result again is not influenced by only one of the categories of unilineal systems, is true a fortiori.

The verification of predictions G, H and H' strengthens the hypothesis that bilaterality, in other than industrialised societies too, is linked proportionally more often with a more modern mode of production than (single) unilineality is.

3. MARRIAGE SYSTEM AND DESCENT.

We return to the cross-cousin marriage system (= CCm). As appears from prediction A of Ch. 2 of this article, CCm (versus all other possible marriage systems) occurs proportionally more often with (each of the) single unilineal systems than with bilaterality.

Continuing the line of our preceding argument, CCm must then be a more archaic marriage system (= m) than another designation of marriage partners, all considered. If this is true, it may be assumed that CCm is positively correlated with non-industrialisation. Now we know from pred B (Ch. 2 above) that, in accordance with the test prediction, bilaterality is positively correlated with industrialisation. Since CCm in turn occurs proportionally more often with unilineality (versus bilaterality), the prediction that CCm and non-industrialisation will be correlated, is not, therefore, altogether independent. On the other hand, if A is correlated with B, and B is correlated with C, it does not necessarily follow that A is correlated with C.

We shall therefore make the prediction that CCm (versus the other m) occurs relatively more often in non-industrialised societies (Pred. I). If this prediction is verified, it will mean some further strengthening of our overall argument: CCm (versus all other m), unilineality (versus bilaterality) and marital non-neolocality (versus neolocality) are linked relatively more often with a more archaic mode of production (versus the peak of modernity: industrialisation).

PREDICTION I (i).

economy	Enumeration for S I:		Enumeration for S II:	
	no CCm	CCm	no CCm	CCm
extractive	53	15	54	12
non 0—3 also				
non-industr.	163	47	169	50
industr.	8	0	3	0
vert. totals	224	62	226	62

Result for S I:

$$8/8 > 216/278; z = 2.000; P_r = 0.0228.$$

Result for S II:

$$3/3 \sim 223/285; z = 1.2083; P_r = 0.1113; \text{right direction.}$$

Combined:

$z_{S I} + z_{S II}$, together divided by 1.4142; $z = 2.27$; $P_{r \text{ total}} = 0.0116$.
Amplly verified in replication and combination.

In this connection I would mention FOX's (1967, notably p. 227) explanation about so-called elementary and complex marriage systems, although this author does not at the loc. cit. advance statistical proof. Following LÉVI-STRAUSS, FOX says that elementary marriage systems are systems under which it is not only prescribed or preferred within what descent group one must not marry at any rate, namely ego's descent group — it therefore concerns an exogamy rule — but under which it is also indicated within what descent group(s) one should (preferably) marry. What FOX on the other hand calls "complex marriage systems", are systems which — thus far — have contained some form of systematic exogamy, but without any compulsory rule or systematic preference as regards any other specific descent group, within which ego would have to choose the marriage partner. FOX says: "Complex systems are not confined by any means to 'advanced' countries or cultures, but occur through the range of social types. Truly elementary systems, however, do not seem compatible with large industrial social structures."

Under the theory set forth in this article, complex systems should then be called relatively modern because of their greater survival ability. We would have to investigate whether they, versus the elementary systems, are statistically more closely connected with industrialisation, neolocality and bilaterality (versus non-industrialisation, non-neolocality and single unilineality). Unfortunately, this cannot be done with the aid of the EA, as the EA does not indicate whether the possible exogamy functions in an elementary or complex manner (neither in columns 20 and 22, nor in col. 25, or to my knowledge anywhere else).

FOX's characteristic of the practical effect of elementary versus complex marriage systems meanwhile agrees with the theory we have tested. Elementary marriage systems are aimed — says FOX — at maintenance of fixed relationships as regards the exchange of marriage partners between each time two descent groups throughout generations. This can be seen most clearly — he adds — in the case of symmetrical CCm; then the children of brothers marry again and again, from generation to generation, the children of sisters of such brothers, "... thus keeping marriage in the family, as it were ...". Complex

systems — FOX continues — by no means promote permanent ties between each time two descent groups, "... but distribute people widely around the society ..."

It is theoretically obvious — so we conclude — that complex systems (versus elementary ones) are not only connected relatively more closely with industrialisation, but also with bilaterality and neolocality, while the elementary systems will rather link up with single unilineality and non-neolocality. In societies with elementary systems the weight of the nuclear family as so-called independent production group (see Ch. 2) will be less; under the complex systems on the other hand, the nuclear family will have greater weight in this respect. This tallies with the view set forth in this article on the relative connectedness of bilaterality, neolocality and absence of CCm with a more modern mode of production, while unilineality, non-neolocality and CCm are relatively closely linked with a more archaic mode of production.

4. DESCENT AND MODE OF PRODUCTION.

Further to the foregoing, we would add a few observations about the connection we assume to exist between descent system and mode of production, with a view, *inter alia*, to the attempt we are going to make presently to find a better theoretical explanation of HOMAN's and SCHNEIDER's figures. (Cf. Ch. 1 of this article.)

In the same way, as according to the foregoing, bilaterality represents a more modern type of descent system than is represented by a *n*y unilineality (= each of the unilineal systems or at least the summated societies with single unilineal systems, according to the statistical results of a series of predictions), patriliney could be a more modern type of descent system than matriliney, or just the other way round. The more modern type of the two should then appear to be relatively closely linked with non-CCm and/or marital neolocality and/or industrialisation (versus CCm, non-neolocality and non-industrialisation respectively).

Ethnographic literature conveys a general impression that patriliney has a greater survival ability than matriliney, and for that reason we are going to predict presently (Ch. 5 below) that patriliney as compared with matriliney will score CCm relatively less often, and/or marital neolocality relatively more often, and/or industrialisation relatively more often, apart from further test predictions which will be discussed in Chapters 5 and 6.

We wish to give some further explanation as to the basis of our assumption that patriliney is relatively more modern than matriliney. First, we believe that patriliney is more than matriliney linked with androcracy versus gynecocracy. This has not yet been confirmed statistically, since we do not (yet) have any sample in this respect available. For some individual cases — African Pygmies and Australian autochthons of North Arnhem Land — the present author feels he has advanced sufficient proof on the basis of ethnographic data, not only that the present androcracy has been preceded by gynecocracy, but also that, within the framework of such gynecocracy — sometimes contrary to a now dominant patriliney — descent was determined matrilineally (DE LEEUWE, 1962, 1964, 1965, 1966).

When I claimed that the relative connectedness between matriliney (versus patriliney) and gynecocracy has not (yet) been confirmed statistically, I may have been too severe, acquiescing provisionally (maybe wrongly) in the stubborn denial, by certain ethnologists and cultural anthropologists, of the nature of a series of ethnographic particulars which are in fact descriptions of as many gynecocratic phenomena. (In this connection one should consider not only political, economic, religious and other practices of our times, but also what is reflected in myths and rites about past political, economic, religious and other practices. The latter categories of data are the more striking and convincing since, in spite of the current androcracy in such a society, they unambiguously tell of past gynecocracy, sometimes including a legendary account of the course of the androcratic revolution.) (DE LEEUWE, *ib.*)

If SCHNEIDER says (1962, p. 6) that "... Positions of highest authority within the matrilineal descent group will ... ordinarily be vested in statuses occupied by men ..." and that "... the role of men is defined as that of having authority over women and children (except perhaps for specially qualifying conditions applicable to a very few women of the society) ...", he has no statistical result whatever to support this claim, neither here nor anywhere else in his book of over 750 pages. Moreover, I repeat, he takes no account of data that have come to us through myths and rites. Furthermore, he himself restricts the scope of his finding when he admits: a) "... there may be (my spacing, d. L.) a systematic correlation such that male-held statuses have authority over those statuses occupied by women or children ..." (*ib.* p. 7); b) "The status of wife has relevance to the domestic sphere; the status of mother's brother in matrilineal systems, to the descent-group sphere. The allocation of authority within the domestic sphere must be dis-

tinguished from the allocation of authority within the descent-group sphere and these in turn distinguished from the religious sphere, the political sphere, and so forth." (ib. pp. 6/7); c) "For our purpose only two spheres are immediately important: the domestic sphere and the descent-group sphere." (p. 7).

It appears from item *a* that systematic superiority of male status over female status is not sufficiently established. Item *b* shows that the "descent-group sphere" has been hollowed out — since religion, politics "and so forth" are excluded — and is moreover vague and non-operational, for what precisely belongs to the "descent-group sphere" then? Item *c* shows that SCHNEIDER evidently leaves politics, religion "and so forth" out of consideration and restricts himself to the no more closely defined "domestic sphere" on the one hand, and to the "descent-group sphere" on the other, which we have shown to be both hollowed out and vague.

Now GOUGH claims in the same publication (1962, p. 519) that women seem to have relatively greater "formal legal authority" in the leadership of descent groups within "settled cultivating societies of *lowest* productivity". As productivity and political centralisation increase — says GOUGH — "women appear to become more definitely subordinate to their male heads." The possibility remains, according to this author, that "... Senior women of descent groups ... retain a formal role in the selection or installation of male heads ..." We may add that the societies (still) existing today, in which women enjoy more or less economic and political leadership, have proportionally often a subsistence economy which is governed by horticulture with the aid of light tools. (In a series of cases only traces are left of the presumed gathering gynecocracies, preceding the now existing hunting androcracy. DE LEEUWE, 1962, 1964, 1965, 1966.) In the case of dominant horticulture with the aid of light tools, or at least without any large cattle to speak of, the horticulture is sometimes carried out by women and under the direction of women. Women of the maternal line sometimes own the gardens. The significance of hunting and/or fishing carried out by men ranks below that of horticulture here. The economic and political authority of women and the matrilineage today and in the past seems to be connected therewith. (Cf. also DE LEEUWE, aforementioned publications.)

Well, it is those societies — mainly supported by this kind of horticulture — which are proportionally more often matrilineal than patrilineal or bilateral. This has been calculated — apart from the

theory set forth here — by ABERLE (1962) with the aid of a sample taken along guiding lines issued by G. P. MURDOCK, so that this sample is comparable with the one used in the present article and by HOMANS and SCHNEIDER.

Enumeration in ABERLE's exploration (derived from his table 17-4, in 1962, p. 677):

Subsistence type:	Bilat. system	Patril. system	Matril. system
Dom. horticulture	68	66	47
Other	136	182	37
Vertical totals	204	248	84

Result of ABERLE's exploration in double-tail test (*We* are entitled to make a single-tail test):

$47/84 > 66/248$; $X^2 = 24.029$; $P < 0.001$. (Actually $47/84 \neq 66/248$)

$47/84 > 68/204$; $X^2 = 12.578$; $P < 0.001$. (Actually $47/84 \neq 68/204$)

$68/204 \sim 66/248$; not sign. (And not relevant for us here.)

What we are claiming in the above argument is that matriliney is proportionally more often connected with gynecocratic phenomena than patriliney, and that androcratic phenomena occur proportionally more often in the case of patriliney, considering also what is known of a society's past from history and through myths and rites.

We have also argued that patriliney (versus matriliney) is linked relatively more often with modern (versus archaic) production. Before citing statistics in support of this claim, I wish to remind the reader of the different character of androcracy under matriliney and under patriliney. In SCHNEIDER's and GOUGH's book (1962) too, it is evident that androcracy under matriliney often means an authoritative position of ego's (woman) brother or mother's brother respectively, whereas the man as husband and father has not much of a voice. In the case of patriliney, however, the man has authority as husband and father (and not as brother of his sister or uncle of his sister's children).

If the man has authority as his sister's brother, he has it in principle over more than one sister. Of course, there can be also more than one authoritative brother. Anyhow, several nuclear families are closely linked in principle in this way. It may be assumed that then, notably in production, the weight of the nuclear family is relatively more often

slight (so-called dependent production, see Ch. 2), in comparison with a situation in which the man has authority as husband and father. In the latter case several families may, of course, be closely linked in production; and independent production by the nuclear family may be lacking. But if the man has authority as his sister's brother, the system *implies* formally a close relationship of more than one nuclear family in each case.

This would serve to explain a better survival ability of patriliney versus matriliney and the fact that patriliney would be accompanied proportionally more often by a relatively more modern mode of production.

Without precisely opposing patriliney and matriliney, GOUGH does underline that "matrilineal systems are likely to be rare in association with conditions of the highest productivity and political complexity." (Cf. ABERLE, 1962, p. 717.)

5. MATRILINITY VERSUS PATRILINITY.

As said already, if matriliney versus patriliney is statistically significantly linked with more archaic production, or with phenomena which we in turn have deemed to be linked with more archaic production, then matriliney versus patriliney will score relatively more often "non-industrialised" and/or "CCm" and/or "non-neolocal" (Pred. J, K and L).

PREDICTION J.

economy	Enumeration for S I:		Enumeration for S II:	
	matriliney	patriliney	matriliney	patriliney
non-indust.	46	138	48	136
industrialised	0	0	0	1
vertical totale	46	138	48	137

It is clear without further calculation that there is no significant distinction here between matriliney and patriliney, so that the prediction is falsified. Meanwhile, the EA contains another industrialised society with patrilineal descent system, but not a single one with matrilineal descent system.

This minimum of right direction is a reason to explore further, namely with elimination of the industrialised peak, since apparently neither patriliney nor matriliney attain it in adequate measure.

PREDICTION J'.

economy	Enumeration for S I:		Enumeration for S II:	
	matriliny	patriliney	matriliny	patriliney
0—3	9	12	8	14
non 0—3 also non-indust.	37	126	40	122
vertical totals	46	138	48	136

Result for S I:

$$126/138 > 37/46; z = 1.9150; P_r = 0.0281.$$

Result for S II:

$$122/136 \sim 40/48; z = \text{practically } 0.$$

$$Z_{\text{total}} \text{ when combined} = \frac{1.9150}{1.4142} = 1.35; P_r = 0.0885.$$

The prediction is falsified; the direction is right. We shall revert to it following prediction L.

PREDICTION K.

	Enumeration for S I:		Result for S I:
	matriliny	patriliney	
CCm	24	25	24/46 > 25/136; $z > 2.3$; $P_r < 0.01$. (Compare the result, with more unfavourable propor- tions, for S II.)
other	22	113	
vert. tot.	46	138	

	Enumeration for S II:		Result for S II:
	matriliny	patriliney	
CCm	19	30	19/48 > 30/137; $z = 2.3302$; $P_r = 0.0099$.
other	29	107	
vert. tot.	48	137	

Combination not required. The prediction is verified by test and retest.

In societies with patrilineal (versus matrilineal) descent system, therefore, marriages with the closest permitted relative, whether classificatory or not, occur to an appreciably lesser degree.

PREDICTION L.

marit. res.:	Enumeration for S I:		Enumeration for S II:	
	matriliny	patriliney	matriliny	patriliney
neolocal	6	27	8	22
non-neolocal	40	111	40	115
vert. totals	46	138	48	137

The result for S II is slightly in the wrong direction (16.6% versus 16.0%). Consequently no combination is allowed and the result for the whole becomes:

$$49/275 \sim 14/94; z = 0.65727; P_r = 0.2546.$$

Like Pred. J (or J'), prediction L is falsified. Since both show right direction, we will continue to explore for extreme cases, meaning that we predict that societies scoring both 0-3 and non-neolocal (versus both "non 0-3 also non-industrialised" and neolocal) will score proportionally more often matrilineally than patrilineally (Pred. J' L').

PREDICTION J' L'.

subs. type & marit. res.:	Enumeration for S I:		Enumeration for S II:	
	matriliny	patriliney	matriliny	patriliney
0-3 also non-neolocal	8	10	8	14
"non 0-3 also non-indust." & neolocal	5	28	8	19
vert. totals	13	38	16	33

It is arguable whether one is obliged to consider this prediction explorative: after all we have not derived any new theory from our figures, but only tested for extreme cases what we had put forward already as an a priori theory. Nevertheless we shall count the prediction as explorative: we shall replicate and combine and yet claim we have tested not twice but only once. We must point out that the frequencies are just on the borderline for the *l*-test. This will, therefore, present in the first instance a slightly too favourable picture for our prediction, but combination on the other hand will have an unfavourable effect, as can be seen from a test for the undivided total (S I + S II).

This final test shows that:

$$16/29 > 24/71; z = 1.9672; P_r = 0.0250.$$

Replicated and combined, the result of Prediction J' L' becomes:
for S I:

$$8/13 > 10/38; z = 2.583; P_r = 0.0119.$$

(With FEPT: $P_r = 0.05$!)

for S II:

$$8/16 \sim 14/33; z = 0.50; P_r = 0.3085. \text{ Hardly right direction.}$$

And combined:

$$z = \frac{2.2583 + 0.5000}{1.4142} = 1.950; P_r = 0.0256.$$

Acceptable to us on the 5 % level.

Our hypothesis that patriliney versus matriliney is linked more closely with modern (versus archaic) mode of production, has been confirmed by the facts that Pred. K has proved correct, the results of Predictions J and L went in the right direction and that, connected with the latter, Pred. J' L' yielded a positive result; patriliney versus matriliney is linked relatively more strongly with other than cross-cousin marriage systems, versus CCM, and with other than extractive subsistence type (industrialisation having been left out of the count), versus extractive subsistence type, provided the former subsistence type (versus the latter) is accompanied by marital neolocality (versus non-neolocality).

We may now recall HOMAN's and SCHNEIDER's results (cf. Ch. 1 of this article). They found that obligation or preference for marrying the MBD (versus marriage to the FZD) occurs proportionally more often under patrilineal descent system (versus matrilineal system). We stressed in Ch. 1 that — contrary to the *theory* connected by HOMANS and SCHNEIDER to their figures — the statistical result they obtained and the figures obtained by replication of their research show that matriliney appears to be very well compatible with MBDm, but patriliney hardly so with FZDm. (So H. & S. are right as regards the latter.) In Ch. 7 we shall develop a theory — based in part on ethnographic data — to explain this phenomenon. This theory fits the more comprehensive theory that patriliney is relatively more modern than matriliney and that bilaterality is relatively more modern than unilineality. In other words: the theory that bilaterality is better adapted to a modern mode of production (versus more archaic) than unilineality, and that patriliney in turn is better adapted to a modern mode of production than matriliney.

If we base ourselves on this theory also as regards MBDm versus FZDm, we must predict that MBDm will be accompanied by marital neolocality (versus non-neolocality) relatively more often than FZDm (Pred. M). On the other hand we might suspect that bilaterality scores MBDm (versus FZDm) relatively more often than unilineality does (Pred. M').

It will appear below that both predictions do not get us any further than "right direction". In view of the nature of the figures on the one hand, and the results obtained with our other predictions so far on the other, we should take account of the possibility that the low frequencies here make it difficult to obtain significant figures. Societies with MBDm score neolocality more than twice as much as societies with FZDm do. Further: bilaterality no longer scores any FZDm at all, contrary to unilineality.

PREDICTION M.

	Enumeration for S I:		Enumeration for S II:	
	MBDm	FZDm	MBDm	FZDm
marit. loc.:				
neo	4	1	5	0
non-neo	21	7	17	4
vert. totals	25	8	22	4

For the total, P_r becomes approx. 0.17. Falsified. Right direction.

PREDICTION M'.

m.:	Enumeration for S I:			Enumeration for S II:		
	bil.	patri.	matri.	bil.	patri.	matri.
MBD	2	14	8	2	14	6
FZD	0	0	5	0	1	2
vert. totals	2	14	13	2	15	8

For the most favourable proportions, the total is also not significant:
 $4/4 \sim 14/21$.

6. MATRILINEAL, PATRILINEAL AND BILATERAL SYSTEMS; SUMMARY OF OUR EMPIRICAL RESULTS.

In Chapters 2, 3 and 5, on the basis of three indicators — namely system of acquiring the marriage partner, marital residence and subsistence type — we have felt able to find statistical support for the hypothesis that bilaterality is linked relatively more often with a modern (versus archaic) mode of production than single unilineality — without this being affected by the influence of only one of the two categories of unilineality. Likewise patriliney is linked relatively more often with a more modern mode of production than matriliney.

Thanks to ABERLE we are also able to investigate this for some other indicators. Using the WES — so that his sample is sufficiently comparable with our S I + S II — he explored a number of possibilities. In so doing he subdivided the subsistence economy further than MURDOCK did. When we use the WES or column 7 of the EA we can, for example, put extractive (final 2 figures in column 7 together not more than 3) against non-extractive; we can, if desired, also make the tripartition 0-3, 4-7 and 8-10. (The final 2 figures in column 7 of the EA are then not more than 3; not less than 4 and not more than 7; at least 8, etc.) By means of columns 42 to 62 of the EA we can, moreover, distinguish between industrialisation and non-industrialisation. (The industrialised societies come without exception in the 8-10 group, as expected.)

ABERLE has made a finer subdivision of the non-extractive, i.e. the 4-10 societies (1962, pp. 671 ff.), expressing more directly the level of the production forces and especially the technological level. He distinguishes between: dominant plough-agriculture (combined with keeping large cattle); African horticulture (combined with keeping large cattle); dominant horticulture (without large cattle to speak of); other horticulture (horticulture not alone dominant, moreover no pasturage as in

the two subsequent classes); pasturage of the Old World; pasturage of the New World; extractive methods.

It is possible — we have not verified this — that dominant plough-agriculture strongly correlates with 8-10; it is likely that all industrialised societies come into the dominant plough-agriculture category; it is certain that the dominant plough-agriculture category is considerably wider in scope than the industrialized peak and, furthermore, that within ABERLE's subdivision which comprises all the material, dominant plough-agriculture is the category with the most highly developed forces of production or technological level, i.e. the class roughly representing the most modern mode of production within this subdivision.

Prediction J in Ch. 5 of this article ("patriliney, versus matriliney, scores proportionally more often industry versus non-industry") could not be verified, if only because unilineality so rarely attains the industrial peak: patriliney in S I + S II once, versus matriliney never. Pred. J' ("patriliney, versus matriliney, scores proportionally more often 4-10 versus 0-3, leaving the industrialised societies out of the count") was falsified as well. Only when 4-10 was summated with marital neolocality (Pred. J' L') — neolocality in itself was not a sufficient indicator either (Pred. L) — the result became significant: patrilineal systems, versus matrilineal, score proportionally more often 4-10 and at the same time neolocal, versus 0-3 and at the same time non-neolocal.

Evidently 4-10 was here too broad a "peak" and industrialisation too narrow. We will repeat the prediction with ABERLE's dominant plough-agriculture versus all other subsistence types: patriliney, versus matriliney, should then score proportionally more often plough-agriculture (Pred. N). According to our theory argued in Ch. 2 et sqq., bilaterality should then again score plough-agriculture proportionally more often than patriliney and matriliney do, or at least relatively more often than the summated single unilineal systems do (Pred. N').

PREDICTIONS N and N'.

Enumeration (Based on ABERLE, 1962, p. 677):

subsistence type:	bilaterality	patriliney	matriliney
dom. plough-agr.	38	69	9
other	166	179	75
vertical totals	204	248	84

ABERLE has rightly made double-tail tests in his explorations. As

our predictions relate a priori to direction, we are allowed to make single-tail tests.

Result for Pred. N : $69/248 > 9/84$; $z = 3.3912$; $P_r = 0.000337$. Prediction N verified. The special hypothesis, on which that prediction is based, finds very strong support.

Result of Pred. N': $38/166 \sim 78/332$; reverse, but not significantly so (23.5% versus 21.9%). Prediction falsified. Upon further exploration Pred. N' appears to be valid for what in our theory are extreme cases: bilaterality versus matriliney. Result: $38/204 > 9/84$; $z = 1.7008$; $P_r = 0.0446$. Even apart from the fact that we so determine exploratively, it is doubtful if we are permitted to accept this, ABERLE having applied not a single one of MURDOCK's later elimination rules. Keeping on the safe side, we reject our hypothesis even for these extreme cases. As for bilaterality versus patriliney, these proportions are even significantly reverse (calculation is left to the reader this time), so that the somewhat amazing result obtained through exploration is that not bilaterality, but patriliney (versus matriliney and versus bilaterality) is relatively the most closely linked with dominant plough-agriculture. In other words: the greater survival ability of bilaterality appears at the top only from the virtually total supremacy of bilaterality in industrialised societies.

The cause of the failure of Prediction N' lies in the greater survival ability of bilaterally (versus patriliney and versus matriliney) not only at the extreme peak, but also within the 0-3 category. Confer likewise Predictions C, C', C'' and D in Ch. 2. Within the framework of the "broader peak", namely the societies with dominant plough-agriculture — versus all other subsistence types, with the extractive ones left out of the count — bilaterality is not found relatively significantly more often than patriliney, as may appear from the explorative Prediction N'' which we are going to test now.

PREDICTION N''.

Enumeration (Based on ABERLE's table 17-4, 1962, p. 677):

subsistence type:	bilaterality	patriliney	matriliney
dom. plough-agr.	38	69	9
other (except extractive)	105	160	62
vertical totals	143	229	71

Result for bilaterality versus patriliney plus matriliney:

$38/143 \sim 78/300$; z almost 0.

bilaterality versus matriliney:

$38/143 > 9/71$; $z = 2.3917$; $P_r = 0.0084$.

bilaterality versus patriliney:

$38/143 \sim 29/229$; not sign. Direction reverse of that of prediction.

The provisional conclusion may be drawn that, for levels of production forces, at least for subsistence types — if one follows ABERLE's classification — lying between extractive methods and industrialisation, bilaterality does not always show a greater survival ability than patriliney, but both individually do survive proportionally more often than matriliney.

A variable, with which we had not been concerned thus far, is the number of members or the nature of the political unit. MURDOCK in the WES mixed these two standards, for which ABERLE (1962, 680-681) rightly criticised him. (In the EA MURDOCK remedied this error.) Meanwhile, ABERLE does use MURDOCK's variable from the WES, presupposing that MURDOCK's "family groups", "groups with community authority" and "peace groups", comprise as a rule fewer than 1,500 persons each. MURDOCK and ABERLE speak of "minimal states" when the culture-bearing unit in question comprises 1,500 persons or more but fewer than 10,000. For 10,000 to 100,000 persons per society they use the term "little states", whereas the category over 100,000 persons is called "states".

To my mind the variable is poorly based in theory. It is not sufficiently clear how MURDOCK arrives at his numbers, whereas the term "state" is used superficially. ABERLE observes: "In political theory the concept of 'state' normally implies centralised control of the legitimate use of force." It may be noted in passing that this too is vague: for a society to be a state, it requires in the first place a politico-economically ruling and possessing class and secondly a systematically organised machinery of power controlled by such class. Such machinery is the state.

We shall use MURDOCK's and ABERLE's terminology without subscribing to it in the least. It would seem that the variable is suitable for use within the framework of our discussion, because there are politico-economic reasons to assume that bigger communities (com-

prising 100,000 persons or more) are anyhow linked relatively more often with the most modern mode of production.

In the first instance we shall make the peak fairly broad and test it (on the basis of ABERLE's figures) as to dominant plough-agriculture versus all other forms of subsistence type (Pred. O).

PREDICTION O.

Enumeration (According to ABERLE's table 17-5, 1962, p. 682):

subsist. type:	"states"	"non-states"	Result of the prediction:
dom. plough-agr.	53	45	53/79 > 45/447. $P_r < 0.0001$. Calculation unnecessary if compared with results of a number of other predictions. Verified.
other	26	402	
vert. totals	79	447	

Next we predict that patrilineal systems versus matrilineal ones score "state" proportionally more often (Pred. P), and that bilaterality does so relatively more often than does each of the categories of single unilineality, or at least than the summated categories of unilineality, without this being due to the influence of only one of the two categories of unilineality (Pred. P').

PREDICTIONS P and P'.

Enumeration (According to ABERLE's table 17-7, 1962, p. 687):

	"states"	"non-states"	horizontal totals
bilateral systems	36	168	204
patrilineal syst.	37	211	248
matrilineal syst.	4	80	84
vertical totals	77	459	sum total: 536

Result of Pred. P:

$37/248 > 4/84$; $z = 2.6627$; $P_r = 0.00391$. Verified.

Result of Pred. P':

bil. vs. matrilineal.: $36/204 > 4/84$; $z = 3.1305$; $P_r = 0.000968$.

bil. vs. patrilineal.: $36/204 \sim 37/248$; $z = 0.781$; $P_r = 0.2177$.

Right direction.

bil. vs. pat + mat.: $36/204 > 41/332$; $z = 1.6823$; $P_r = 0.0456$.

Pred. P' is falsified to the extent that the significance for the entire material is exclusively owing to the matrilineal systems. Here too, patriliney appears to have great survival ability. On the other hand the limit drawn by MURDOCK ("state commences at 100,000 persons") is obviously a cause of this result.

We may summarize our results from Chapters 2 to 6 in the following diagrams, in which we will use the following symbols and abbreviations:

> for: the category first mentioned in the heading over the vertical row has scored significantly more often, proportionally, in the category first mentioned in the heading before the horizontal row, in accordance with the prediction.

NOTE: The tables are always 2 x 2.

rd for: mutatis mutandis right direction.

(rd) for: ditto, but then hardly right direction.

O for: practically no direction.

(wd) for: ditto, but then hardly wrong direction.

wd for: mutatis mutandis wrong direction.

< for: ditto, but significantly in a direction contrary to that of the prediction.

After each of the above symbols and abbreviations comes the letter of the prediction from the preceding chapters in which the proportion in question is found. For the rest the abbreviations used earlier in the article are used here.

It is possible to derive from the above 34 complete predictions which, it is true, are not all mutually independent, but of which, on the other hand, none is to be derived compulsorily a priori from any other. Twenty of these 34 have been verified, distributed over the diagram in such a way as to support the hypothesis that in each case the category mentioned first in a heading over a vertical row or before a horizontal row is linked proportionally more often with modern (versus archaic) mode of production. This is notably also true for bilaterality versus patriliney and versus matriliney and furthermore for patriliney versus matriliney. Six predictions yielded a result in the right direction, five yielded no direction; three times the result went in the wrong direction, of which once significantly so.

DIAGRAM 1.

	bil. (vs. pat. + mat.)		bil. (vs. pat.)		bil. (vs. mat.)		pat. (vs. mat.)	
MBDm (FZDm)	rd	M'	(rd)	M'	rd	M'	> (HOM. & SCH.)	
non-CCm (CCm)	>	A	>	A'	>	A'	>	K
only indep. nuc. fam. (also ext. fam.)	O	E	O	F	O	F	O	F
marit. neoloc. (non)	>	H	rd	H' ²	rd	H' ²	rd	L
indust. (non)	>	B	>	B	>	B	(rd)	J
0—3 plus Ii (other)	>	C	>	C' C''	>	C' C''		
neoloc. also 4—10 but non-i (0—3 also non-neol.)							>	J' L'
plough-agr. (non)	wd	N'	<	N'	>	N'	>	N
pl.-agr. (other save extractive)	O	N''	wd	N''	>	N''		
"state" (other)	>	P'	rd	P'	>	P'	>	P

In the totality of our theory fit moreover the predictions of which the results are set forth in Diagram 2, composed in the same way as Diagram 1:

DIAGRAM 2.

	industr. (vs. non)		MBDm (FZDm)	
marit. neolocal (non)	>	G	rd	M
no CCm (CCm)	>	I		
			"state" (non-"state")	
dom. plough-agr. (non)			>	O ³

² This rd plus the following (preceding) jointly value >, according to the test prediction.

³ In our score book (see annex), on the dividing line between columns 20 and 22, some societies are marked K. This means that an ego-centred bilateral descent system is perhaps or certainly applied (EA col. 24, B or K). These societies appeared, insofar as we have investigated, to be statistically indistinguishable from others as regards variables relevant for us.

7. A DIFFERENT INTERPRETATION OF HOMANS' AND SCHNEIDER'S FIGURES.

If our theory is tenable, it means *inter alia* that patriliney and MBDm are linked relatively more often with a more modern mode of production, whereas matriliney and FZDm are linked relatively more closely with a more archaic mode of production. We have already pointed to the peculiarity that matriliney and MBDm are not incompatible at all, but that patriliney and FZDm match very badly (Ch. 1 of this article).

Before discussing this in detail, we would recall the final section of Ch. 3, notably the last paragraph. Further to an explanation by FOX we noted that not only complex marriage systems, but also bilaterality, go better with a relatively modern mode of production, with the single family having a comparatively heavy economic weight, expressed in the form of so-called independent family production, of which marital neolocality is in turn a relatively correct indicator.

Something like this would have to apply to patriliney versus matriliney and to marriage to the MBD versus marriage to the FZD.

In the preceding chapter we found an indication for the trend that large units (100,000 persons and more) score bilaterally or patrilineally rather than matrilineally (Ch. 6, Diagram 1, Pred. P and P'). Societies with dominant plough-agriculture likewise score bilaterally or patrilineally rather than matrilineally (Ib. Pred. N and N'). And moreover, such large (versus smaller) units score proportionally more often dominant plough-agriculture (versus all other, more archaic, subsistence types, Ch. 6, Diagram 2, Pred. O). It is indisputable that patriliney versus matriliney correlates relatively more closely with dominant plough-agriculture (versus other) and with units of 100,000 persons or more (versus smaller units) (Pred. N and P).

Whether these things also apply to MBDm versus FZDm we have been unable to investigate statistically. If we had managed to do so, we would have liked also to know what is the reason for the greater survival ability of MBDm versus FZDm. What we do know is that: a) MBDm (versus FZDm) is linked more closely with patriliney (versus matriliney); b) patriliney, in connection with modernity or archaism of the mode of production, has greater survival ability than matriliney (see above); and c) FZDm in the case of patriliney has less survival ability *in an absolute sense* than MBDm has under any unilineality whatever.

What is stated under *a* is a finding by HOMANS and SCHNEIDER; the findings set forth in *b* and *c* are the present author's. As for item *c*:

since we have replicated and combined, it is not a theory derived from a sample. We have previously expressed this aspect as follows: whereas in the case of matriline FZDm still attains approx. 50% (versus MBDm), this drops to approx. 5% under patriline. (For bilaterality the sample still shows only some MBDm and no FZDm any longer, but frequencies are too low to yield any significant result if a comparison is made with unilineality: Pred. M', Ch. 5.)

It appears from the foregoing that the figures available to us furnish strong indications for the tenability of the theory that, as the mode of production becomes more modern, the survival ability of MBDm is *in fact greater* than that of FZDm. This is seen most clearly if we examine the results for S I + S II (even after those eliminations which we consciously omitted in the present article) in testing HOMANS' and SCHNEIDER's special hypothesis. This result was:

$$5/16 > 1/26; P_r = 0.0232 \text{ with FEPT.}$$

It is clear without further calculation that likewise:

$$\begin{aligned} 11/16 &> 1/26 \quad \text{and} \\ 25/26 &> 1/26. \end{aligned}$$

We found in Ch. 1 that, even without replication of HOMANS' and SCHNEIDER's research, the faultiness of their theoretical interpretation of the statistical result was obvious, as matriline shows no special affinity with FZDm, but only scores FZDm relatively more often than patriline does.

Some authors have advanced arguments in support of the claim that MBDm offers "bigger possibilities" than FZDm. LÉVI-STRAUSS, among others, feels that in the case of FZDm the connection between the descent groups supplying each other with marriage partners would be too vulnerable, as two directly exchanging groups in every two successive generations are in turn wife-givers, so that — on this point — none of the descent groups is able to acquire a position of social superiority over one of the others. With MBDm, however, one and the same descent group is always the wife-giver (or husband-giver) in respect of one and the same other descent group in the sequence. In this way it is possible that in this respect there is social superiority of each time one group over each time one other in the sequence. We note, with reference to FOX for example, that it has been found for a series of cases, with cultures in areas at great distances from each other, that

wife-givers are considered the social superiors of wife-takers. (For the entire subject see FOX, 1967, Ch. 8, esp. pp. 212-214.)

In this connection LÉVI-STRAUSS' argument about "vulnerability" does not seem convincing and is rightly rejected by HOMANS and SCHNEIDER (1955, p. 13). It is something else that FZDm, at least on one point, makes it more difficult to have higher versus lower social status and could for this reason alone be linked relatively more closely with a lower level of production forces, i.e. a more archaic mode of production, as compared with MBDm which is then linked more strongly with a relatively modern mode of production. As this kind of link with the mode of production applies likewise to patriliney versus matriliney, this might involve a greater survival ability of MBDm versus FZDm.

Meanwhile it is our opinion that the theory can be deepened. For this purpose we go back to what we argued in Ch. 4. We said there that matriliney is presumably more often connected, proportionally, with gynecocratic phenomena, versus patriliney, which is then connected proportionally more often with androcracy. Moreover, we again stressed the phenomenon, well-known from ethnography, that androcracy in combination with matriliney tends to assume the form of MB authority, whereas androcracy with patriliney would rather tend towards authority by the husband or father from the nuclear family. We felt we should also connect this with the fact that, since there may be in principle more than one brother and one sister in each case, MB authority fitted better a situation where the (economic) weight of the nuclear family is relatively light: MB authority easily links several nuclear families so that independent nuclear family production is less compulsory. In the event of authority of the father or of the husband dependent production by various mutually linked nuclear families is not excluded, of course, but the system would sooner allow nuclear families living and producing relatively independently.

This complex of phenomena and presumed processes should now be brought into connection with CCm in general and with MBDm versus FZDm in particular. We have already underlined that it is not certain beforehand that it is always women who are or were manipulated, nor that the manipulators are or were always men. A hypothesis advanced by LÉVI-STRAUSS et al. concerning a primeval situation seems to me to be without foundation, even if it had not clashed with a fact such as wife-giving by women among the Kandyu. (Cf. inter alia Ch. 1 of this article.)

CCm is also connected with an (original) inclination, pointed out by

fox among others, to keep marriage within the family as it were, i.e. to marry or give in marriage the closest permitted relative (at least outside one's own nuclear family, and in the case of unilineality outside one's own lineage = descent group). If the narrowest basis of CCm is abandoned — this narrowest basis is a form of bilateral CCm — then n groups may be included in the systematic supply of marriage partners either through FZDm or through MBDm.

Now there are no (more) examples to be found — as far as I know — of archaic societies in which they manipulate grooms. (If there were, this would not affect my argument, but we do not want to complicate matters unnecessarily.) For the time being we will start from the fact that brides are manipulated in the known cultural anthropological universe.

As will appear presently, we can *in the first instance* leave lineality out of account: what concerns us is whether the child is considered a man's child or a woman's child, in our case the husband's daughter or the wife's daughter.

It does not matter either whether the male or the female does the manipulating. Again: the basic question is whether the child is regarded as a woman's child or as a man's child.

When they manipulate a *bride as the wife's child* and the closest permitted relative in the bride's generation is chosen or preferred as marriage partner, *the bride will always go to her mother's brother's son*. As a matter of fact, if the mother does the manipulating, she will give the daughter in marriage to her brother's son. Under asymmetric connubium the latter is closer to such mother than the son of her husband's sister is. Her brother in fact belongs to her own descent group, and her husband's sister does not. Her brother's children never belong to *her child's* descent group, no matter whether the reckoning is patrilineal or matrilineal. Ego's (woman) brother's child is therefore always permitted as a marriage partner for her child.

When the male does the manipulating and the bride is treated as a wife's child (and not as a husband's child), then the husband — whatever lineality applies officially — will possibly give away not his own daughter, but his sister's daughter as bride. The closest permitted relative in the bride's generation is then the bride-giver's son (which son is treated as son of the bride-giver's wife, but this has no further bearing on the matter). Sister's daughter will then go as bride to own son. The rest of the reasoning goes, *mutatis mutandis*, as in the preceding paragraph.

Please note that we are concerned all the time with the closest permitted relative of the bride's mother, or of the brother of the bride's mother.

When a woman marries her MBS, it means that the man marries his FZD. When the bride is manipulated as wife's child under the above-described conditions of marriage to the closest permitted relative — whereby the spouses have to belong moreover to one and the same generation — this means *FZDm*.

If on the contrary the bride is treated as father's child, this will lead under the same conditions just as inevitably to *MBDm*. The father — or possibly his sister, but then we are concerned with her brother's daughter! — gives the daughter to his sister's son and not to the son of his wife's brother. His sister's son is a closer relative to him. So such sister's son will marry his mother's brother's daughter: *MBDm*.

And now we are going to involve lineality. In doing so we have to revert briefly to the question that patriliney is by its nature accompanied by (presumably) proportionally more frequently occurring heavy economic weight of the then more often relatively independently producing nuclear family. Theoretically, it is conceivable that, in the case of patriliney, woman — in this case as sister of the man — would have the higher social and political status and this may sometimes actually occur (perhaps among the Tchambuli).⁴ But the present-day state of affairs in the ethnographic universe seems to be at any rate that dominant androcracy occurs, in an absolute sense, appreciably more often than gynecocracy or legal equality of the sexes. Whatever the lineality, one will consequently encounter as a rule androcratic societies. This is notably the case, however, under patriliney, which is accompanied relatively more often by a relatively modern mode of production (but not by a Socialist one). For that reason MB authority or F authority will be the rule, and FZ authority over F authority extremely rare.

It should now be noted first of all that under matriliney — no matter whether it is (still) accompanied by gynecocracy or (already) by androcracy — children will be treated proportionally more often as a woman's children (versus a man's children) than is the case under patriliney. We will for the time being not call for statistical confirmation.

But on the other hand it is quite possible that under matriliney the significance of the father is already becoming great, meaning (according

⁴ Cf. Facts in M. MEAD, 1935.

to our theory which we have argued and statistically strengthened in preceding chapters) that production is already relatively modern and the economic weight of the nuclear family is already so great that it is producing independently, as we have called it. In that case the man will be acting as father and he will no longer be acting as authoritative brother of his sister.

In the situation described two paragraphs before, the bride is treated under matriliney as wife's child, so that FZDm will occur. In the situation described in the preceding paragraph the bride is treated as father's daughter, so that MBDm will be substituted.

It is not amazing that in the latter cases matriliney will not vanish all at once: it is a frequent phenomenon that a superstructure will continue to exist once the basis which created the superstructure has become extinct, or even if it clashes with such a superstructure.

On the other hand, once there is patriliney, the child will almost surely be treated as husband's child and not as wife's child — apart from the cases, which are rare now a d a y s, when gynecocracy exists or arises in one way or other within patriliney, or the mother's brother has great influence for one reason or other. As a result of all this it will hardly be possible for FZDm to occur under patriliney.

In my opinion this interpretation does full justice to HOMANS' and SCHNEIDER's figures — confirmed by replication — unlike the interpretation HOMANS and SCHNEIDER have attempted themselves.

In the two cases of FZDm under patriliney which they mention, it is a fact that not the father is the wife-giver, but that the mother (Kandyu) or the mother's brother (Sherente) give away the bride (Cf. Ch. 1 of this article).

Furthermore, in their interpretation HOMANS and SCHNEIDER have wrongly departed from the groom and his consanguinities. They should have departed from the wife-giver and his or her consanguinities. Moreover, they have applied a theory about friendly or non-friendly relations which they have been unable to prove ethnographically (Ch. 1). And finally they have lost sight of the fact that (nowadays) as a rule it is no longer grooms but brides who are given away, and that this — in connection with the wife-giver as point of departure and in connection with the effect of being regarded "as wife's child" or "as husband's child" — decides on MBDm versus FZDm. The connection between all this and lineality follows again from the historical phenomenon of the frequent occurrence, in an absolute sense, of androcracy both under matriliney and patriliney, the occurrence (already) of paternal authority

under matriliney, and the almost complete absence of maternal or MB authority under patriliney: under matriliney the child is treated sometimes as wife's child and sometimes as husband's child; under patriliney virtually always as husband's child.

8. BRIEF SUMMARY AND CONCLUSION.

We have — perhaps wrongly — lumped together all descent systems which are neither single unilineal nor double unilineal, and called them "bilateral". Nonetheless, on the basis of the figure results mentioned in this article, we may claim that bilaterality is statistically more closely linked with (other) symptoms of relatively modern mode of production (versus relatively archaic) than unilineality. This appears notably from the greater survival ability of bilaterality, compared with that of unilineality. The same is true for patriliney versus matriliney. Within this framework we have felt able to give a better explanation of certain figure results found by HOMANS and SCHNEIDER (see Ch. 7 of this article).

If we had been concerned with physiologico-anatomical structures, we would have been permitted to conclude that matrilineal systems are in all circumstances historically the oldest descent systems, further that all patrilineal systems had originated from some matrilineal form, and further that all bilaterality had arisen out of patrilineal structures. Now this conclusion may not be drawn in any case.

It would seem rewarding, however, to investigate the following hypotheses (systematically using material from myths and rites) both statistically and through ethnographic analysis of the individual cases:

I) Of the systematic descent systems which we can still trace, matrilineal ones will be (have been) connected proportionally more often with extractive-gathering subsistence economy and with "dominant horticulture" (versus all other);⁵ patrilineal descent systems will be (have been) connected relatively most often with extractive hunting and/or fishing subsistence economies and with other than "dominantly horticultural" economy without any industry worth mentioning (versus all other); bilateral systems are connected relatively most often with the technologically most developed extractive and technologically most developed agricultural economies and especially with industry.

⁵ In the sense used by ABERLE.

II) Another hypothesis which in my view merits closer investigation (on the same basis) is: the absolutely most ancient subsistence economies which we are able to trace (through myths and rites among other things) will be connected proportionally most often with matriliney (versus patriliney and versus bilaterality). (That the absolutely youngest ones are connected proportionally most often with bilaterality, versus patriliney and versus matriliney, we know from Pred. B, Ch. 2. It follows that patriliney would occupy an intermediate position here.)

III) A third hypothesis which I think should be further investigated in this connection is: where the origination of various descent systems in a historical sequence can be traced or deduced with sufficient probability — on account of material provided by myths and rites among other things — bilaterality will possibly be proportionally most often historically younger (versus patriliney and matriliney, insofar as present in the sequence), furthermore patriliney will be proportionally more often historically younger than matriliney, unless dominant, technologically advanced hunting and/or fishing has been superseded by "dominant horticulture".

In this way it could be made likely (or unlikely, if the predictions are falsified) that, of the known descent systems insofar as traceable, matriliney is *as a rule* the most archaic and/or historically most ancient, bilaterality *as a rule* relatively the most modern and/or in a sequence *as a rule* the historically youngest, and that patriliney in respect of these things *as a rule* occupies an intermediate position.

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Appendix

SAMPLE I

EA = G. P. MURDOCK, *Ethnographic Atlas*, 1967, Univ. of Pittsburgh Pr.

T = also in R. B. TEXTOR's sample: *A Cross Cultural Summary*, 1962, HRAF Press, New Haven.

N = 302.

col. 14: 1 = M, N, O, P, Q, or S; 2 = E, F, or G.
Additional information in covering article.

col. 16: 1 = N; 2 = A, B, C, D, M, O, P, U, or V.
Additional information in covering article.

col. 20 and col. 22: if no data available: —; if bilateral: either not filled in or OO; if duolineal: ~. K and i: see covering article.

EA-columns:

1	3	20	22	25	7	14	16
Ee1	Abor T	Ms		M	02224	1	2n
Cc9	Ahaggaren		Lo		11053	1	2
Ec7	Ainu T		L		23401	2	2
Ej7	Akha T	L			12115	1	2
Sg5	Alacaluf T		K		12700	1	2n
Na9	Aleut			Qm	13600	2	2
Ic2	Alorese T	So			20017	1	2
Se8	Amahuaca	O	O	Cc	04105	1	2n
Ae1	Amba T	S			11116	1	2
Ic11	Ambonese	L			00316	1	2n
Ca7	Amhara				00136	2	2
Eh1	Andamanese T				42400	1	2
Na24	Angmagsalik				02800	2	2
Ei14	Ao	P			01126	1	2
Sj7	Apinaye T				22105	2	2
Id1	Aranda T	~	~		64000	2	2
Ne9	Arapaho				28000	2	2
Ca11	Arusi	L			01054	1	2
Af3	Ashanti T	~	~	Cm	01207	2	2
Ne11	Assiniboin				27100	2	2
Ia1	Atayal T	Lo			02116	2	2
Nc4	Atsugewi T				43300	2	2
Sj3	Aweikoma T				46000	2	2
Sf2	Aymara T	L			00136	2	2
Ai3	Azande T	S			12106	1	2
Nj2	Aztec T				01207	1	2
Cj4	Babylonians				00226	1	2
Ai21	Bagirmi	L			10125	1	2
Ad1	Bajun T	L			01414	1	1

Sample I (continued)

EA-columns :

1	3	20	22	25	7	14	16
Ag1	Bambara T	Sl		Cm	20125	2	2
Ae5	Bamileke T	L			01018	1	2
Ae51	Banen	L			11017	1	2
Ca19	Banna	M			01054	2	2
Ag16	Banyun	L			00217	2	2
Cd1	Barabra T	So			00136	1	2
Sc3	Barama Carib T	O	O	Cc	22204	1	2n
Aj8	Bari T	S			01045	1	2n
Ea6	Basseri T	Po			01081	1	2n
Ib4	Batak T	S		Mm	00127	2	2
Nb9	Bellacoola				22600	2	2
Ac3	Bemba T		S	Cc	11107	1	2
Ag5	Birifor T	~	~	Cp	11116	2	2
Cb7	Bolewa	Lo			11026	1	2
Si1	Bororo T		M	C	45100	2	2
Cb8	Bororo Ful.				00082	1	2
Sa5	Bribri T		S	M	11215	1	1
Cb5	Buduma T	So			10441	1	2
Ih3	Bunlap T	~	~		10117	2	2
Ee2	Burusho T	S			00046	2	2
Ai23	Bwaka	L			00019	1	2
Sb2	Cagaba T				00028	1	2
Sb1	Callinago T		L	Cp	01504	2	2
Si5	Camayura T	O	O	Cc	21304	2	2
Sf7	Campa				03205	1	2
Sj1	Caraja T				22402	2	2n
Na21	Caribou Eskimo				15400	2	2
Ei10	Chakma	Sl			01126	2	2n
Sh6	Chamacoco T				64000	1	2
Eg1	Chenchu T	O	O	Cm	81010	1	2
Ng5	Cherokee T		S		12205	2	2
Ac10	Chewa		S	Cc	12115	1	2
Nd8	Chilcotin				23500	2	2
Nj1	Chinantec T				00028	2	2
Na36	Chippewa	S		Cc	22402	2	2
Nh1	Chiricahua T				64000	2	2
Sa4	Choco T				12106	1	1
Ec3	Chukchee T				02350	2	2
Se10	Cocama	L			01504	2	2
Ag8	Coniagui T		Sl		21016	1	2
Ng3	Creek T		Ms		22204	2	2
Ee5	Dard T	S			01036	2	2
Ng6	Delaware T		S		22204	2	2

Sample I (continued)

EA-columns:

1	3	20	22	25	7	14	16
Aj19	Didinga	S			02044	1	2n
Nc6	Diegueno T	S			54100	2	2
Ag27	Diula	S			11017	2	2n
Ag3	Dogon T	L			20026	2	2
Cj8	Druze	L			00019	2	2
Cg1	Dutch T		K		00136	2	2n i
Cd2	Egyptians T	Po			00136	2	2
Ae3	Fang T	S			11215	2	2
Ad19	Fipa	Sl			00316	1	2
Af1	Fon T	P			02125	1	2
Nf7	Fox T	S			14104	2	2
Ag6	Futajalonke T	Lo			00055	1	2
Ad7	Ganda T	S			01117	1	1
Ad9	Gisu T	Sl			01126	1	2n
Ad24	Gogo	Sl		Cm	01045	2	2n
Ce7	Greeks				00136	1	2n i
Ne1	Gros Ventre T				28000	1	2
Sc4	Guahibo T	O	O	Cc	13204	2	2
Si6	Guato T				43201	1	2
Ia5	Hanunoo T				10117	1	2
Cb4	Hasania T	Po			00055	1	2
Ea3	Hazara T	Po			00055	2	2n
Cj3	Hebrews T	Po			01136	2	2
Ad8	Hehe T	S		Cm	01036	2	2n
Ab1	Herero T	~	~	Cp	13060	2	2
Ne15	Hidatsa		Ms		12106	2	2
Nh18	Hopi		S		11017	2	2
Ni3	Huichol T				12115	2	2
Ib1	Iban T		K		00226	2	2
Af20	Ibibio	L			01216	2	2
Af10	Ibo	Sl			01018	2	2
Ac1	Ila T	~	~	Pp	10036	2	2
Ng10	Iroquois		M		13204	0	2
Ed5	Japanese T		K		00217	2	2n i
Ib2	Javanese T		K		00127	2	2
Cd4	Kabyle T	So			00037	2	2
Ca30	Kafa	S			11026	1	2
Nd53	Kaibab				73000	1	2
Ah14	Kamuku	S			00127	1	2
Cb19	Kanuri				10126	1	2n

Sample I (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ie1	Kapauku T	Ps			01126	2	2
Ne16	Karankawa				33400	1	2
Ei7	Karen T				01216	1	2
Ef8	Kashmiri	Po			10126	2	2
Na4	Kaska T		M	Mm	14500	2	2
Ah1	Katab T	L			21115	2	2
Ie5	Keraki T	M			01117	1	2
Eg6	Kerala T		S	Cm	00136	2	2
Ec8	Ket T	S			03610	1	2 _n
Eb3	Khalka T	Sl			01081	2	2 _n
Ei8	Khasi T		Sl	C	11125	2	2
Ci2	Khevsur T	S			01135	1	2
Ad4	Kikuyu T	S			00037	1	2
Nc8	Klamath				32500	2	2
Ag10	Konkomba	Sl			11116	1	2
Ca1	Konso T	Ms			00046	2	2 _n
Ae2	Kpe T	~	~		01135	1	2
Ac4	Kuba T		S		01216	2	2
Ci3	Kumyk T				00037	1	1
Ca33	Kunama		S		11026	1	1
Ci11	Kurd	So			00145	1	2
Na20	Kutchin		S		14500	1	2
Ie12	Kwoma	L			32014	1	2
Ei4	Lakher T	So		Em	02116	1	2
Aj4	Lango T	S			01045	2	2
Cg4	Lapps T				02260	1	2
Ih4	Lau T	Ps		Cc	00415	2	2
Sa12	Lenca				11107	1	1
Ai29	Lendu	Sl			01036	1	2
Sh9	Lengua				25201	2	2
Ee3	Lepcha T	S			01036	2	2
Ig4	Lesu T		M		01414	1	2
Ed9	Li	So			01117	2	2
Ih7	Lifu T	L			10315	2	2
Ch9	Lithuanians				00145	2	2 _n i
Sc10	Locono		S	Cm	11305	1	2
Ed2	Lolo T	P		Cm	01036	1	2
Ab3	Lozi T				12124	1	2
Ad14	Luguru		S	Cm	01018	1	2
Nc33	Luiseno	M			62200	1	2
Ac11	Luvale		S	Cc	01306	2	2
If3	Majuro T		S	C	00406	2	2
If14	Makin				01414	1	2

Sample I (continued)

EA-columns :

1	3	20	22	25	7	14	16
Ej8	Malays T		K		00226	2	2n
Ed3	Manchu T	S			00127	2	2
Ai11	Mangbetu	L			02116	1	2n
Ig9	Manus T	~	~		00910	1	2n
Ai47	Mao	S			11116	1	2
Ij2	Maori T				22204	2	2
Eg3	Maria Gond	P		Cc	21025	2	2
Nh5	Maricopa T	S			41203	1	2
Ij3	Marquesans T	O	O	Cc	00415	1	2n
Aj2	Masai T	S			01090	1	2n
Sh1	Mataco T				22411	2	2
Ah7	Matakam T				00019	2	2
Aa5	Mbuti T				63100	1	2
Af5	Mende T	L		Mm	01007	2	2
Ib7	Mentaweians T				01216	1	2
Nj7	Mixe				01018	2	2
Ej2	Mnong Gar T		S	Mm	10225	1	2
Nc23	Monachi	Lo			53200	1	2
Na32	Montagnais			Cm	26200	2	2
Ih1	Mota T		Ms		00316	1	2
Ie10	Motu	L			10405	2	2
Ah31	Mumuye	Sl			01027	2	2
Ai15	Mundang	S			00145	1	2
Sd1	Mundurucu T	M		Cc	13204	2	2
Ej13	Muong	S			01225	1	2
Id2	Murngin T	~	~	Mm	53200	1	2
Na1	Nabesna T		P		26200	1	2
Aj7	Nandi T	S			00055	1	2n
Aa7	Naron				73000	1	2
If13	Nauruans		S	Cc	00460	1	2
Nh3	Navaho T		Ps		21034	2	2
Ce5	Neapolitans				00118	1	1 i
Cf1	New England T		K		00136	1	1 i
Af56	Ngere	Sl			00226	1	2
Ae39	Ngombe	Sl			02206	2	2
Ae4	Nkundo T	S			11206	2	2
Nb11	Nootka				22600	2	2
Aj3	Nuer T	S			00154	2	2
Af8	Nupe T	Lo		C	10117	2	2
Ad6	Nyakyusa T	Lo			01126	1	1
Nf3	Omaha T	Ms			14104	1	2
Ii5	Ontong-Java T				00505	2	2
Ci6	Osset	S			01054	2	2

Sample I (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ai10	Otoro	Sl			02026	1	2n
Af6	Oyo Yoruba T	S			00118	2	2
Sf5	Paez T				11026	1	1
Ef7	Pahari	S			00046	2	2
Ei18	Palaung				00028	1	2n
Sd3	Palikur T	Ms			02305	1	2
Ni2	Papago T				32005	2	2
Sb5	Paraujano T				31600	1	2n
Si7	Paressi				22105	2	2
Nf6	Pawnee T		L		14005	2	2
Sc8	Piaroa	O	O	Cc	24301	1	2
Aj23	Plains Suk	S			01063	1	2n
Ad33	Pokomo	S			01306	1	2
If5	Ponapeans T		S	Cc	00316	1	2
Ae29	Poto	S			00712	2	2
Ie8	Purari T	M			41212	1	2
Sal3	Quiche	L			00019	1	2
Sj4	Ramcocalecra T		M		23104	2	2
Ae17	Rega	S			02215	1	2
Ej10	Rhade		P	C	01018	1	2n
Cd3	Riffians T	Sl			01135	2	2n
Ig11	Rossel		S		31303	1	2
Ih6	Rotumans T		L		00217	1	2
Ae8	Rundi T	S		Cc	00136	1	2n
Cj2	Rwala T	Po			11080	1	2
Ia2	Sagada T				00037	1	2
Ii1	Samoans T				00316	2	2
Nh12	Santa Ana		L		11026	2	2n
Ef1	Santal T	S			01117	2	2
Af49	Sapo	Sl			01216	1	2
Ej6	Selung T				11800	1	1
Ej3	Semang T				43300	1	2
Ag32	Senufo	Sl		C	20017	2	2
Ch1	Serbs T	L			00046	2	2n
Ed10	Shantung	S			00127	2	2
Ai6	Shilluk T	S			11125	1	2
Sd6	Shiriana	O	O	C	34300	2	2
Ie17	Siane	P			11017	-	2
Ca16	Sidamo	So			01036	1	2
Ea1	Sindhi T	Lo			00235	2	2
Nd15	Sinkaietk				33400	1	2n
Ig1	Siuai T		S	Cm	21025	1	2

Sample I (continued)

EA-columns:

1	3	20	22	25	7	14	16
Cc3	Siwans T	So			00037	2	2
Na17	Slave				15400	1	2
Ca2	Somali T	Pl			00091	2	2
Nd2	Southern Ute T				36100	1	2
Ce6	Spaniards		K		00037	1	1 i
Ac17	Suku		S	Cp	12106	1	2
Ad22	Sukuma				00037	1	2
Ic9	Sumbanese	S			01027	2	2
Ab2	Swazi T		S	C	11026	2	2n
Ag4	Tallensi T	S			10027	2	2n
Eh3	Tanala T	Sl		Cc	00226	2	2
Ic6	Tanimbarese T	L		Cm	11215	2	2
Sd2	Tapirape T				11305	2	2
Nj8	Tarasco				01207	2	2
Cc2	Teda T	Sl			20035	2	2
Sg4	Tehuelche T		K		27100	2	2
Eg10	Telegu	S		Cm	00037	2	2
Nd1	Tenino T				32500	2	2
Nh11	Tewa				01018	1	1
Ab4	Thonga T	Sl			01135	2	2
Ah3	Tiv T	Pl			12115	2	2
Nb22	Tlingit		M	Pp	13600	2	2
Sh8	Toba				23113	2	2
Nb6	Tolowa T	L			42400	1	2
Ic5	Toradja T				02026	2	2
Ig2	Trobrianders T		P		10315	1	2
If2	Trukese T		S		00505	2	2
Nb7	Tsimshian T		P	Cm	22600	2	2
Ab13	Tswana	O	O	Qc	01045	2	2
Nc2	Tubatulabal T				53200	1	2
Sf4	Tunebo T				11206	1	2
Nb2	Twana T				13600	2	2
Ch7	Ukrainians				00136	2	2n i
Ig6	Ulawans T				01306	1	2
Eh4	Vedda T		S	Cp	43300	2	2n
Nd22	Wadadokado				53200	1	2
Nd65	Walapai	O	O	C	64000	2	2
Ie2	Wantoot T	S		Cc	02017	1	2
Sc5	Wapishana T	O	O	C	22204	1	2
Ie6	Waropen T	Sl		Mm	31312	2	2
Nd6	Washo T				43300	1	2n

Sample I (continued)

EA-columns:

1	3	20	22	25	7	14	16
Nf5	Wichita T				14005	2	2
Id6	Wikmunkan T	M		Mm	44200	1	2
Nc14	Wintu				33400	1	2
Nd18	Wishram				32500	2	2
Se6	Witoto T	L		C	22204	1	2
Ie4	Wogeo T	~	~		20215	1	1
Cb2	Wolof T	~	~	Cc	00136	2	2
Id9	Wongaibon	~	~		33400	1	2
Ah8	Wute T	Pl			11116	2	2
Sc7	Yabarana T	O	O	Cc	13204	1	2
Se4	Yagua T	L			05104	1	2
Ac7	Yao T		Sl	Cp	01216	2	2
If6	Yapese T	~	~		00415	2	2
Ni7	Yaqui				21106	2	2
Ag2	Yatenga T	S			10027	2	2
Sa6	Yucatec Maya T	L			01207	1	2n
Ec6	Yukaghir T				15400	2	2
Nc7	Yuki T				43300	1	2n
Ec4	Yurak T	P		Tm	03340	1	2
Nb4	Yurok T				41500	2	2
Cb26	Zazzagawa	Lo		Qc	10036	2	2

END.

Appendix

SAMPLE II

EA = G. P. MURDOCK, *Ethnographic Atlas*, 1967, Univ. of Pittsburgh Pr.

T = also in R. B. TEXTOR's sample: *A Cross Cultural Summary*, 1962, HRAF Press, New Haven.

N = 302.

col. 14: 1 = M, N, O, P, Q, or S; 2 = E, F, or G.
Additional information in covering article.

col. 16: 1 = N; 2 = A, B, C, D, M, O, P, U, or V.
Additional information in covering article.

col. 20 and col. 22: if no data available: —; if bilateral: either not filled in or OO; if duolineal: ~ ~. K and i: see covering article.

EA-columns:

1	3	20	22	25	7	14	16
Nc10	Achomawi				34300	2	2
Nh13	Acoma		L		11017	2	2
Ca6	Afar	So			10180	2	2
Ih5	Ajie T	Ps		Cc	00316	—	2
Cd12	Algerians	So			00037	2	2
Nb10	Alkatcho				14500	2	2
Aj17	Alur	S			01225	2	2
Cd6	Anc. Egyptians				00127	1	1
Ej4	Annamese T	S			00226	2	2
Ai44	Anuak	Sl			01216	1	2
Ne10	Arikara				03205	1	2
Ci10	Armenians				00037	2	2
Cc10	Asben		So		00064	1	2n
Ig13	Aua		Lo		01504	1	2
Ae7	Babwa T	L			02107	2	2
Si3	Bacairi T	O	O	C	02305	2	2n
Na13	Baffinland				02800	2	1
Ae48	Bafia	Pl			00226	1	2
Eg9	Baiga	S		C	11206	1	2
Ea8	Bakhtiari	So			01081	—	2
Ib3	Balinese T				00136	2	2
Ie27	Banaro	S		C	21115	1	2
Ca32	Barea		S		10027	1	2
Ah11	Basa	S			01126	2	2
Ag48	Basari	S			01027	2	2
Ce4	Basques T				00235	2	2n
Ag21	Bassari		Sl		11026	1	2
Ai7	Baya T	L			11116	1	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ic3	Belu T		L	Mm	00037	2	2
Ad11	Bena	S			01036	1	2
Af7	Bete T	L			01117	2	2
Ef5	Bhil T	S			00127	2	2
If12	Bikinians		S	Cc	00415	2	2
Ca5	Bisharin T	Po			00082	1	2
Sa7	Black Carib T	O	O	C	01306	1	1
Ag30	Bobo	L			01027	2	2
Sj5	Botocudo T				54100	2	—
Ag7	Bozo T	Lo			10603	2	2
Cf4	Brazilians T				01126	1	1 i
Ch5	Bulgarians T				00028	2	2n
Ei3	Burmese T				00226	1	2
Sh4	Caduveo T				04312	2	2
Sc11	Camaracoto	O	O	C	02206	1	2n
Ej5	Cambodians T				10216	1	1
Sf3	Cayapa T				11215	2	2
Sj10	Cayua				22105	1	2n
Eb7	Chahar	Sl			01081	2	2
If8	Chamorro				00127	1	1
Ci7	Chechen	S			00055	2	2
Nd54	Chemehuevi				63001	1	2
Ch4	Cheremis T				00235	1	1
Ci4	Cherkess T	S			01045	2	2n
Sf6	Chibcha T				00108	1	2
Ni5	Chichimec				54100	1	2
Ei19	Chin	Sl		M	02116	1	2n
Nb19	Chinook				22600	2	2
Sh7	Chiriguano T				11215	2	2n
Ig12	Choiseulese				11116	1	2
Sh5	Choroti T				43201	1	2
Nh7	Cochiti T		S		02107	2	2n
Nd14	Coeur d'Alene				34300	1	2
Se9	Conibo				12403	2	2
Sj9	Coroa				12106	1	2
Se5	Cubeo T	P		Cm	11305	1	2
Sa1	Cuna T				01306	2	2
Nc32	Cupeno	M			64000	1	2
Sc9	Curipaco				02305	1	2
Ai8	Dilling T	P		C	11035	1	2n
Ag19	Diola	L			10324	2	2
Ig5	Dobuans T		S		00316	1	2
Aa2	Dorobo T	S			46000	1	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ae12	Duala	Sl			00316	1	2
Ib5	Dusun T				01225	1	2
Ij9	Easter Isl.				01207	2	2
Na31	Eastern Cree				25300	2	2
Af19	Efik	S			01315	2	2
Af32	Egba	S			01018	2	2
Af36	Ewe	Sl			01216	2	2
Nb5	Eyak T		M	C	23500	1	2
Ca31	Falasha				00037	2	2n
Cf5	Fr. Canadians				00127	1	1 i
Cb17	Fur		L		00136	2	2
Af43	Ga	Lo		Qm	01414	2	2
Ei1	Garó T		M	Cm	00118	2	2
Af28	Gbari	L			11026	2	2
Ce1	Gheg T	S		Cm	00046	2	2
Ec1	Gilyak T	S		Mm	23500	1	2
Ad32	Giriama	P			01027	2	2
Sb6	Goajiro T		Sl		01171	2	2
Ec9	Goldi	S			03412	1	2
Cd11	Guanche		Lo		00226	2	2
Ah36	Gude	L			00028	2	2
Ef9	Gujarati	P			00127	1	2
Ca8	Gurage	P			00046	2	2
Af52	Guro	L			12025	2	2
Ad29	Hadimu				00226	1	2
Nb1	Haida T		M	Cp	22600	2	2
Nb8	Haisla		S	Cm	23500	—	2
Nf8	Hasinai T				13105	2	2
Aa9	Hatsa				55000	1	2n
Aj26	Hill Suk	S			01036	1	2
Nd5	Hukundika T				53200	2	2
Ng1	Huron T		S		11305	2	2
Ch2	Hutsul T				01144	1	1
Cg2	Icelanders T				02341	2	2n
Ia3	Ifugao T				02116	1	2
Ic7	Ili-Mandiri	S		Cm	01315	2	2
Sf1	Inca T				01027	1	2n
Na8	Ingalik T				14500	1	2
Ea9	Iranians	Lo			00037	2	2n
Ca4	Iraqw T	~	~		00055	1	2n
Cg3	Irish T				01045	2	2n
Af25	Isoko	L			10315	2	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ca29	Janjero	S			00028	1	2
Se3	Jivaro T	O	O	Cc	12106	1	1
Ah2	Jukun T				01126	2	2
Ai36	Jur	S			01126	1	2
Ei5	Kachin T	Sl		Mm	11026	2	2n
Ah19	Kadara	S			01027	2	2
Nh20	Kamia	S			22204	1	2
Cb9	Kanawa	Lo			10027	2	2n
Cb18	Kanembu		K		00136	2	2
Ii7	Kapingamarangi				00415	2	2
Id5	Kariera T	~	~	Cc	35200	1	2
Ag13	Kasena	S			11026	2	2
Nc27	Kawaiisu				53200	1	2
Eb1	Kazak T	Ps			01081	2	2
Ic8	Kei	S		Mm	11215	2	2
Nh23	Keweyipaya		S		63001	1	2
Nc34	Kiliwa	S			43300	1	2
Ne17	Kiowa				19000	1	2
Ie13	Kiwai	L			12205	2	2
Ai46	Koma	Sl			01216	1	2
Ac14	Kongo		S	C	11116	1	2
Ad44	Konjo	Sl			01315	1	2
Ed1	Koreans T	S			00226	2	2n
Ai38	Korongo		Sl		01036	1	2
Ec5	Koryak T				11530	2	2
Ae41	Kota	S			12016	1	2
Ib8	Kubu				33202	1	2
Aa1	Kung T				82000	2	2
Ig3	Kurtatchi T		S		11215	1	2
If11	Kusaia		Sl		00415	1	2n
Nd7	Kutenai T				33400	1	-
Ae22	Kutshu	S			02215	2	2
Ie16	Kutubu	P			41014	2	2
Sal0	Lacandon	L			02206	2	2
Ig7	Lakalai T		P	Cc	21214	1	2n
Ac13	Lake Tonga		Sl	Cm	10414	1	2
Nc24	Lake Yokuts	M			52300	2	2
Ac33	Lala		S	M	01216	1	2n
Ej1	Lamet T	S		Mm	12025	1	2n
Cj7	Lebanese	Lo			00127	1	2n i
Ab16	Lenge	S			11125	2	2
Nh24	Lipan				64000	2	2
Ag11	Lobi		Sl	Cp	21016	1	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ah30	Longuda		Sl		00037	2	2
Ae6	Luba T	L			12214	1	2
Ai32	Lugbara	S			10045	2	2
Ac28	Luimbe		S	Cc	02412	1	2
Nb15	Lummi				32500	2	2
Ic1	Macassarese T				00226	1	2n
Ca13	Macha	Sl			01036	1	2
Cj10	Madan	So			20323	2	2
Ie21	Mailu	L			10315	2	2
Sa8	Mam T	L			00019	2	2
Ie29	Manam	L			00316	1	2n
Ne6	Mandan T		Ms	M	03205	2	2
Sg2	Mapuche T	L		Mm	10126	2	2n
Ie19	Marindanim	Ms			12214	1	2
Ai9	Masa	Sl			01315	2	2
Sd5	Maue	S			12106	2	2n
Ai14	Mbum	L			03214	2	2
Ab5	Mbundu T	~	~	Cm	11125	1	2
Nf4	Miami T	S			23104	1	2n
Ed4	Miao T	S		Cc	01126	2	2
Na41	Micmac	So			15400	1	2
Ie30	Mimica		Sl		41401	2	2
Ib6	Minangkabau T		Ps	Cc	00127	2	2
Ed8	Minchia T	Lo			00127	2	2
Ed6	Min Chinese T	Sl			00127	2	2
Ag31	Minianka	L			11026	2	2
Sa9	Miskito T	O	O	Cc	32212	2	2n
Nc9	Modoc				53200	2	2
Ei9	Mogh	S		Cc	01126	1	2
Ea7	Moghol	So			00046	2	2
Aj16	Mondari	S			01225	1	2
Ag47	Mossi	S			11025	1	2
Ie23	Muju	L			11125	2	2
Cc4	Mzab T	Lo			00019	1	2n
Aa3	Nama T	S		C	13150	1	2
Si4	Nambicuara T	O	O	Cc	43102	1	2
Ng7	Natchez T				03205	2	2
Ae38	Ndoko		S		01108	2	2
Ie26	Ngarawapum	L			12016	1	2
Ad16	Ngonde	Lo			01126	1	1
Eh5	Nicobarese T				11215	1	2
Ii9	Niueans				00505	1	2
Ae56	Nsaw	Sl			01018	2	2n
Na12	Nunamiut				17200	2	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Ea5	Nuri T	S			01036	2	2
Ad20	Nyamwezi				11017	1	2
Ab7	Nyaneka T		S	C	01144	2	2
Ec10	Ob Ostyak	S			03430	1	2
Ed7	Okinawans T	So			00226	2	2n
Sg3	Ona T				16300	1	2n
If7	Onotoa				10504	1	2
Ef6	Oraon T	S			00127	2	2
If1	Palauans T		Ps		00415	1	2
Sc13	Panare	O	O	Cc	03205	1	2
Ea2	Pathan T	Po			00037	1	2
Nc22	Patwin	Lo		M	53200	2	2
Na34	Pekangekum	Lo		C	22400	2	2
Nh9	Picuris				02017	1	1
Ni6	Pima				31105	2	2
Ac30	Plateau Tonga		S	C	01126	2	2n
Ab10	Pondo	S			00055	2	2
Ai28	Popoi	L			02017	1	2
Nj3	Popoluca T				01108	1	2
Nb18	Quileute				13600	2	2
Ad17	Safwa	S			01126	1	2n
Eh8	Sakalava	L			00154	2	2
Aa6	Sandawe T	L		Mm	11125	1	2
Sd8	Sanema				34102	2	2
Ih9	Santa Cruz		Ps	C	01315	2	2n
Ne20	Santee				17101	1	2
Ai22	Sara	L			01036	1	2
Sc6	Saramacca T		S		12205	1	2
Ne7	Sarsi T				28000	1	2n
Na28	Sekani				15400	1	2
Ei16	Sema	S		Mm	01225	1	2
Ih2	Seniang T	P			01315	1	2
Ej14	Senoi				11206	2	2
Ag22	Serer		S	C	10225	2	2
Ni4	Seri T				22600	2	2
Ad10	Shambala	S			01306	1	2
Af14	Sherbro		L		10216	2	2
Sj2	Sherente T	M		P	23104	1	2
Ee6	Sherpa	S			00055	1	2
Cd5	Shluh T	L			10036	2	2
Ej9	Siamese		K		00217	2	2n
Eh6	Sinhalese T	O	O	Cm	00136	1	2

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Se1	Siriono T	O	O	Mm	35101	2	2
Na11	Sivokakmeit	L			02800	2	2
Ad46	Soga	S			00026	1	2
Cb3	Songhai T	Lo			00235	1	2 _n
Ac25	Songo		L	Tc	12115	1	2
Ae11	Songola	S			12502	1	2
Ab8	Sotho T	So		Qc	11035	1	2
Nc19	Southern Pomo				43300	2	2
Ia12	Sugbuhanon				00217	1	1
Aj20	Suri	S			01135	1	2
Ag26	Susu	Sl		Cc	01126	2	2
Ia7	Tagbanua T		Sl		01117	1	2
Na27	Tahltnan		S		15400	1	2
Sb8	Taino	O	—		11206	2	2 ¹
Eg2	Tamil T	L		Cc	00226	2	2
Ih10	Tannese	L		Cc	00217	1	2
Ni1	Tarahumara T	S			11035	1	1
Id8	Tasmanians	—	—	—	44200	1	— ²
Ia13	Tawi-Tawi		K		00802	1	2
Sj6	Tenetebara T				12115	2	2
Cb6	Tera T	L		C	01117	2	2
Sh2	Terena T				21313	2	2 _n
Nd10	Thompson				23500	2	2
Ee4	Tibetans T	S			00046	2	2
Ii2	Tikopia T	Sl			00505	1	2
Ng8	Timucua T		P		22204	2	2
Id3	Tiwi T		P		53200	2	2
Nj9	Tlaxcalans	S			00028	2	2
Ic10	Tobelorese				11206	2	2
Eg4	Toda T	~	~	Cc	10090	1	2
Aj24	Topotha	S			11053	1	2
Nj4	Totonac T				11116	—	2
Si2	Trumai T	O	O	Cc	21304	2	2
Ca17	Tsamai	S			01036	2	2
Se2	Tucuna T	M		C	11404	1	2
Cb23	Tukulor	S			00145	2	2
Sj8	Tupinamba T	O	O	Cc	22204	2	2
Ci5	Turks				00145	2	2 _n
Nb31	Tututni	L		Mm	32500	1	2 _n

¹ omitted in enumerations concerning descent.² omitted in most enumerations.

Sample II (continued)

EA-columns:

1	3	20	22	25	7	14	16
Nd58	Uintah				34300	1	2
If9	Ulithians		L		00415	1	2
Nd19	Umatilla				33400	1	2
Si8	Umothina				22105	—	2
Ig10	Usiai	~	~		20026	1	2
Ih8	Vanua Levu	~	~		01306	2	2
Ad41	Vugusu	S			00046	1	2
Sc1	Warrau T				43201	2	2
Nh17	W. Apache		Ps		34003	2	2
Nf2	Winnebago T	M		C	23203	2	2n
Nb36	Wiyot				41500	2	2
Cb24	Wodaabe	So			00091	1	2
Sg1	Yahgan T				12700	1	2
Af4	Yako T	~	~	Cp	11017	2	2
Ec2	Yakut T	P			12241	2	2
Ia14	Yami				00415	1	2
Sc2	Yaruro T	O	O	Cc	22114	2	2
Ng11	Yuchi		S		11206	1	1
Sb7	Yupa	O	O	Cc	31105	1	2n
Nj10	Zapotec				00118	1	2n
Cc20	Zenaga	So			00073	1	2

END.