Altered States of Consciousness within a General Evolutionary Perspective: A Holocultural Analysis[1]

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This paper represents a reanalysis of data from earlier studies supporting the hypothesis that cultural patterning of altered states of consciousness (trance) conforms to a monothetic general evolutionary scale of sociocultural behavior. Global correlations using holocultural methodology show trance type to be positively correlated with four selected evolutionary variables, two related to societal complexity and two related to subsistence economy.

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Introduction

This brief paper represents one of a number of publications that have resulted from the Cross-cultural Study of Dissociational States at the Ohio State University.[2] As in the past, our focus is on those forms of altered states of consciousness that are institutionalized and culturally patterned. In almost all cases in traditional societies, these behaviors express sacred values and are given a variety of supernatural explanations.

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Our analysis of world societies has shown two major patterns of sacred altered states: (1) Trance (T), in which the predominant explanation concerns soul absence and which is frequently linked to types of hallucinations, or visions, and (2) Possession Trance (PT), in which the altered state is explained as due to a take over (*possession*) of the body by a spirit entity. The existence of these two distinct forms of trance as polarities on a continuum and their relation to different levels of societal complexity constitute the central argument of this as well as several previous publications (Bourguignon 1968, 1973, 1974).

When the global distribution of T and PT are considered, we find four general types of societies: (1) those that exhibit only T (Type I), (2) those with both T and PT (Type II), (3) those having only PT (Type III), and finally (4) those societies where both T and PT are absent (Type IV). In the following we refer to these four categories as "trance types."

For a statistical analysis of the distributions of trance types within the world community, a sample of 488 societies was selected from the *Ethnographic Atlas* (Murdock 1967), representing all parts of the world. This sample, admittedly, is not the result of a true random selection; however, to test the representativeness of this sample with respect to its universe, the sample was compared for each of the six major regions with the *Ethnographic Atlas* total for that region by means of the z test, which tests the standard error of a proportion (Bryant 1966:112). Z values were calculated for 18 dimensions for each of the six regions. Of the total 108 values obtained, only three were significant at the .05 level or below. These were, for Africa, *Estimated Size of Population* (z:3.29), and for North America, *Family Form* (z:1.65) and *Cousin Marriage* (z:1.70). Thus, we concluded that although the 488 societies, as our quasi-universe, are not a true random sample (i.e., chosen through a strictly random process), they are a representative sample of the larger *Ethnographic Atlas* universe.[3]

Of the 488 societies, 437 or approximately 90% were found

to have either or both trance forms (T and/or PT).[4] As reported elsewhere in greater detail (Bourguignon 1968), we compared societies of Type I (T), Type II (T/PT) and Type III (PT) with respect to 16 societal variables. Constructing tables of nominally scaled data and using chi-square as a test of significance, we found, for the total sample, that the three types of societies showed statistically significant differences ($p < .05$) for 12 of the 16 characteristics. Furthermore, six of these 12 characteristics were clearly related to societal complexity: estimated size of population, size of local group, presence of stratification, presence (or recent presence) of slavery, settlement patterns and jurisdictional hierarchy above the local level. In each instance, the PT group of societies appeared to be the most complex; the T societies to be the simplest; and the T/PT societies to fall intermediately between the other two.

The results of this earlier study have led to the proposal of a number of hypotheses related to trance types and societal organization, and more specifically to viewing trance behavior within the perspective of a complex general evolutionary model (see Bourguignon 1974). Figure 1 shows the hypothesized relationship between trance types and measure of societal complexity as illustrated by the Marsh Index of Societal Differentiation, type of subsistence economy and percentage of food production.

Our reasons for conducting the present study were both theoretical and methodological. First, we wanted to test the hypothesis that the trance types representing a proposed continuum variable did indeed constitute part of a general evolutionary scale of sociocultural behavior. And, second, we wanted to apply to our data specific holocultural techniques for the analysis of the 488 societies chosen from the *Ethnographic Atlas.* These include a test for diffusion, or Galton's problem, the use of a stratified random probability sample from our 488-society quasi-universe, the application of the double language boundary concept (Naroll 1971) for unit definition and the construction of ordinally ranked variables to test our evolutionary hypothesis.

Figure 1. *Relationship between Trance Types and Societal Complexity*

Variables

The trance type variable was constructed by combining the three trance types, as described above, into a continuum variable: Type I (T), Type II (T/PT) and Type III (PT). In the present study we excluded Type IV (neither T nor PT) societies from our statistical calculations. In addition to the trance type variable, four variables which have shown in the past to represent trustworthy general evolutionary scales were constructed: two related directly to societal complexity—class stratification, and jurisdictional hierarchy—and two related to subsistence economy—percent production (agriculture and animal husbandry) versus foraging (gathering, hunting, and fishing), and percent dependence on agriculture.

The class stratification variable was constructed from Column 29 of the Ohio State University (OSU) Punched Card File of Ethnographic Data (Bourguignon and Greenbaum 1973:127.)[5] The eight entries were collapsed into a four-part variable of increasing stratification:

(1) 1. Absence of stratification of freemen and of slavery
2. Freemen and slaves

(2) 3. Wealth distinctions, no slavery
4. Wealth distinctions and slavery

(3) 5. Dual and elite stratification, no slavery
6. Dual and elite stratification and slavery

(4) 7. Complex stratification, no slavery
8. Complex stratification and slavery

To test the validity of our variable, we correlated it with Marsh's *Index of Societal Differentiation Scores* (Marsh 1967: 329-374). We collapsed Marsh's scale into a four-part variable similar to our own and found the correlation to be very high ($G = .95$, $p < .001$, $N = 65$).[6] Since Marsh's scale has already been shown to be a valid indicator of social complexity (Schaefer 1969a), we are confident that our scale is an adequate measure of stratification.

The jurisdictional hierarchy variable was construed from Column 31 of the OSU File in the same manner as the stratification variable (Bourguignon and Greenbaum 1973:133):

Two local levels and:

(1) 1. None beyond the local level
2. One beyond the local level

(2) 3. Two beyond the local level
4. Three or four beyond the local level

Three or four local levels and:

(3) 5. None beyond the local level
6. One beyond the local level

(4) 7. Two beyond the local level
8. Three or four beyond the local level

This variable was patterned after one originally developed by Swanson (1960) who showed a relationship between it and religious beliefs. Our previous findings (Bourguignon 1968) have confirmed a relationship between both stratification and jurisdictional hierarchy and trance types. Also, Barry, Josephson, Lauer, and Marshall (1976) have shown socialization practices to be related to jurisdictional hierarchy (or "political structure").

The percent production variable was patterned after the subsistence economy variable used by Barry, Child and Bacon (1959). It was derived from Column 7: "Subsistence Economy" of the *Ethnographic Atlas*. Column 7 consists of five digits, which give the estimated "relative dependence of the society on each of the five major types of subsistence activity" (Murdock 1967: 46). These are: gathering, hunting (including trapping), fishing, animal husbandry, and agriculture. The maximum score in Column 7 for each society listed in the *Ethnographic Atlas* is 10 (100%). That is, the total sum of all five digits should equal 10. The society's score on this variable was derived from the percent dependence on production shown in digits 4 and 5, that is the percentage of food acquired by animal husbandry

and/or agriculture in relation to the society's overall subsistence pattern. The variable was then constructed into an evolutionary scale consisting of five levels of production: (1) 0-2 (0 to 25%), (2) 3-4 (26 to 45%), (3) 5-6 (46 to 65%), (4) 7-8 (66 to 85%), and (5) 9 (86 to 100%).

Barry, Child and Bacon (1959) developed their subsistence variable as part of a study of socialization. This is a subject to which we hope to return in future research on the relationship between socialization variables and trance type. We have elsewhere hypothesized such a relationship (Bourguignon 1974), without, however, testing it. Socialization has been shown to be related to subsistence economy by Barry, Child and Bacon (1959) and again by Barry, Josephson, Lauer and Marshall (1976). Swanson (1973) has shown a relationship between the North American vision quest (a major form of trance in North America) and a foraging economy.

The last variable, percent dependence on agriculture, was taken directly from Column 16 of the OSU File (Bourguignon and Greenbaum 1973: 105): (1) 0 to 25%, (2) 26 to 45%, (3) 46 to 75% and (4) 76 to 100% dependence on agriculture.

Both of these variables allow us to consider the importance of subsistence. Sawyer and LeVine (1966), Driver and Schuessler (1967) and Kenny (1975:194), among others, have shown the "primary importance of subsistence" in the explanation of sociocultural traits.

With the exception of individual computer programs written by us for specific problems, such as the running of some of the regional correlations, all statistical computations were carried out using the computer program ORDMAT (Naroll, Griffiths, Naroll and Michik 1975) distributed by the Human Relations Area Files (HRAF). For our ordinally ranked data we used both Goodman and Kruskal's *gamma* (G) and Kendall's Tau-B. For a test of significance we used Kendall's S. All three statistical operations are included in the ORDMAT PROGRAM. For our nominally scaled data we used the Phi correlation coefficient and Chi-square as a test of significance.

The Sample

To control for the possible influence of cultural diffusion (Naroll 1970a, 1970b), we ran our correlations twice; first, we used our 488 society quasi-universe, and second, we chose an 84-society stratified random probability sample from our larger quasi-universe. We did this by randomly selecting 14 societies regardless of trance type from each of the six major regions in the *Ethnographic Atlas.* In obtaining our sample, we applied Naroll's (1971) double language boundary concept in that none of the societies making up our sample shared secondary linguistic affiliations at the group or branch level—using Voegelin and Voegelin's (1966) "Index of Languages of the World."

Galton's Problem: A Test for Diffusion

To test for the possible diffusion of trance types, Naroll's linked-pair test was used (Naroll 1964, 1970b; see also Schaefer 1969b). As a propinquity test, it is based on the assumption that diffusion is most likely to occur between societies that are geographical neighbors. To construct our geographic alignments, we used Murdock and White's (1969) contiguous culture areas, as suggested by Loftin and Hill (1974).

Since we propose functional relationships between our variables we wished also to test the alternative hypothesis that correlations existing among these substantive variables might be due to diffusion or to faulty unit definition. The absence of a statistically significant, positive correlation for the alignment would allow us to reject this hypothesis.

Results

The results of the substantive variable correlations and of the Galton problem alignments are given in Table 1. As Table 1 shows, all four of the general evolutionary variables are positively correlated with the trance-type variable, as hypothesized. This is true both for the quasi-universe and for our 84-society sample. However, a strong positive, statistically significant align-

Table 1. *Substantive Variable Correlations and Galton Problem Alignment Correlations Related to Trance Type*

	Gamma	*Tau-B*	*Probability*	*N*
488-Society Quasi-Universe				
Stratification	.36	.25	$p < .0001$	408
Jurisdictional Hierarchy	.32	.21	$p < .0001$	430
Percent Production	.41	.30	$p < .0001$	437
Percent Agriculture	.42	.27	$p < .0001$	437
GP Alignment Trance	.56	.35	$p < .0001$	438
84-Society Sample				
Stratification	.29	.20	$p = .0356$	70
Jurisdictional Hierarchy	.47	.31	$p = .0019$	73
Percent Production	.44	.33	$p = .0005$	74
Percent Agriculture	.54	.35	$p = .0005$	74
GP Alignment Trance	.13	.08	$p = .2263$	74

ment correlation for the 488-society quasi-universe suggests that trance type, as we have defined it, is semidiffusional in nature (Naroll 1970b). From our analysis, it appears that a stratified sample of no more than 90 societies would be appropriate to permit one to expect correlations between societal variables and trance type to exist without the possible influences of diffusion, or Galton's problem.

As a further step in our analysis we sought to identify the presence of diffusion among trance types by breaking our 488-society contiguous-area alignment into five separate but contiguous regional groupings: Africa, Eurasia, Insular Pacific, Siberia-North America and South America. The results are given in Table 2. We can see by these results that the diffusion of trance type (significant in Africa, Eurasia and Siberia-North

Table 2. *Galton Problem Alignment Correlations for Trance: Contiguous Regional Groupings*

	Gamma	*Tau-B*	*Probability*	*N*
Africa	.50	.32	$p < .0001$	121
Eurasia	.33	.23	$p = .0214$	65
*Insular Pacific	.26	.18	$p = .0522$	73
Siberia-North America	.56	.31	$p = .0002$	128
*South America	.02	.01	$p = .4939$	51

* $p > .05$

America, but nonsignificant in the Insular Pacific and South America) is not a universal phenomenon, although at the present time we can do no more than to speculate on why this should be true. The Insular Pacific, as a collection of island groups spread over a large distance, is a somewhat more arbitrary culture area than those consisting of contiguous continental masses. For example, much of Indonesia might well have been grouped with Southeast Asia on grounds of proximity and culture history. The deviation from the .05 level of significance is, however, very small. As far as South America is concerned, we might note the reference to "the poor quality of most South American sources" by Driver and Schuessler (1967:336-37), who also find the South American results to be deviant. However, our finding of non-diffusion in South America is particularly puzzling in view of that area's apparent high degree of cultural homogeneity (Kenny 1975).

Regional Analysis

In addition to computing global correlations, we also ran our substantive variable correlations separately within each of the six geographical regions of the *Ethnographic Atlas*. The results are given in Table 3 for the quasi-universe and in Table 4 for the 84-society sample.

It can readily be seen that the regional correlations do not conform equally to the proposed relationship between trance type and the four evolutionary variables. In the quasi-universe, for example, 3 of the 4 variables in sub-Saharan Africa are inversely related to our trance-type variable and one of these, percent production, is statistically significant. Two of these variables were also inversely related in the smaller sample; however, there none is statistically significant.

Although the regional results do not confirm our global nomothetic correlations, we are not prepared to infer from this that the regional correlations somehow negate our nomothetic results. First of all, Driver has pointed out with regard to Murdock's six major ethnographic areas that "the ad hoc nature of

Table 3. *Regional Correlations: Trance 488-Society Quasi-Universe*

	Gamma	*Tau-B*	*Probability*	*N*
Sub-Saharan Africa				
Stratification	.27	.17	$p = .0784$	83
Jurisdictional Hierarchy	−.05	−.03	$p = .7414$	94
*Percent Production	−.35	−.22	$p = .0204$	94
Percent Agriculture	−.13	−.07	$p = .4902$	94
Circum-Mediterranean				
Stratification	−.23	−.16	$p = .3174$	33
Jurisdictional Hierarchy	−.04	−.03	$p = .8572$	31
Percent Production	.04	.02	$p = .8966$	35
Percent Agriculture	.41	.23	$p = .1498$	35
East Eurasia				
Stratification	.30	.22	$p = .0574$	57
Jurisdictional Hierarchy	.22	.14	$p = .2340$	60
Percent Production	.31	.22	$p = .0562$	61
Percent Agriculture	.10	.05	$p = .6456$	61
Insular Pacific				
*Stratification	.35	.24	$p = .0174$	79
Jurisdictional Hierarchy	.29	.18	$p = .0784$	80
Percent Production	−.10	−.07	$p = .4902$	81
Percent Agriculture	.07	.03	$p = .7794$	81
North America				
Stratification	.28	.14	$p = .1118$	109
Jurisdictional Hierarchy	.26	.11	$p = .2224$	115
Percent Production	−.22	−.09	$p = .3222$	116
Percent Agriculture	−.23	−.09	$p = .3030$	116
South America				
Stratification	−.31	−.14	$p = .2984$	47
Jurisdictional Hierarchy	−.03	−.02	$p = .8886$	50
Percent Production	.17	.11	$p = .4010$	50
Percent Agriculture	.02	.01	$p = .9204$	50

* $p < .05$

these units becomes clear when they are examined critically" (Driver 1973:336). It also must be remembered that the cultural unit (tribe or society) in the quasi-universe (taken from the *Ethnographic Atlas*) is somewhat ill defined and, as we have shown above, results taken from the larger quasi-universe raise the suspicion that they are influenced by diffusion. The overall pattern suggests to us that our regional correlations are

Table 4. *Regional Correlations: Trance 84-Society Sample*

	Gamma	*Tau-B*	*Probability*	*N*
Sub-Saharan Africa				
Stratification	.13	.08	p = .4378	9
Jurisdictional Hierarchy	−.53	−.31	p = .1784	10
Percent Production	−.53	−.31	p = .1723	10
Percent Agriculture	.00	.00	—	10
Circum-Mediterranean				
Stratification	−.27	−.26	p = .2092	10
Jurisdictional Hierarchy	.27	.19	p = .2913	10
Percent Production	−.25	−.14	p = .3515	10
Percent Agriculture	.37	.25	p = .2470	10
East Eurasia				
*Stratification	.77	.59	p = .0122	13
Jurisdictional Hierarchy	.09	.05	p = .4499	14
Percent Production	.22	.16	p = .2786	14
Percent Agriculture	.23	.12	p = .3719	14
Insular-Pacific				
Stratification	.36	.21	p = .2495	13
Jurisdictional Hierarchy	.69	.43	p = .0574	13
Percent Production	.02	.01	p = .4949	13
Percent Agriculture	.11	.07	p = .4135	13
North America				
Stratification	−.06	−.03	p = .4759	13
Jurisdictional Hierarchy	.64	.37	p = .0940	14
Percent Production	.28	.16	p = .3040	14
Percent Agriculture	.33	.19	p = .2906	14
South America				
Stratification	.00	.00	p = .4377	12
Jurisdictional Hierarchy	.27	.14	p = .3583	13
Percent Production	.33	.22	p = .1606	13
Percent Agriculture	.44	.28	p = .1606	13

* $p < .05$

the result of a fairly common but generally localized phenomenon of "deviant cases," perhaps related to specific historical or ecological factors (or some other "lurking" variable) which we have not taken into consideration in the present study.

Inspecting our findings more closely, we note that the number of negative regional correlations drops from 10 in the 488 society quasi-universe to five in the 84-society sample. More-

over, the actual variables affected differ: two correlations that are positive for the larger group of societies are negative for the smaller sample–for the Circum-Mediterranean, percent production and for North America, stratification. It is also interesting to note that the positive correlation between trance type and stratification in the Insular Pacific which is significant in the quasi-universe, disappears in the smaller sample. On the other hand, here it is the relationship between trance type and stratification in East Eurasia that is significant.

Our results show that in three of the six world areas one or more variables are related inversely to trance type, in contradiction to our hypotheses. These contradictory instances are: jurisdictional hierarchy and percent production for sub-Saharan Africa, stratification and percent production for the Circum-Mediterranean and stratification for North America. In this connection it is interesting to observe that the two economic variables (percent production and percent agriculture) do not necessarily go together, nor do the two social structural variables. We are reminded that both Greenbaum (n.d.) and LeVine (1960), using different samples, found that the relationship between jurisdictional hierarchy and stratification, present in the other world areas, was absent in North America.

It should be noted that regional variations appear in most studies where a world-wide sample has been analyzed by regions. We appear to be confirming Driver's prediction: "It seems likely that in the future most correlations will exhibit significant areal differences, in magnitude if not in sign" (Driver 1973:354). As specific examples, he mentions Tatje (n.d.) and Aberle (1961) who found that correlations between residence, descent, kinship terminology and subsistence economy that exist in the other regions, do not hold good for Africa. In our earlier study (Bourguignon 1968) we had also found regional variations with regard to the correlations between trance type and our other variables. Our present results are therefore not particularly aberrant or surprising. It is clear, however, that only more intensive regional studies will be able to explain the characteristic associations, or lack thereof, that exist in particular

parts of the world with regard to these specific variables, as well as others. If we do not accept the notion, however, that our regional correlations somehow negate our nomothetic results, we may raise the question as to why then the regional correlations produce so few statistically significant results. Erickson (1974a, 1974b) has recently begun to examine this relationship. According to his interpretation, this phenomenon is the direct result of historical interrelatedness between the two correlated variables. In a response to Ember's (1971) paper on Galton's problem, Erickson concludes:

> With very brief reflection, it will be seen that Ember, in subsetting the *Atlas* world into language families, has in effect, controlled for historic relatedness as a third variable. That is, by calculating the correlation between X and Y (any pair of sociocultural variables) within historic (or presumably historic) subsets, he has partialled that correlation for a third variable Z. The variable Z, of course, is a two-state variable: historically unrelated. When, as Ember shows, the correlation between X and Y reduces substantially, it has been demonstrated that historic relatedness was an impinging factor. But this is exactly the opposite of what Ember was arguing, and it was precisely what Sir Francis feared (Erickson 1974b:7-8).

This overall pattern was found to be true for the variables of mode of marriage and subsistence economy (Evascu 1974:349) using our quasi-universe of societies and the six regions of the *Atlas* as historical "subsets."

On a larger scale, when we correlated each trance type independently with each of the six larger regional groupings of the *Ethnographic Atlas,* a definite distribution of Trance (T) and Possession Trance (PT) emerged. Using the quasi-universe, we found that T is highly correlated with North America (Phi $= .38$, $x^2 = 62.655$, $p < .001$, $N = 437$) and, to a lesser extent, with South America (Phi $= .16$, $x^2 = 9.646$, $p < .01$, $N = 437$). T was also positively correlated with North America when we ran this test using our smaller sample of societies (Phi $= .29$, $x^2 = 6.188$, $p < .02$, $N = 74$). Concomitantly, we found PT to be associated with Sub-Saharan Africa (Phi $= .28$, $x^2 =$

32.029, $p < .001$, $N = 437$) and the Circum-Mediterranean (Phi = .15, $x^2 = 8.598$, $p < .01$, $N = 437$). PT was inversely related with North America using the smaller sample (Phi = −.24, $x^2 = 4.217$, $p < .05$, $N = 74$). (We found no regional correlations for Trance/Possession Trance [T/PT] which were statistically significant.)

These polarized regional groupings for our trance-type variable correspond with similar regional patterns related to other societal complexity and general evolutionary variables: (Driver and Schuessler 1967; Barry 1968; Bourguignon and Greenbaum 1973; Evascu 1974; Kenny 1975), and appear to give some support to Erickson's argument. However, if Erickson's analysis of the effects of historical interrelatedness or diffusion is correct, then we might expect that the correlation magnitudes between trance type and our evolutionary variables in the regions of the Insular Pacific and South America would be the highest (these regions showing the least indications of the possible influences of diffusion among trance type). Yet, if we look at our results related to our quasi-universe (see Table 1) between trance type and percent agriculture (this correlation having the largest magnitude among all four evolutionary variables), we see that these same two variables have the lowest correlation magnitudes in the very regions of the Insular Pacific and South America (see Table 3)—exactly the opposite of what we would predict if interrelatedness among our variables were indeed absent. As we see in Table 4, the associations are greatly strengthened when diffusion is controlled for.

Summary and Conclusions

In several earlier studies we proposed and supported the hypothesis that types of altered states of consciousness and their cultural interpretations and elaborations conform to a general evolutionary scale of sociocultural behavior. The present paper offers a reanalysis of our data. We constructed an ordinal scale for our data and applied Naroll's (1971) double language boundary concept in selecting a stratified sample of 84 societies.

Trance type is seen to be positively and significantly correlated with four selected evolutionary variables. Two of these are related to societal complexity and two to subsistence economy. The present analysis thus generally supports the findings of our earlier investigations (Bourguignon 1968, 1973, 1974). Also, like a number of other sociocultural traits, such as societal complexity, political integration, stratification, subsistence economy, mode of marriage and others (Naroll 1961; Naroll and D'Andrade 1963; Driver and Schuessler 1967; Barry 1968; Murdock and White 1969; Schaefer et al. 1971; Bourguignon and Greenbaum 1973; Murdock and Provost 1973; Evascu 1974) trance type is found to be both 1) semidiffusional, and 2) nonrandomly distributed, or regionally localized within major geographic areas of the world. Furthermore, as in our earlier research, we have found considerable variation in correlations when the worldwide sample is divided into six regional samples.

In the present paper we have limited ourselves to dealing with individual correlations between trance type and our four selected variables. In the future we wish to analyze the interrelationships among these four as well as certain additional variables (specifically, variables dealing with socialization) in an attempt to test formally our more complex general evolutionary model (Bourguignon 1974). When we have done so, we also should have a better understanding of the relationship between our global nomothetic results and their relationship to our more varied regional correlations.

Appendix

84 Society sample, listed in order of contiguous culture areas; 5 numbers: Trance, Stratification, Jurisdictional Hierarchy, % Agriculture, and % Production:

Zulu	23435	Aranda	11111
Pondo	12435	Orokaiva	31333
Ambo	33434	Kwoma	31323
Songo	31333	Manam	11334
Yao	31334	Dobuans	11334
Giriama	01435	Siwai	02334
Rundi	04435	Ulawa	21333
Duala	02434	Rotumans	23334
Baule	21334	Tokelau	31322
Toma	11334	Ponape	33434
Songhai	34434	Subanun	21145
Zazzagawa	34435	Manchu	22035
Banda	21334	Japanese	34434
Moro	32335	Yukaghir	11311
Anuak	30134	Montagnais	31311
Banna	00325	Micmac	11111
Turkana	01124	Tanaia	13311
Gurage	00335	Kwakiutl	23311
Somali	22415	Lummi	13311
Bisharin	01315	Patwin	12311
Kunama	31134	C. Yuki	11111
Rwala	22314	Miwok	11111
Siwan	22335	Washo	11111
Kabyle	31435	Iowa	13333
Gheg	01435	Iroquois	21422
Ob Ostyak	12312	Isleta	11134
Cheremis	13334	Yuma	20133
Osset	13325	Chichimec	11111
Kurd	13435	Quiche	32345
Iranians	23435	Miskito	11312
Coorg	34434	Makitare	21322
Telugu	34435	Witoto	11122
Kashmir	10434	Paez	00134
Kazak	33415	Jivaro	21133
Lepcha	22335	Conibo	10122
Lakher	33343	Nambicuara	11311
Lamet	12334	Bororo	21311
Tanala	33334	Trumai	12322
Batak	22335	Tapirape	11333
Balinese	23435	Abipon	13111
Selung	31111	Ona	21111
Murgin	11111	Yahgan	11111

ex. Zulu Trance = 2 (T/PT), Stratif. = 3, Juris. Hier. = 4, % Agri. = 3, % Prod. = 5. 0 = Type IV or absence of information.

NOTES

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[2] Funding for this initial research was received from the National Institute of Mental Health, PHS Research Grant MH 07463.

[3] In the 488-society quasi-universe, the regional proportions are as follows (The *Ethnographic Atlas* proportions are given in parentheses): Sub-Saharan Africa 23% (28%), Circum-Mediterranean 9% (11%), East Eurasia 14% (11%), Insular Pacific 17% (15%), North America 25% (25%) and Central and South America 12% (10%).

[4] See the Appendix in Bourguignon, ed. (1973) for a list of the 488 societies together with their coding for T and PT.

[5] The Ohio State University (OSU) Punched Card File of Ethnographic Data is a source of ethnographic data taken from the *Ethnographic Atlas*. For most of the societal characteristics, the categories of the *Atlas* have been combined, with the result that the OSU File contains fewer but larger categories than the *Atlas*. See Bourguignon and Greenbaum (1973), Appendixes I and II.

[6] Marsh's scale was collapsed into a four-part continuum: (1) 0 to 2, (2) 3 to 4, (3) 5 to 6 and (4) 7 and over. We ran our correlation using an intersection of those societies which were present in both Marsh's sample and in our 488-society quasi-universe.

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