

FEMALE PUBERTY RITES: A TEST OF CROSS-CULTURAL
METHODOLOGY AND COMPARATIVE ANALYSIS
OF FEMALE INITIATION RITES

by

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ABSTRACT

This thesis focuses on two problems: cross-cultural methodology and female puberty rites. Brown's (1963) cross-cultural study of female puberty rites is examined and her findings are re-evaluated. The appropriateness of the variables and tests Brown employed and the replicability of her results are investigated in order to explain: (1) where female puberty rites may occur; and (2) where they may vary in composition.

Brown's hypothesized relationships are statistically measured. A new sample from Murdock's (1967) Ethnographic Atlas is drawn and Brown's hypotheses are reformulated, measured and tested. Two new variables (societal complexity and geographic factors) are constructed and their relationship with female puberty rites is measured and tested. The results of the investigation indicate that: (1) none of Brown's variables account for more than 17 percent of the observed variation in female puberty rites; and (2) geographic factors are better predictors of female puberty rites and female genital operation.

Examining committee:

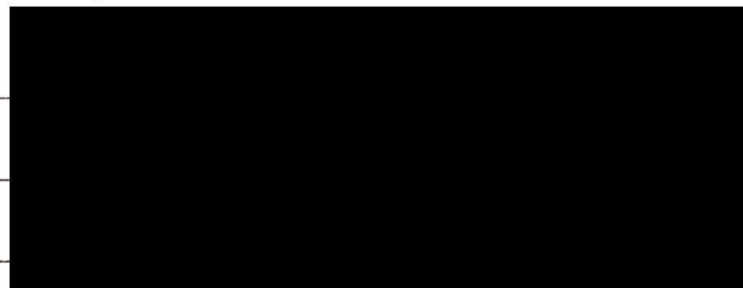


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Surrounded by Earth People,
the sounds have faded into the distance,
Mountains of jewels encircling her,
the sounds have faded into the distance,
All kinds of vegetation follow her in one
direction as she runs,
the sounds have faded into the distance,
Behind her, night has now passed on,
the sounds have faded into the distance,
Before her, night has now passed on,
the sounds have faded into the distance,
Behind her, it is blessed,
the sounds have faded into the distance,
Before her, it is blessed,
the sounds have faded into the distance,
Now the girl can endure much without tiring,
the sounds have faded into the distance,
Her child, the sounds have faded into the distance,
the sounds have faded into the distance.

—Frisbie (1967:250-251)
(A racing song sung on the
final morning of the
Navaho girls' puberty
rite.)

INTRODUCTION

Initiation has been the subject of volumes of writings (van Gennep 1960; Gluckman 1962; Bettelheim 1962; Eliade 1958; Cohen 1964; and Young 1965). The symbolism, ritual behaviour, and social implications of the initiation ceremony have been interpreted from numerous perspectives. This paper focuses on a subcategory of initiation rites: those concerned with female puberty. In an attempt to explain their presence, absence, and relative elaboration, relationships between these rites and other cultural variables have been proposed, tested and measured. Judith K. Brown's (1963) cross-cultural study of female puberty rites provides the framework for the present analysis.

Brown's study was the first large scale, cross-cultural comparison of female puberty rites which attempted to quantify data and account for variations in practice from society to society. Due to the recent interest in women and their role in society, Brown's study has been uncritically incorporated into introductory anthropology texts (see Hoebel and Frost 1976). For this reason, it is essential to reassess Brown's work and her conclusions. Through a critical re-examination of her proposed relationships and methodology, some problems are discussed which refer not only to Brown's study in particular but to other, similar cross-cultural

research (see Whiting 1964; Whiting, Kluckhohn and Anthony 1958; and Burton and Whiting 1961).

The analysis has been divided into five sections. The first is dedicated to a brief survey of the recent relevant literature on puberty rites in general. The second presents Brown's hypotheses concerning female rites, examines her methodology and re-evaluates the relationships tested. In the third section, Brown's reformulated hypothesis and variables are tested on a new sample of societies drawn from the Ethnographic Atlas (Murdock 1967). The fourth section includes the proposal of three alternative hypotheses and the results of their tests on the new sample. A brief review of the findings and conclusions are presented in the fifth section.

CHAPTER 1

THE LITERATURE¹

Among the literature on initiation rites, a work of enduring value is van Gennep's (1960) contribution, *The Rites of Passage*, first published in 1909. His interpretation of the rites associated with the life crises concentrated on the rite in its context of changing social relations. Van Gennep described three stages in status change: separation, transition and incorporation. He also demonstrated through comparative ethnographic data that physiological and social puberty did not necessarily occur simultaneously (1960:65). Gluckman (1962) meticulously traced the influence of van Gennep's publication on the works of a number of anthropologists (e.g. Evans-Pritchard, Richards, Forde, Junod, Firth and Wilson). Most of the literature on initiation rites has focussed on male initiations. This may have been the result of male ethnographers' bias in reporting or of their exclusion from women's ceremonies. Female initiation has been treated as a mere imitation of male rites by some ethno-

¹This survey focusses on the more recent literature concerned with the explanation of initiation rites. For literature pertaining to the classification, semantics and interpretation of ritual behaviour and symbolism the reader is referred to Gluckman (1962) and Turner (1969, 1964, and 1967).

graphers (e.g. Loeb 1929:250). In some societies this may be the case; Richards (1956), however, has presented a detailed description and analysis of the Bemba female puberty ceremony which is far more elaborate and drawn out than the male puberty ceremony. More recently, Frisbie (1967) has done the same kind of detailed analysis for the Navaho. Richards' (1956:114, 115) work is particularly important as she distinguishes between the emic or "expressed" purposes of the rite and the etic or "deduced" purposes. In Brown's (1965) discussion of studies pertaining to initiation, she distinguished three subdivisions: micro-studies, macro-studies and individual-centred studies. Analyses such as Richards' and Frisbie's have been referred to as micro-studies because they deal with the relationship between initiation rites and other institutions within one particular society. I prefer to group these and similar studies into the category of contextual interpretations. The distinguishing characteristic of Richards' and Frisbie's work is not that they have dealt with only one society but rather, that they treat the rite in its entire cultural context.

In contrast to these contextual interpretations are macro-studies which concern themselves with the cross-cultural concomitance of initiation rites and particular cultural elements. Cross-cultural studies investigate specified cultural phenomena in several cultures and test

relationships which have been hypothesized on the bases of contextual or individual-centred analyses. Among these cross-cultural analyses are the publications by Driver (1941), Whiting et al. (1958), Young (1962, 1965), and Cohen (1964a, 1964b).

Driver (1941:21) stated that his primary interest lay not in the interpretation of female puberty rites per se but rather in the methodology behind the comparison and the evaluation of the culture-element survey data. After compiling all the culture-element data for North America, Driver concluded that in the case of Southern California, convergence accounted for the presence of the public recognition of female puberty rites. He located the origin of the predominant type of public puberty ceremony in the Northwest Coast and suggested that "the unfavorable environment of the Great Basin, and . . . the Plateau" (1941:62) prevented the diffusion of the public puberty rite complex any further eastward. Though Driver did include brief descriptions of the puberty rites of particular areas, his lists of culture traits deal only with the paraphernalia and practices of the puberty ceremony taken totally out of cultural context; no description of the social relations or institutions of the societies is given.

Whiting (1964) contributed to Burton and Whiting (1961), and Whiting, Kluckhohn and Anthony (1958) several articles which focussed on male initiation rites. Whiting was

interested in the rite as a psychological mechanism. Influenced by the Freudian notion that institutions and ritual behaviour are the result of conflict between society and the individual, Whiting and his associates proposed that given certain conditions, i.e., an exclusive mother-son sleeping arrangement and a post-partum sex taboo of longer than one year, Oedipal conflict is heightened. Such conflict could result in socially disruptive confrontations between father and son. According to Whiting, the initiation ceremony resolves the conflict and establishes and confirms the male identity of the adolescent. The societies examined by Whiting and his associates numbered 56. Though the rating for these societies is recorded, they failed to include a bibliography of ethnographic sources. When Norbeck, Walker and Cohen (1962) re-examined the ethnographic data for seven of Whiting's 56 societies, they found that the data available in the Human Relations Area Files presented serious problems with regard to definitions and interpretations. In the original article the authors give no indication of the criteria on which ambiguous data were coded. The authors state simply that in the case of coder disagreement, "the data were checked by one of the authors whose judgment was accepted as final" (Whiting, Kluckhohn and Anthony 1958:363).

In addition to the methodological criticisms given by Norbeck et al., Cohen (1964a, 1964b) and Young (1962, 1965) attacked Whiting and his associates on theoretical grounds.

Both take issue with Whiting's psychoanalytic interpretation of a social phenomenon. Young (1962) re-examined 54 of Whiting's 56 cases and tested an alternative hypothesis: male initiation rites dramatize male solidarity. Cohen (1964b), with a sample of 65 societies, proposed and tested his hypothesis that male initiation rites facilitate a shift in emotional anchorage from nuclear kin to extended kin groups. Whiting (1962), in his comment on Young's findings, suggested that both male solidarity and male initiation rites are the result of social environments which foster sex identity conflict. Whiting's use of sex identity relies on the status envy theory of child development. The mechanism of status envy was described in a brief article by Burton and Whiting (1961). They suggested that the child identifies with and imitates first his mother, who controls desired resources, and later his father, who controls desired community resources (i.e. political and economic power).

An experiment reported by Bandura, Ross and Ross (1963) appears to support Whiting to some degree. They reported that a child will indeed imitate the individual who possesses rewarding power. However, Bandura et al. emphasize that the children studied did not imitate the individual with the rewarding power to the exclusion of the other model, but tended to exhibit a pattern of behaviour composed of elements from both rewarding and rival models (1963:534).

On the basis of status envy theory, Burton and Whiting proposed that if there is conflict between primary and secondary sex identities without a mechanism to resolve it, the male may act out his primary feminine identity or he may react with exaggerated masculinity (1961:94). Parker, Smith and Ginat (1975) have tested this proposition on a polygamous Mormon community in the United States. They examined a social environment which, according to Whiting, could be expected to produce sex identity conflict in males. (The father was absent a good deal from the home, and the community outside the household was male-oriented.) There was no harsh male initiation rite to resolve the assumed conflict. Parker reported no males acting out feminine roles, nor were males observed to display exaggerated masculine behaviour. Their contextual analysis of the Mormon community indicates that other situational variables influence the cognitive development of a child (1975:703).

Recently, Herzog (1973) conducted a test to compare the predictive power of Young's (1965) theory that male initiation rites effect a gradual change in the boy's self-image with Whiting's (Burton and Whiting 1961) claim of a more immediate effect. Herzog tested the boys of a community in Nairobi. To evaluate the change in self-image, a group of boys answered questionnaires before and after circumcision. Two control groups, one of boys who had undergone circumcision a year before and a second of boys who were postponing

initiation a year or more, also answered the questionnaire.

The results of Herzog's test indicated that

Initiation does have measurable impact on Kikuyu boys' self-image, which takes some time after initiation to appear (it is evident in twelve months . . .). The social interaction hypothesis of Young's receives a high degree of support from these data (1973:485).

There are, however, elements of Herzog's test which require further comment; the first pertains to his methodology. Herzog was unable to control adequately for the influence of the formal education experience on his results. He could find very few boys who had attended high school but who had not been initiated. The second factor has more to do with Herzog's inattention to the theoretical basis of Whiting's claim. Burton and Whiting imply that it is the harshness of the initiation experience which produces the immediate effect. They liken the tests of manhood, lack of sleep and painful genital operation to a "brainwashing" experience (Burton and Whiting 1961:90). The "traditional" Kikuyu initiation rite included elaborate ceremony and genital operation (1973:480). However, the modern practice which Herzog was monitoring is much simpler and the operation is no longer performed by a local specialist but

by a medical assistant at the local government dispensary. . . . Preventive antibiotics, local anaesthetic, and sterile surgical instruments and supplies are used (1973:480).

It appears that the whole tenor of the ceremony has changed. Removal of the operation from the ceremonial complex to the

local government dispensary makes it questionable as to whether the present-day Kikuyu rite is still an initiation ceremony under Whiting's description (Burton and Whiting 1961:90).

Both the studies by Herzog and the one by Parker et al. investigate socialization and the individual. They focus on the impact of the initiation on the participant. Schwartz and Merten (1968) have reported on another individual-centred study. In their analysis of the initiation rites of a high school sorority in an urban centre in the United States, they present evidence in contradiction to Young and Cohen's community solidarity theory. They conclude that the initiation rite which the girls go through instills the appropriate attitudes and provides a guide for interaction with others. They assert that the rites they observed accentuate the levels of the local status system and support the ideology of the dominant group. The rite does not promote identification with the community as a whole nor does it promote same-sex solidarity. Though their interpretation of the symbolic imagery provides insight into the formation of self-image among the "sodies" (sorority members), their analysis can also be interpreted in support of the solidarity theory. Schwartz and Merten (1968:1117) make clear from the beginning that the sorority initiation and adolescent puberty rites differ in several respects: sorority initiations do not involve entire age grades; they do not occur

uniformly throughout the society; and they refer to a change of status which is recognized primarily by other members of the initiate's peer group.

The straight application of the social solidarity theories of Young and Cohen seems questionable given these fundamental differences between puberty rites and sorority initiation ceremonies. If the "community" were restricted to only those people who participated in and recognized the change in social status conferred by the sorority initiation ceremony, then one might interpret the evidence as providing support for Young's assertion that initiation facilitates role-learning.

. . . the function of the initiation ceremony is to allow the girl access to the female backstage, to all the whispers and innuendoes and sharp lines of authority that make this side of . . . life so different. . . . Moreover, the ceremony alerts the women to the change in status so that they change their attitude toward the girl and, so to speak, stop lowering their voices when she is near (1965: 109).

The sorority initiation validates the initiate's social identity. After the final hazing of the initiates is complete, they return home, wash and dress for the induction.

. . . they are forever cleansed of any possible latent moral impurities, and their social identities as societies are publicly confirmed. . . . They are properly prepared to take their place on the top of the social pyramid (Schwartz and Merten 1968:1130).

They are no longer a part of the "hoods" or "nobodies." They have been incorporated into a new group, set apart from the

uninitiated and behave according to a code which maintains the social distinction they enjoy. This evidence does not contradict Young's alternative hypothesis of the function of the initiation ceremony if the ceremony is considered within the context of the limited "community" they affect.

A recent contextual study of the Sudanese practice of infibulation (Hayes 1975) has suggested an ecological function of the operation. Infibulation is a genital operation which is performed by a specialist on girls between the ages of four and ten. The operation involves the removal of the labia majora, mons veneris, and labia minora (the clitoris is sometimes removed as well).

. . . a reed, tube or match stick is inserted into the vaginal opening in order that after the wound heals a small hole may remain for the passage of urine and menses. The girl's legs are strapped together for forty days to allow the wounds on the two sides to heal together by contact. In a few tribes thorns are used to suture the wounds and these are held in place by threads wound round their projecting ends (Barclay 1964:238 as quoted by Hayes 1975:619).

Like Richards, Hayes divides her discussion of the function of the operation into the emic or "manifest" (Hayes 1975: 627) and etic or "latent" (1975:627) functions. Her interpretation of the emic function will be discussed in detail in the construction of alternative hypotheses.

In her etic interpretation, Hayes analyzes the effect of infibulation on population growth in the Sudan. Hayes

suggests that the operation decreases the frequency of coitus, increases female sterility and mortality due to post-operative infection, and increases "neo-natal mortality due to scarification and malformation of the vaginal canal" (1975:628). Hayes concludes that like infanticide, post-partum sex taboos, and abortion, infibulation acts to depress the population rate.

In contrast with Hayes's ecological approach, Kennedy (1970) deals with Sudanese infibulation in conjunction with male circumcision rites. Kennedy's descriptive data and analysis was presented in reaction to the psychoanalytic and socio-functional interpretations of Whiting, Cohen, Young, and Freud. Kennedy is primarily concerned with the ritual complex of the initiation rites. He asserts that the complex can only be understood in the context of marriage. Kennedy inveighs against simple one-factor theories and yet his own interpretation tends to support Cohen's and Young's solidarity theory. He emphasizes that both the initiation and marriage ceremonies are symbolic of family and community solidarity (1970:181). His own study is an excellent example of the kind of contextual analysis he appeals for in other interpretations of initiation and the ritual complex.

Opler (1972) presented his meticulous particularist analysis of Apachean girls' puberty rites in response to the trend in anthropology toward cross-cultural quantification and statistical measuring. His detailed description

of Apachean religious and economic practices is offered to countervail the "superficial pronouncements" (1972:1145) made on the basis of cross-cultural correlations. Opler makes clear his distaste for statistical analyses and argues that such analyses ignore important distinctions among elements and equate unlike elements. He points out that the historical particularists were concerned not only "with the provenience of traits and time order of traits, but also with the interrelations of traits" (1972:1145).

When Opler appeals for the examination and interpretation of the interrelations of traits he is calling for contextual analyses. If, however, anthropologists restrict themselves to particularistic cataloguing of societies and cultural elements there can be no progress toward the definition of lawful regularities which govern cultural events (Brim and Spain 1974:1). Hypothesis formulation can legitimately be based on one good contextual analysis but in order to test the hypothesized relationship a well-designed test must be carried out. Rigorous methodology in hypothesis-testing is critical. Only when hypothesized relationships survive a test and only when the design and the methodology of the test survive critical scrutiny can the hypothesis be considered to have contributed to the explanation of cultural events and to have added something new to our knowledge.

The following section addresses Brown's (1963) methodology and measures the strength of her proposed relationships in order to ascertain whether her hypotheses can explain the frequency and variation in female puberty rites.

CHAPTER 2

FEMALE PUBERTY RITES RE-EVALUATED

Within this chapter, Brown's (1963) cross-cultural analysis of female puberty rites will be summarized and examined. The rationale for and construction of her hypotheses will be discussed and evaluated. The methodology behind Brown's sample selection and hypothesis testing will be criticized and the proposed relationships will be measured using the descriptive statistics tau and gamma. In addition, the explanatory power of the combined variables will be assessed.

Brown's Hypotheses

The cross-cultural study of female initiation rites made by Brown (1963) focuses on two questions. Brown is interested in the non-universal existence of rites and the variations in elaboration among existing practices. She formulates three hypotheses:

- (1) Residence predicts female initiation rites.
- (2) Child rearing practices predict severity of female initiation rites.
- (3) Women's contribution to subsistence predicts female initiation rites.

Brown reasons that initiation rites serve as indicators to the community that a girl is ready to take on adult status and contribute to the subsistence and household activities accordingly. The initiation rite is a change of status marker, and as such, it will likely occur in those instances where a woman continues to reside with or in close proximity to her natal family. If the woman typically takes up residence in some other community or family unit, then the change of status marker would be redundant. Therefore, Brown's first hypothesis states the proposed association between residence patterns after marriage and female initiation rites.

The second hypothesis is based on the assumption that "severe" female initiation rites resolve the sex identity conflict produced by (1) exclusive mother-infant sleeping arrangements, which foster gynocentric sex identity and (2) patrilocal residence which produces androcentric (Brown calls them "male-dominated") domestic units. When both variables are present "adult males are the ones to be envied" and the initiation rites must serve as a means of insuring that "status envy" does not result in false sex identity by girls. Therefore, Brown proposes an association between child-rearing practices and painful female initiation rites.

In her third hypothesis the initiation rite is regarded as a change of status marker but it also carries with it the connotation of "asset guarantee." According to Brown, initiation rites for girls will be celebrated when women's contribution to subsistence activities is of real importance. When women contribute significantly to subsistence activities, then the value of adult women members of the society will be indicated by a change of status marker--the initiation rite. In this way, the rest of the community is assured of the girl's competence to fulfil her future obligations and the importance of her own contributing role is impressed upon the initiate. Therefore, Brown's final hypothesis proposes an association between women's contribution to subsistence and female initiation rites.

Brown's Sample

A methodological examination of Brown's study necessarily begins with the sample and its origin.

Brown's sample was drawn from Murdock's (1957) World Ethnographic Sample. Brown noted two precautions which were observed in order to insure independence among those cases within the selected sample:

. . . an attempt is made to select cultures from areas widely separated geographically. Fifty-five of Murdock's (1957) 60 culture areas of the world are represented in the sample. (The five which are omitted are Near East, Caucasia, Eastern Melanesia, Eastern Polynesia, and Central Mexico.) Furthermore, when more than one society has been selected from the same culture area, care is taken

that they differ in language, basic economy, descent and/or political integration (Laboratory of Human Development n.d.). One can assume that societies which are dissimilar in these characteristics are less likely to have had a recent common origin (1963:838).

In addition to the cautions against the lack of independence,

Preference was given to those societies, ethnographies of which offered good information regarding the adolescent life of girls. Preference was also given those societies of which ratings of the antecedent variables had been made (1963:838).

Observing the first two precautions, 100 societies were drawn for the sample.

The randomness of the sample is of primary importance in any statistical analysis. Though we know that attempts were made to select geographically separate societies, we do not know exactly what the attempts entailed. The exact procedure followed for the selection of the original 100 cases is not clear. Of those 100 cases, 75 were eventually included in the sample. The five culture areas which were not represented in the sample are identified above. The exclusion of these areas was based on the lack of pertinent data (Brown 1976:pers. comm.).

Though Brown has suggested that a larger sample would be more respectable, Driver (1971) levels his criticism not at the size of Brown's sample but rather the non-random manner in which it was chosen. A complete list of ethnic units does not exist and without such a list a probability

sample cannot be drawn. The only legitimate alternative is a probability sample drawn from a list of all sources which meet a certain standard of adequacy. From the description of the selection procedure followed, it is not clear whether Brown's sample was the result of random selection from a judgementally constructed universe or a judgementally selected sample of a judgementally constructed universe [the universe is Murdock's (1957) World Ethnographic Sample]. Given the non-existence of a complete list of ethnic units the former procedure would lend more support to hypothesized relationships which generated high measures of association and proved statistically significant. Results based on the latter procedure tend to lend support to Freilich's (1966: 153) admonition against merely "documenting our confusion on IBM cards."

The inferential statistic chi-square is used throughout the study. Chi-square does not measure the strength of an association. It can only indicate the probability that the observed distribution of two variables could have occurred through random chance and when expected cell frequencies are very low, as is the case in several of Brown's tables, an inflated chi-square value may indicate an unreliable significance level.

*The Relationship of Post-Marital
Residence to Female Puberty Rites*¹

The first of the hypotheses tested in Brown's study is stated as follows:

. . . female initiation rites will occur in those societies in which the young girl continues to reside in the home of her mother after marriage (Brown 1963:841).

The hypothesis involves two variables: female puberty rites and post-marital residence. Brown's definition of the first variable follows:

. . . it consists of one or more prescribed ceremonial events, mandatory for all girls of a given society, and celebrated between their eighth and twentieth years. The rite may be a cultural elaboration of menarche, but should not include betrothal or marriage customs (Brown 1963:838).

The definition excludes those rites which are performed for only certain individuals and those rites which are repeated with every subsequent menstruation throughout a woman's life. For the 75 cases in Brown's sample this variable has two attributes: present and absent.

The second variable in this hypothesis concerns post-marital residence. For this Brown designates four attributes: bilocality, matrilocality, patrilocality, and neolocality. These attributes are the result of a coding produced by

¹Brown uses the terms "female initiation rites" and "female puberty rites" interchangeably; therefore it should be emphasized that throughout this examination the terms are used synonymously.

Whiting and his co-workers which took into account the distance from both the wife's and husband's household, compound and village (Brown 1976:pers. comm.). The specific criteria for assignment of each society to a particular attribute are not presented. The attributes are defined as follows:

Matrilocal societies ". . . are those in which the married daughter continues to live in the same domestic unit with her mother" (Brown 1963:841).

Bilocal societies are those in which ". . . the young girl will continue to live in the same domestic unit with her mother 50 percent of the time" (Brown 1963:841).

Patrilocal societies are those in which the young girl ". . . moves to the home of her husband" (Brown 1967:842).

Neolocal societies are ". . . those in which she [the young girl] and her husband set up a new home away from the domestic units of both families" (Brown 1967:842).

In testing this hypothesis, the first two attributes (matrilocal and bilocal) were combined and contrasted with the combination of the second two attributes (patrilocal and neolocal). Table 1 illustrates quantitatively Brown's table "The Relationship of Residence after Marriage to Female Initiation Rites" (1963:840). (All of Brown's original tables list the societies by name and appropriate attributes. Throughout this examination, summaries will be represented in numeric form.) Table 1 produces a chi-square of 12.67

TABLE 1
 THE RELATIONSHIP OF RESIDENCE AFTER MARRIAGE
 TO FEMALE INITIATION RITES*

Residence After Marriage	Female Initiation Rites		
	Absent	Present	Total
Bilocal and Matrilocal	4	22	26
Neolocal and Patrilocal	28	20	48
Total	32	42	74

$N = 75$, Unascertained[†] = 1, $\chi^2 = 12.67$, $df = 1$, $p < 0.001$, $\tau = 0.17$

*Adapted from Brown (1963:840 & 841).

[†]Brown refers to those cases where insufficient information prevented classification as "unascertained."

with one degree of freedom which is significant at the 0.001 level. At this point it appears that Brown confuses the probability level of chi-square with a measure of association. Brown points out in a response to Driver, "the test statistic . . . used . . . is one of correlation-ship" (1970:1451). As was previously emphasized:

. . . the value of χ^2 is not a measure of degree of association; its significance level only testifies to the probability of association being present (Mueller, Schuessler, and Costner 1970: 437).

Some measure of the strength of the relationship would give us a much better estimate of the predictive power of one variable over the other. In order to measure the strength of the association another statistic was calculated: tau (see Mueller, Schuessler, and Costner 1970:262). The value of tau for Table 1 is 0.17. This can be interpreted as a relative reduction of error, i.e., 17 percent of the total variation in one variable can be accounted for by the variation in the second variable. The support this table affords, however, may be an artifact of the construction of the variable attributes rather than a true measure of the association hypothesized. This will be dealt with at length in the following chapter in conjunction with the replication of the test of association between post-marital residence and female puberty rites.

*The Relationship of Painful Rites
to Sex Identity Conflict*

Brown's second hypothesis concerns the relationship of painful rites to sex identity conflict (see Burton and Whiting 1961, and Whiting 1961). She begins her analysis by dichotomizing female initiation rites as "those that subject the initiate to great pain and those that do not" (Brown 1963:842). Her postulate follows:

In societies practicing patrilocal residence, in which there is also an exclusive mother-infant sleeping arrangement, female initiation rites will subject the initiate to extreme pain in the form of a genital operation or extensive tattooing (Brown 1963:843).

Brown's second hypothesis involves three variables: residence, child rearing practices, and female initiation rites. In an attempt to isolate and define the first variable, residence, a shift in emphasis is encountered. Though Brown's second hypothesis clearly specifies "patrilocal residence" the attributes given on the accompanying table are labelled "Domestic Unit Male Dominated" and "Domestic Unit Non-Male Dominated." The transition from patrilocal residence to "Domestic Unit Male Dominated" is facilitated by a passage from Whiting.

In societies with patrilocal residence, a man will remain throughout his life in or near the house in which he was born, his wife or wives moving in from another village. In such societies, the domestic unit consists of a group of males closely related by blood and a group of inmarrying and interloping females. Prestige and power are clearly vested in this group of men and adult

males are the ones to be envied (Burton and Whiting 1961:89, as quoted in Brown 1963:843).

Here it is clear that residence is indeed the variable involved but its attributes, patrilocal and non-patrilocal, have been renamed "Domestic Unit Male Dominated" and "Domestic Unit Non-Male Dominated" respectively. This renaming is misleading. Patrilocal residence and male dominated domestic unit are not the same thing. As Schlegel (1972) has pointed out, male dominance within the domestic unit is not limited to those groups practicing patrilocal residence. If Brown is examining male dominated domestic units, then she has ignored the potential assertion of dominance by mother's brother or wife's brother over the domestic unit within matrilineal groups regardless of residence. If Brown is examining the relationship between residence and rites, as the hypothesis implies, then she has misleadingly labelled her variables.

The second variable in this hypothesis is child rearing practices. The attributes to be dealt with are Exclusive Mother-Infant Sleeping Arrangements and Non-Exclusive Mother-Infant Sleeping Arrangements.

The third variable involved in this hypothesis is female puberty rites. The purpose of this test is to show that though matrilineal residence may be a good predictor of the presence of female rites, other variables will enhance our ability to predict the frequency of painful female

puberty rites. To this end, female rites are classified into Painful Female Rites, Non-Painful Female Rites, and No Female Rites. Painful rites are defined as follows:

. . . those in which the initiate is subjected to a genital operation or is extensively tattooed (Brown 1963:843).

Table 2 illustrates the proposed association. The chi-square I calculated for Table 2 and Brown's chi-square differ. Brown's value was probably calculated on some collapsed version of this table, however, none of the versions I tried yielded a chi-square value equal to Brown's 5.65. A logical version would be one which excludes Domestic Unit Non-Male Dominated and collapsed No Female Rites and Non-Painful Female Rites (Table 3). The chi-square value for Table 3 is 4.2 which with one degree of freedom is significant at the > 0.04 level. The number of cases included in Table 3 is small (34 cases) but any association there might prove of heuristic value. Tau was calculated for Table 3 and yielded a value of 0.124. The low percentage of error reduction indicated by the value of tau suggests a weak association. However, because both of the modal categories of the independent variable (Mother-Infant Sleeping Arrangement) fall within the same attribute of the dependent variable, Female Rites; this makes the direction of the prediction unclear.

Brown offers two explanations for the relationship of painful rites to sex identity conflict. The first alludes

TABLE 2

THE RELATIONSHIP OF CHILD REARING CONDITIONS THAT FOSTER A CONFLICT
IN SEX IDENTITY TO THE DIFFERENT TYPES OF FEMALE INITIATION RITES*

		No Female Rites	Non-Painful Female Rites	Painful Female Rites	Total
Domestic Unit Male Dominated	Exclusive Mother-Infant Sleeping Arrangements	12	4	7	23
	Non-Exclusive Mother-Infant Sleeping Arrangements	7	4	0	11
Domestic Unit Non-Male Dominated		11	23	3	37
Total		30	31	10	71

N = 75, 4 Unascertained, $\chi^2 = 5.65$, df = 1, p < .02.

*Table adapted from Brown (1962:60, 61 & 62).

TABLE 3

THE RELATIONSHIP OF CHILD REARING CONDITIONS THAT FOSTER
A CONFLICT IN SEX IDENTITY TO THE DIFFERENT TYPES OF
FEMALE INITIATION RITES (COLLAPSED VERSION)

		Female Initiation Rites		
		No Rites and Non-Painful Rites	Painful Rites	Total
Domestic Unit Male Dominated	Exclusive Mother-Infant Sleeping Arrangements	16	7	23
	Non-Exclusive Mother-Infant Sleeping Arrangements	11	0	11
Total		27	7	34

$N = 34$, $\tau = 0.124$, $\chi^2 = 4.22$, $df = 1$, $p < .04$, missing* = 39.

*Those cases termed "missing" include Brown's "unascertained" as well as "Domestic Unit Non-Male Dominated."

to a "greater conflict" in the acceptance of the female role in societies characterized by conflict in sex identity than there is in other societies (Brown 1963:845). This explanation Brown discards for lack of pertinent ethnographic evidence and proposes an alternative:

The other possible explanation lies in the relationship between male and female initiation rites. If one limits the definition of male initiation rites to only those ceremonies characterized by both a genital operation and seclusion, a very strong relationship emerges between these male rites and those female initiation ceremonies which subject the initiate to extreme pain (1963:845).

Basically, Brown suggests that painful female initiation rites may reflect painful male rites.

According to Brown's definition, female initiation rites may entail either seclusion or genital operation or both, while male initiation rites must entail both genital operation and seclusion. The reason for the discrepancy between definitions for female and male rites results from the fact that the definition of rites for males was taken from Whiting, Kluckhohn and Anthony (1958) (Brown 1976: pers. comm.). In an attempt to relate the research on female puberty rites to Whiting's research on male puberty ceremonies, it became obvious to Brown that Whiting's definition of initiation rites was incapable of discriminating within the syndrome of ceremonial elements characteristic of female initiation rites. Brown's definition for female initiation rites represents a more inclusive approach in contrast to

Whiting's more exclusive approach. The fact remains that within Brown's study initiation rites are defined differently according to whether the context is feminine or masculine.

Table 4 represents the relationship Brown proposes between Male Rites and Painful Female Rites. The chi-square given for this table is 19.19, significant beyond the 0.001 level. Given that value for chi-square, the degrees of freedom must number four (Mueller, Schuessler, and Costner 1970:451). As it stands, Table 4 is four rows by three columns. The table must be three by three (though four degrees of freedom might also result from a five by two table). There are several alternatives in collapsing Table 4.

Table 5 illustrates one alternative. The dependent variable is Female Rites. The attributes are defined as Painful Rites, Non-Painful Rites and No Female Rites. The independent variable is Male Initiation Rites. Its attributes are: Genital Operation and Seclusion; Genital Operation or Seclusion; Male Rites Absent; and Male Rites Unascertained. In order to reduce these four categories to three, Male Rites Unascertained has been excluded as irrelevant to the hypothesis. Since Brown's explanation concerns male initiation rites, the relationship to be examined might have been clearer if the second attribute had been labelled Other Male Rites. As it is, the calculation

TABLE 4

THE RELATIONSHIP BETWEEN MALE INITIATION RITES AND
THE DIFFERENT TYPES OF FEMALE INITIATION RITES*

Male Rites	No Female Rites	Non-Painful Female Rites	Painful Female Rites	Total
Both Genital Operation and Seclusion	3	1	6	10
Either Genital Operation or Seclusion	9	4	0	13
Absent	14	24	2	40
Unascertained	6	4	2	12
Total	32	33	10	75

N = 75, $\chi^2 = 19.19$, $p < .001$.

*Table adapted from Brown (1962:64 & 65).

TABLE 5
 THE RELATIONSHIP BETWEEN MALE INITIATION RITES
 AND THE DIFFERENT TYPES OF FEMALE INITIATION RITES

Male Rites	Female Initiation Rites			
	Painful	Non-Painful	Absent	Total
(Initiation) Genital Operation <u>and</u> Seclusion	6	1	3	10
(Other) Genital Operation <u>or</u> Seclusion	0	4	9	13
Absent	2	24	14	40
Total	8	29	26	63

N = 63, missing = 12, $\chi^2 = 29.46$, df = 4, p < .01, $\gamma = 0.071$,
 Z = 0.24, p < .41, $\tau = 0.18$

of chi-square based on this three by three version of Brown's table yields a value of 29.46 with a significance level of 0.01. Though other combinations of cells were calculated, I was unable to reproduce Brown's chi-square. The variables in Table 5 are ordered along a scale of severity. Though tau has been calculated and appears on Table 5, the arrangement of the attributes permits the use of the descriptive statistic gamma. Gamma tests whether utilizing knowledge of the order of one variable (Male Rites) for a pair of cases will help in predicting the order of ranks for that pair on a second variable (Female Rites) (Mendenhall, Ott and Larson 1974:363). Gamma was calculated for Table 5 and produced the value 0.07 which indicates a very weak association. The Z score was 0.24 which indicates that a gamma of 0.07 is significant at the 0.41 level. In other words, in a sample this size, one could expect a gamma of this magnitude to occur by chance 41 out of 100 times. Thus, the data do not support the hypothesis.

*The Relationship of Rites to Female
Participation in Subsistence Activities*

Brown's final hypothesis concerns the relationship between the relative contribution of women to subsistence activities and the presence of female initiation rites. She posits:

. . . only when women have real importance in subsistence activities of their society will female initiation rites be celebrated (Brown 1963:849).

The independent variable, women's contribution to subsistence activities, is based on a scale of contribution by sex devised by Heath (1958) and calculated on Murdock's (1957) ratings.

These indicate the number and type of activities upon which a society depends, the relative importance of each and the degree of participation of women in each. By assigning numerical values to the degree of importance of each activity and to the relative contribution of women, a score is derived which indicates the importance of women in the subsistence activities of their society (Brown 1963:849).

Tables 17, 18, 19 and 20 (see Appendix A) illustrate the procedure Brown followed in calculating the scores for each society. Brown points out two drawbacks to Heath's scheme.

First, societies with numerous and diverse subsistence activities tended to receive a higher score regardless of the importance of women. Second, the category "a," coded by Murdock (1957) to represent "standard division of labor by sex," was not used. This was a serious omission, as "a" occurs frequently.

The second of the problems identified above was solved by the assignment of a value to Murdock's category coded "a." As shown in Table 17 (Appendix A), Brown assigns category "a" value greater than "b" (equal participation by both sexes) and less than "g" (predominantly female participation). This assignment is justified by the reasoning that

. . . women are more indispensable when their particular tasks cannot be done by men and yet they are not depended upon for the entire activity (Brown 1963:851).

The first problem, however, required a more complicated solution, namely, ". . . that the total number of activities, as well as the relative importance of each, influence the numerical weights assigned" (Brown 1963:851). With Brown's modification, a dominant subsistence activity ("D"), or two co-dominant activities ("C" and "C"), is given at least twice the weight of an important but not major activity ("I"), and "I," in turn, is assigned twice as much weight as an unimportant activity ("P"). Brown (1963:852) continues:

This is the case whether a society relies on one or many subsistence activities. The total of the capital letter scores (before they are multiplied by the numerical values representing the small letters) is always 36. This will be so whether a society has many or few activities.

Table 19 (Appendix A) indicates the value for each of Murdock's four codes in every possible combination.

There is also a problem with Murdock's original categories of subsistence activities. Within the World Ethnographic Sample, hunting and gathering are considered one category. The fact that Murdock (1967) later divided hunting and gathering into two separate categories indicates his own dissatisfaction with the combined category.

Brown divides the societies into two attribute categories according to the total scores produced. The possible scores range between 36 and 216. In Brown's distribution,

the score of the median case is 108. There are 34 societies whose score is greater than the median and 32 cases of societies with scores below the median. Brown distributes randomly the nine cases with scores equal to the median, four to the "Above the Median" group and five to the "Below the Median" group.

Because Brown assigns societies to their categories according to the median score, the score gives an indication of women's contribution to subsistence in one society contrasted with women's contribution to subsistence in other societies. The score does not indicate whether "women have real importance in the subsistence activities of their society." Any "real importance" would have to be shown by a percentage for each society. The score should express the importance of women's contribution relative to the contribution of men within their own society rather than the importance of women's contribution relative to other societies.

After an examination of the basis for category assignment, it becomes clear that the relationship indicated in Table 6 cannot support the hypothesis as stated, because the attributes of the independent variable do not discriminate in accordance with the rationale behind the hypothesis. Table 6 illustrates another quite valid hypothesis, however, that can be tested and measured. The descriptive statistic tau for Table 6 equals 0.05. This does not lend support to

TABLE 6

THE RELATIVE CONTRIBUTION OF WOMEN TO SUBSISTENCE
ACTIVITIES AND THE PRESENCE OR ABSENCE OF RITES*

Women's Contribution to Subsistence Activities	Female Initiation Rites		
	Absent	Present	Total
Above the Median	12	26	38
Below the Median	20	17	37
Total	32	43	75

$N = 75, \chi^2 = 3.87, p < .05, \tau = 0.05$

*Table adapted from Brown (1963:850).

the proposed relationship.

The Explanatory Power of Brown's Hypotheses

The extent to which Brown's variables account for the occurrence of female puberty rites within her sample gives us an idea of the explanatory power of her hypotheses. Table 7 presents a contingency table which cross-tabulates Brown's sample cases according to the variables Post-Marital Residence and Women's Contribution to Subsistence. The variable Female Puberty Rites has been controlled for. If Brown's variables were comprehensive in their explanation, the expected frequency of cases in the cells circled in Table 7 would be zero. The observed frequencies in these cells indicate that ten cases cannot be explained by post-marital residence or by women's contribution to subsistence. The presence of female rites can be explained by neither variable in seven cases. Of these cases, only one can be explained by Brown's third variable: a social environment which heightens sex-identity conflict. Of the remaining six non-conforming cases, one was among those societies "unascertained" with regard to Brown's third variable. On the basis of this lack of information, this case will not be included with those cases which contradict Brown's predictions. Three additional cases have the appropriate antecedents (e.g., Bilocal or Matrilocal Residence and Women's Contribution to Subsistence Above the Median), but they do

TABLE 7

CONTINGENCY TABLE FOR BROWN'S THREE VARIABLES: POST-MARITAL RESIDENCE, WOMEN'S CONTRIBUTION TO SUBSISTENCE ACTIVITIES AND FEMALE INITIATION RITES (CONTROLLING FOR FEMALE INITIATION RITES)

	Female Initiation Rites					
	(A) Present			(B) Absent		
	Women's Contribution to Subsistence Activities			Women's Contribution to Subsistence Activities		
Post-Marital Residence	Above Median	Below Median	Total	Above Median	Below Median	Total
Neolocal and Patrilocal	13	7	20	9	19	28
Bilocal and Matrilocal	13	9	22	3	1	4
Total	26	16	42	12	20	32

$N = 75$, Unascertained = 1, $\chi^2 = 0.15$, $p < .69$, $\tau = 0.00$ (Section A);
 χ^2 (corrected) = 1.22, $p < .27$, $\tau = 0.08$ (Section B).

not manifest female puberty rites as Brown defines them.

In summary: attempting to maximize the explanatory power of Brown's hypotheses, I have contrasted those societies in which female rites would be expected with those in which they would not be expected. Eight non-conforming cases have been pointed out. Given the sample size of 74 (all those societies which were coded for both variables, post-marital residence and women's contribution) and the number of non-conforming cases, Brown's hypotheses leave 10.8 percent of the sample unexplained.

Conclusion

The cross-cultural analysis examined in this chapter has illustrated several flaws. First, the sample selection procedure was not specifically described. Second, categories' variable attributes were not mutually exclusive. Third, definitions were not consistent across sex lines. Fourth, the variables tested did not always represent the hypothesized variable. Fifth, there was no discussion of those cases that contradicted all the predicted relationships. Sixth, the strengths of the associations were not measured. And seventh, the bases for the calculations of chi-square were not always evident. These flaws have been described and discussed. The following chapter makes use of this knowledge in redesigning and testing the same hypotheses on a new sample.

CHAPTER 3

FEMALE PUBERTY RITES RETESTED

One purpose of statistical procedures is to make explicit the standard by which a proposed relationship is evaluated. In the preceding chapter we examined the statistical procedures employed by Brown and found that these could not produce tables whose results could be considered valid or reliable. Though Brown claims that the tables provide evidence in support of her hypotheses, the methodology behind their construction casts a shadow of doubt over their validity. The relationships postulated by Brown have yet to be adequately tested. In this section, Brown's three hypotheses will be considered and the relationships proposed will be measured.

The New Sample

A sample of 125 societies was drawn from Murdock's (1967) Ethnographic Atlas using a table of random digits (Mueller, Schuessler and Costner 1970:452-454). Of the 125 cases selected, sufficient resource material was available for only 106 societies. Of Brown's original societies, eight appeared in the new sample. In order to provide an adequate cross-check of coder reliability, 15 additional cases were randomly selected from Brown's original sample.

For a comparison of Brown's coding and my coding see Table 21 (Appendix B). The new sample was coded for female puberty rites, genital operation and seclusion. Other variables were taken from the Ethnographic Atlas. If Brown's hypotheses are correct, we can assume that given any random sample, her postulated relationships will produce strong measures of association.

*The Relationship of Post-Marital
Residence to Female Puberty Rites*

Brown posits:

. . . female initiation rites will occur in those societies in which the young girl continues to reside in the home of her mother after marriage (Brown 1963:841).

The variables to be examined are female puberty rites and women's post-marital residence. The definition of the first variable remains consistent with Brown's definition (see preceding chapter). The second variable has undergone some revision. The coding for the variable "Post-Marital Residence" is adapted from the classification used in the Ethnographic Atlas (see Table 22, Appendix B). The alternatives provided in Murdock's coding have been recombined after considering one criterion: is the woman after marriage moving into a new community or household or is she remaining in or near her natal household? The new codes divide Murdock's codes into "Movers" (those societies in which women leave their natal household or community after marriage) and

"Stayers" (those societies in which women remain in or near their natal households after marriage).

Murdock's value "B" was the only residence pattern which did not lend itself easily to either the first or second recoded categories. The fact that a couple might opt to reside in or near the woman's natal household or community has resulted in this category's reassignment to the unascertained residual.

Table 8 illustrates the relationship proposed. After subtracting those cases with puberty rites unascertained (18) and those cases with post-marital residence unascertained (7), the remaining number of cases is 97. The zero value for the statistic tau indicates that no relative reduction in error can be expected by using knowledge of the independent variable, post-marital residence, to predict the dependent variable, female puberty rites. It appears from the evidence in this table that the support Brown claims from Table 1 is an artifact of attribute construction. When alternate definitions of the attributes are employed, no association is measured.

*The Relationship of Painful Rites
to Sex Identity Conflict*

Brown posits:

In societies practicing patrilocal residence, in which there is also an exclusive mother-infant sleeping arrangement, female initiation rites will subject the initiate to extreme pain in the form of genital operation or extensive tattooing (Brown 1963:843).

TABLE 8
 THE RELATIONSHIP OF POST-MARITAL RESIDENCE TO
 FEMALE PUBERTY RITES WITHIN THE NEW SAMPLE

Female Puberty Rites	Women's Post-Marital Residence		Total
	Movers	Stayers	
Absent	21	5	26
Present	58	13	71
Total	79	18	97

N = 97, Missing = 25, $\tau = 0.0$, χ^2 (corrected) = 0.037, df = 1,
 $p < .85$

In testing this hypothesis, Brown controls for the variable, residence. Though it is referred to as patrilocal residence in the hypothesis, it is transformed to "Domestic Unit Male Dominated" on the accompanying table, as described previously (see Table 2). For clarity, patrilocal and non-patrilocal are the attribute labels used for the variable, residence, within the new sample.

The dependent variable is female puberty rites. Brown's attribute categories for this test are: Absent, Present (Non-Painful), and Present (Painful).

Genital operation is an element in Brown's definition of male puberty rites as well as female puberty rites. Extensive tattooing is, however, restricted to Brown's definition of female rites. The inclusion of extensive tattooing within the feminine context is based on the fact that it often included tattooing on or near the genital area (Brown 1976:pers. comm.). Brown is uncertain as to whether similar practices were common within the masculine context.

Tattooing must often be performed over a long period of time because infection and inflammation may incapacitate the subject. The process may therefore begin before or terminate after the age limits given in Brown's definition of a puberty rite. It may also be executed by the subject herself, as illustrated by the Gisu (Roscoe 1924:27). Within this study, the element "extensive tattooing" is excluded

from the defining criteria for painful rites. This also facilitates the extension of puberty rite categories across sex lines.

It might also be noted that the distinction of painful versus non-painful is arbitrary and misleading. Even if "extensive tattooing" were retained, there are so many other ceremonial elements which are certainly subjectively painful,¹ but which according to the given definition would not be classified as such, that it is useful to think of these attributes in other terms. Therefore, in ordering the severity of the rites examined, the attributes will be renamed in accordance with the criterion of their classification, i.e., rite absent; rite present: no genital operation; and rite present: genital operation.

The third variable to be considered is mother-infant sleeping arrangement. The attributes of this variable are: exclusive and non-exclusive. The codings for this variable were adapted from the Ethnographic Atlas (see Table 13, Appendix B). The codes given in the atlas describe the duration of the post-partum sex taboo. This variable will be coded instead of Brown's variable, mother-infant sleeping arrangement. Brown refers to a study by Whiting, Kluckhohn

¹An example of a very painful rite which according to Brown's definition would be relegated to the non-painful category obtains among the Yabarama (Wilbert 1959:46). The initiate is flogged and then bark-baskets of ants are held to her face, breasts and back.

and Anthony (1958) when discussing the rationale behind this hypothesis. A brief recapitulation of their study will make evident the rationale behind this revision.

Whiting, Kluckhohn and Anthony conducted a study which focused on male infants and child rearing practices. They were interested in male initiation rites, which involved ". . . painful hazing by adult males, genital operations, seclusion from women, and tests of endurance and manliness" (1958:360). Using a sample of 55 societies, they tested their psychoanalytic theory that "boys tend to be initiated at puberty in those societies in which they are particularly hostile toward their fathers and dependent upon their mothers" (1958:361). Three assumptions underlie this Oedipal interpretation of boys' puberty rites. First, an exclusive mother-son sleeping arrangement when broken by the father will result in envy on the son's part, causing a potential confrontation. Second, isolation from women and tests of manliness act ". . . to break an excessively strong dependence upon the mother and to ensure identification with adult males and acceptance of the male role" (1958:361). Third, the painfulness of the rite prevents ". . . open and violent revolt against parental authority at a time when physical maturity would make such revolt dangerous and socially disruptive" (1958:361).

This interpretation of Oedipal rivalry diverges only slightly from the strictly Freudian. The

authors claim that the child's envy may not be exclusively sexual in character, because the mother devoted herself to all the child's needs including food, warmth, safety, and freedom from pain, as well as sex. Having strayed only this far from Freudian universals, they return to the traditional sexual orientation. Whiting, Kluckhohn and Anthony claim that in those cases where the mother-son sleeping arrangement exists but no post-partum sex taboo is observed, the mother receives sexual gratification from her husband and thus

. . . has less need to obtain substitute gratification from nurturing her infant, so that the dependency she produces in her child would be less intense and the need for initiation should be attenuated. . . . It is clear that even with the lack of exclusive sleeping arrangements and a minimal post partum sex taboo, an appreciable degree of dependence upon the mother and rivalry with the father is generated (1958:367).

Though these questions would have to be investigated before the proposed relationships could be considered anything other than fortuitous, they are beyond the scope of the present study. For the purpose of this analysis, Whiting, Kluckhohn and Anthony may be considered to have shown that theoretically, a minimal post-partum sex taboo is necessary and sufficient cause to expect a conflict-rife environment for the maturing child.

Table 9 illustrates the relationship between female rites which include genital operation and social environments which facilitate sex-identity conflicts. The total number

TABLE 9
 THE RELATIONSHIP BETWEEN FEMALE PUBERTY RITES INVOLVING
 GENITAL OPERATION AND POST-PARTUM SEX TABOOS OF OVER
 ONE YEAR WITH PATRILOCAL RESIDENCE CONTROLLED

Patrilocal Residence				
Post-Partum Sex Taboo of More Than One Year		Female Genital Operation		Total
		Absent	Present	
(A) P R E S E N T	Absent	8	0	8
	Present	4	1	5
	Totals	12	1	13
(B) A B S E N T	Absent	18	0	18
	Present	12	0	12
	Totals	30	0	30

Table 9(A) $\tau = 0.13$

Table 9(B) $\tau = 0.0$

N = 122, Missing* = 79

*Missing includes all those cases where one or more of the variables was unascertained.

of cases which were coded for all three variables is 43. When this sample is controlled for patrilocal residence then the subsample size is reduced to 13 cases. The total number of cases of genital operation within the new sample is ten. Of these ten, only one case was coded for all three variables and therefore appears within the subsample in Table 9. This one case does accord with Brown's prediction. There are, however, four additional societies in which both patrilocal residence and a post-partum sex taboo greater than one year obtain but which do not celebrate female puberty rites entailing a genital operation. In the original study, Brown offers no explanation for the 16 cases which contradict her hypothesis. It might be argued that these cases are the result of diachronic lag,² however, one correctly predicted case does not represent reliable support.

In conjunction with her second hypothesis, Brown suggests that female rites might reflect similar male puberty rites. In order to test this within the new subsample, Murdock's (1967:53) categories for male genital operation have been recoded (see Table 24, Appendix B). The recoding facilitates the comparison of genital operations across sex lines by limiting the categories to: (1) operations which

²The antecedents may be recent cultural loans and the appropriate ceremonial complex has either not yet been borrowed or not yet been instituted. The reverse of this might also be the case. The painful rite may have been recently discontinued.

are performed between the ages of 6 and 25 years, and (2) the absence of operations, or operations performed outside the 6-25 age limits. Given Murdock's codes for this variable, it was impossible to establish exactly the same age limits (i.e. 8-12 years) as those which Brown suggests in her definition of female puberty rites. The recombination of Murdock's codes includes the period defined by Brown and seven additional years. It was only at the cost of this overlap that all of the period defined by Brown could be included within the recoded variable: male puberty rites including genital operation. Table 10 illustrates the relationship between female and male puberty rites which include genital operation. Though Table 10 produced a tau of 0.36, this relative reduction in error does not lend support to the hypothesized relationship because the distributions do not differ in the anticipated way. Rather, for both attributes of male puberty rites, the majority of cases occur where female genital operation is absent.

In order to test whether female puberty rites reflect male rites in their complexity, another test has been made on the new sample. For this test, the elements segregation and genital operation are recombined. Murdock's (1967:53) classification of the segregation of adolescent boys has been recoded (see Table 25, Appendix B). The recoding corresponds to that used within the new sample in coding the seclusion of girls. The original study makes no mention

TABLE 10

GENITAL OPERATIONS IN FEMALE PUBERTY RITES AND MALE PUBERTY RITES

Female Puberty Rites	Male Puberty Rites		Total
	Genital Operation Absent	Genital Operation Present	
Absent	(79)*	10	89
Present	0	(7)*	7
Total	79	17	96

N = 122, Unascertained = 16, χ^2 (corrected) = 29.26, df = 1,
 $p < 0.01$, $\tau = 0.36$

*Expected high frequency cells according to the hypothesized relationship are circled.

of the seclusion of girls, neither in the definition of puberty rites nor in the comparison between male and female rites. Brown comments that "the seclusion of female initiation rites suggests that it is related to menstrual customs and therefore has a different character from the seclusion demanded of males" (1976:pers. comm.). Seclusion may indeed be a part of the puberty ceremony and may also be observed during every subsequent menstrual period. Unless, however, the first seclusion is accompanied by other ceremonial practices which are not observed or performed during subsequent menstrual periods there is no puberty ceremony according to Brown's own definition. According to the definition, we can separate the unelaborated menstrual seclusion from the seclusion which is only one element of a puberty ceremony. Brown's suggestion that female seclusion is related to menstrual customs might be inferred to mean that there is some aesthetic or hygienic grounds for female seclusion during menstruation. It should be pointed out first that there are a number of cases within the new sample in which the girls may be secluded for periods of time far exceeding the duration of a menstrual period [see the Ambo (Stefaniszyn 1964:89-98); Sapo (Schwab 1947:289, 290); and Kutenai (Province of British Columbia 1952:38)]. If hygiene were the basis for the seclusion of girls, the same relationship could be hypothesized for the seclusion of boys after genital operations; in neither the study by Brown nor that by

Whiting, Kluckhohn and Anthony is this point debated as a criterion for categorizing male seclusion as an element of the ceremonial complex. Second, the notion that there may be something universally unpleasant or upsetting about the menstrual period reveals more about our own culturally based assumptions than it does about the phenomenon under study. Considering seclusion as an element in the puberty ceremonial complex allows a more consistent definition and comparison across sex lines.

Table 11 illustrates the relationship between the composition of female and male rites. Unfortunately, there proved to be sufficient information for only 69 cases. Though the new sample of 122 societies contains five cases where female puberty rites entail both seclusion and genital operation, these five were omitted from Table 11 due to incomplete coding for the male rites. It is inadvisable to rely on a statistic such as gamma to measure the association between variables in Table 11 due to the skew in the marginal concentration of both variables. Under the circumstances, tau will produce a more reliable measure. The value of tau for Table 11 is 0.03. The low expected cell frequency in this table produces an inflated value for chi-square which is not significant at the .05 level. Tau is too low to indicate support for the hypothesis. The evidence for this test of the new sample cannot be interpreted to support Brown's suggested relationship between female and

TABLE 11

THE RELATIONSHIP BETWEEN THE COMPLEXITY OF FEMALE AND MALE PUBERTY RITES

Female Rites	Male Rites			Total
	Simple or Absent	Seclusion <u>or</u> Genital Operation	Seclusion <u>and</u> Genital Operation	
Simple or Absent	22	7	6	35
Seclusion <u>or</u> Genital Operation	25	7	2	34
Seclusion <u>and</u> Genital Operation	0	0	0	0
Total	47	14	8	69

N = 122, Missing* = 53, $\chi^2 = 2.18$, df = 4, $p < .70$, $\tau = 0.03$.

*Missing includes all those cases which were unascertained for either or both of the variables.

male puberty rites.

The Relationship of Puberty Rites to Female Participation in Subsistence Activities

New information and the refinement of procedures for quantification of variables are the advantages which the 14 years between Brown's and the present study affords. The problems inherent in Brown's adaptation of Murdock's (1957) subsistence categories and Heath's (1958) scheme for determining their relative importance, discussed in Chapter 2, will be avoided through the use of new information. Murdock's (1967) more recent ethnographic sample supplies information on subsistence activities divided into five categories: gathering, hunting, fishing, animal husbandry and agriculture (1967:46). These categories form the basis of Sanday's (1973) scheme for determining the percentage contribution by women to the society's total subsistence activities (for a detailed description of Sanday's procedure see Appendix B).

Sanday's procedure for the calculation of subsistence contribution provides a means for estimating the relative importance of women's contribution to total subsistence within each society. This gives a more accurate basis for classifying each case according to the independent variable of Brown's third hypothesis (1963:849). Each case in the new sample was classified according to whether the women of a society were responsible for less than 50 percent, or

50 percent or more, of the total subsistence activities of that society.

Table 12 illustrates the relationship between female puberty rites and women's contribution to subsistence activities. The value of tau for Table 12 indicates no association exists. The new sample does not provide supportive evidence for Brown's third hypothesis.

Conclusion

In this chapter, Brown's hypotheses have been subjected to re-testing. A new sample was randomly selected and Brown's variables were reformulated to permit comparison across sexes and to reflect more accurately their theoretical bases. None of the tests conducted could be interpreted as providing empirical evidence in support of Brown's hypotheses. Since the new sample does not support any of Brown's hypotheses, the following chapter proposes and tests two additional hypotheses.

TABLE 12

THE RELATIONSHIP BETWEEN FEMALE PUBERTY RITES AND WOMEN'S
RELATIVE CONTRIBUTION TO SUBSISTENCE ACTIVITIES

Female Puberty Rites	Women's Relative Contribution to Subsistence		Total
	Less than 50%	50% or More	
Absent	16	11	27
Present	47	21	68
Total	63	32	95

N = 122, Missing* = 27, $\chi^2 = 0.84$, df = 1, $p < .36$, $\tau = 0.0$

*Missing includes those cases coded "Unascertained" for the variable "Female Puberty Rite" and also those cases which exceed the level of exclusion, i.e. the information available accounts for less than 80 percent of the total subsistence activities.

CHAPTER 4

NEW HYPOTHESES

Brown's three hypotheses can be characterized as functional explanations of female puberty rites. They assert that female puberty rites function as indicators of change in social status, to reduce the conflict in sex identity, and to guarantee the individual's ability to assume the contributor's role. All three of Brown's hypotheses rest on the assumption that certain cultural circumstances may threaten the balance and maintenance of the social order. For Brown, the potentially disruptive agent is the refusal of the pubescent girl (or the community) to accept and acknowledge her adult sex-role obligations. In the last chapter, Brown's hypotheses were re-tested, and the results could not be interpreted as supportive of her hypotheses. In this chapter, two alternative hypotheses will be tested. The first is based on the solidarity-dramatization function of puberty rites (Young 1965; Cohen 1964) and their curvilinear relationship with societal complexity (Marsh 1967; Blumberg and Winch 1972). The second hypothesis illustrates a geographical-historical perspective (Driver 1966, 1969; Jorgensen 1966) in an explanation of female puberty rites.

*Solidarity, Dramatization and
Societal Complexity*

Young argues that initiation rites dramatize the initiate's transition into the adult world. His central hypothesis is:

dramatization of status changes in a group are most elaborate when the solidarity of the group is great (Young 1965:41).

Young scales initiation rites according to the degree of sex-role dramatization exhibited. His scale includes: undramatic recognition only; customary minimal social recognition; personal dramatization; organized social response; and affective social response (1965a:15). The first category acts as a residual for those cases which exhibited none of the items included in the remaining categories. Customary minimal social recognition includes gift-giving, parties, change of name, etc. Personal dramatization requires that the initiate be ceremonially dressed or adorned. Group performances and group ceremonial costumes indicate organized social responses. Affective social responses include the beating or severe hazing of initiates. According to Young,

The various components of the ceremonies may be interpreted as the more striking ways by which some societies call attention to the shift in a young person's status from youth to a functional member of his sex. All societies must give social recognition to differences between age levels and sexes, but different kinds of social structure require more or less sharp distinctions (1965:11).

Young asserts that the initiation rite facilitates the

integration of social units (1965:24). Though Young concentrates his analysis on male initiations and their relationship with "institutionalized, community-wide male solidarity" (1965:25), he does suggest that in the case of female initiations the reference group should be reduced from the community to the "institutionalized household" (1965:107). Hayes's (1975) study of infibulation provides an excellent example of Young's sociogenic explanation of initiation ceremonies within the context of female puberty rites.

In the Sudan, the practice of clitoridectomy and infibulation are most strongly supported by the women despite the pain and risk of fatal complications (Hayes 1975:620). Though Hayes specifically denies that the rite she describes is a puberty rite on the basis that it is not performed at the onset of menarche (1975:621) this does not conflict with Brown's definition [nor van Gennep's (1909) definition] of puberty rites.

According to Hayes, the dignity and honor of the Sudanese family can be damaged by a woman's transgression of the strict code of sexual decency. Appearances in public or transactions outside the household are restricted and supervised.

From the standpoint of honor, and of Islamic norms of modesty, female sexuality is threatening. Socialized to believe that infibulation offers a physiological and social sanctuary from the threat inherent in their sexuality, women remain its greatest advocates, gladly subjecting their beloved daughters and granddaughters to

the ordeal in order to protect them and the patrilineage. The latter result is of utmost importance to traditional women because the patrilineage is their immediate and primary source of identity and security (the basic survival unit) in what they are taught to envision as a dangerous and hostile world outside the walls of the family compound . . . the women have an equal, if not greater, interest in safeguarding the lineage's position in the larger society (Hayes 1975:624).

Hayes shows that the mechanism for insuring social virtue (for the individual and the patrilineage) among the Sudanese is female genital operation and that kinship solidarity is integrally connected with the importance of the institutionalized kin group. Her emphasis on lineage solidarity extends Young's solidarity hypothesis from identification with the institutionalized household to the corporate kin group.

Cohen (1964) suggests also that initiation rites [defined primarily by the practice of seclusion and genital operation (1964:102)] occur more frequently in those societies where the individual is socialized toward an interdependence on the extended kinship group (i.e. lineages and clans). It has been shown elsewhere (Marsh 1967) that kinship solidarity is not constant among cultures but varies in a curvilinear fashion with societal complexity.

. . . kinship solidarity is highest in societies with a middle range of differentiation; solidarity is lower in both the simplest and the most differentiated societies (1967:106).

If, as Young suggests, the elaborateness of the dramatization of status change varies in direct proportion to the

solidarity of that group and if the solidarity of kinship groups varies in a curvilinear fashion with societal complexity then we may predict that the complexity of initiation rites will also display curvilinear variation with societal complexity.

Table 13 illustrates the relationship between societal complexity and female puberty rites. The independent variable is calculated on the basis of Marsh's (1967:35) suggested indicators of differentiation: political complexity and class stratification. (For the procedure for calculating the scores of societal complexity see Appendix C, Tables 29, 30, and 31.) Marsh's procedure produces an index with a range from 0 (least differentiated societies) to 7 (highly differentiated societies). The dependent variable is elaboration of rite. Those rites which involve both genital operation and initiate seclusion are considered the most harsh and elaborate. Those rites which involve either genital operation or initiate seclusion represent the median category. Simple Rites and Rites Absent have been collapsed into one residual category defined by the absence of both of the practices: genital operation and seclusion.

The low expected frequency for several cells in Table 13 produces an inflated value for chi-square. The calculation of tau for Table 13 yielded a value of 0.12. This indicates that the variation in societal complexity can account for only 12 percent of the variation in the elabor-

TABLE 13

THE RELATIONSHIP BETWEEN SOCIETAL COMPLEXITY AND
SPECIFIED VARIATION IN FEMALE PUBERTY RITES

Female Puberty Rites	Societal Complexity (after Marsh 1967)							
	1	2	3	4	5	6	7	Total
Simple or Absent	15	11	4	8	1	1	2	42
<u>Either</u> Seclusion or Genital Operation	17	12	5	1	1	4	0	40
<u>Both</u> Seclusion and Genital Operation	0	1	3	0	0	1	0	5
Total	32	24	12	9	2	6	2	87

N = 122, Missing* = 35, $\tau = 0.07$.

*Missing includes all those cases with one or more of the variables unascertained.

ation of female puberty rites. The evidence does not support the hypothesis.

Though the present sample does not support the hypothesized relationship between societal complexity and female puberty rites, the proposition might successfully be extended to the entire adolescent population, regardless of sex. One might expect that for any society, kinship solidarity may be dramatized by either the males or the females but not necessarily by both. If this were the case, one could predict a curvilinear relationship between the variation in complexity of adolescent puberty rites and societal complexity. Such an hypothesis has been tested on the present sample (see Table 14). The method followed for calculating the index of puberty rite complexity for each society is similar to that described by Marsh (1967) for the index of societal complexity.

Following the ordering presented in Table 11 (see preceding section) puberty rites for females and males are ascribed a value ranging from 0 (simple or absent) to 2 (rite involves both genital operation and initiate seclusion). The values for female and male rites are summed and the resulting measure indexes each society's puberty rite complexity. The index ranges from 0 (simple or no rites for both females and males of a given society) to 4 (genital operation and seclusion for both females and males of a given society).

TABLE 14

THE RELATIONSHIP BETWEEN SOCIETAL COMPLEXITY AND
VARIATION IN THE PUBERTY RITE COMPLEXITY

Adolescent Puberty Rite Complexity	Societal Complexity (after Marsh 1967)							
	1	2	3	4	5	6	7	Total
1	7	7	1	2	1	1	1	20
2	15	9	3	3	0	1	1	32
3	3	2	4	1	0	3	0	13
4	0	1	0	0	1	0	0	2
Total	25	19	8	6	2	5	2	67

N = 122, Missing* = 55, $\tau = 0.10$.

*Missing includes all cases with one or more variables unascertained.

Table 14 illustrates the distribution of those cases in the sample with sufficient information to permit coding in all the variables examined. As in Table 13, the distribution of cases in Table 14 produces an inflated value for chi-square. Tau indicates that only 10 percent of the variation in Puberty Rite Complexity can be explained by the variation in Societal Complexity. Thus, the tests indicate little support for the hypotheses proposed.

Functional and Diffusionist Explanations

The debate over the relative merits of psycho/socio-functional and geographic-historical (diffusionist) explanation has been conducted over a number of years and centres on various cultural phenomena. Both functionalist and diffusionist approaches were originally a reaction against the nineteenth century evolutionary concepts of social history (Lesser 1935:390). A good deal of the debate revolves around the kind of questions which functional and diffusionist explanations attempt to answer. Certainly, both approaches attempt to explain why a particular cultural phenomenon obtains within a given society [Collins (1966: 149) disagrees]. The functionalist answers the question in the context of the articulation of existing social institutions and/or the psychological development of the individual. The diffusionist looks for the answer in historical relationships (Lesser 1935:391). Driver (1966) and Jorgensen

(1966) have described the two approaches as complementary. In his study of in-law avoidance customs in North America, Driver admits that

Even the most extreme geographical-historical enthusiast needs a package of psycho-functional "causes" to get the . . . behavior started (1966:147).

Beyond the original institution of a particular cultural phenomenon, Driver and Jorgensen agree that geographical-historical factors are more accurate predictors of specified culture elements than are psycho-functional factors. With a world sample of 100 societies Jorgensen (1966) provides data which support his assertion that in-law avoidance customs cluster in space. If geographical-historical factors can explain more of the variation in female puberty practices than Brown's psycho/socio-functional factors, then the data will provide further evidence in support of Driver's and Jorgensen's position.

It is hypothesized here that female puberty rites and female genital operations will occur to a significant degree in some geographic areas but not in others. Though cultural diffusion is implicit in the hypothesis, the limited number of variables considered and the synchronic ethnographic data preclude historical reconstruction and identification of the "donor" societies (Driver 1966).

The control for geographical contiguity which Brown (1963:838) describes as part of her methodology makes it

impossible to tell whether in fact culture contact and unit interdependence are responsible for the transmission and incorporation of female puberty rites. The present test is designed to determine whether knowledge of the geographic area will allow a measurable reduction in the number of errors made in predicting the presence of female puberty rites in general and those female puberty rites which include female genital operation.

All six of Murdock's (1967) major geographic regions are represented in the present sample (see Appendix C, Maps A and B). Two of the major regions, Africa and North America, account for 24.0 and 37.5 percent respectively of the 104 societies coded for the variable Female Puberty Rites. The low expected cell frequencies produce a meaningless chi-square value. Tau yields a value of 0.23. This indicates that if knowledge of the independent variable, Geographical Region, is used in predicting the presence or absence of female puberty rites for each case, one can expect a 23 percent reduction in error over random assignment. Thus the association between geographic factors and female puberty rites is stronger than any of the hypothesized functional associations tested. An examination of the distribution illustrated in Table 15 makes it clear that 74 percent of all the cases of female puberty rites in the sample are found in Africa and North America. One might expect a stronger association than the statistic indicates;

TABLE 15

GEOGRAPHICAL DISTRIBUTION OF FEMALE PUBERTY RITES WITHIN THE SAMPLE

Geographical Region (after Murdock 1967)	Female Puberty Rites					
	Present	%	Absent	%	Total	%
Africa	23	29.9	2	7.4	25	24.0
Circum-Mediterranean	1	1.3	2	7.4	3	2.9
East Eurasia	3	3.9	7	25.9	10	9.6
Insular Pacific	8	10.4	7	25.9	15	14.4
North America	34	44.2	5	18.5	39	37.5
South America	8	10.4	4	14.8	12	11.5
Total	77	100.1	27	99.9	104	99.9

N = 12, Unascertained = 18, $\tau = 0.23$.

however, the disproportional representation of the geographical regions in the sample may be responsible for a deflated relative reduction of error.

The hypothesized relationship between female puberty rites which include genital operation and geographic factors has also been tested. Table 16 illustrates the distribution of these variables within the sample. Female Puberty Rites have been controlled for. The calculation of tau for Table 16 produces a value of 0.30. As in Table 15, the calculation of chi-square is inadvisable due to the low expected cell frequencies. This relatively high tau value indicates a 30 percent reduction in error when the presence or absence of genital operation is predicted on the basis of the geographical location of each case. One of the factors responsible for this high relative reduction in error is the low frequency of genital operations represented within the sample. Despite this, it is obvious that the instances of female genital operation are almost entirely restricted to Africa. The results appear to support the hypothesis.

The tests reported in this chapter show that the data do not support the hypothesized relationship between societal complexity and female puberty rites or adolescent puberty rites. However, the hypothesized relationships between geographic factors and Female Puberty Rites and those rites including genital operation do receive support from the data. These results conform to the results presented by Driver

TABLE 16
 GEOGRAPHICAL DISTRIBUTION OF FEMALE PUBERTY RITES
 INCLUDING GENITAL OPERATION

Geographical Region (after Murdock 1967)	Female Puberty Rites with Genital Operation					
	Present	%	Absent	%	Total	%
Africa	8	80.0	15	22.4	23	29.9
Circum-Mediterranean	1	10.0	0	0.0	1	1.3
East Eurasia	0	0.0	3	4.5	3	3.9
Insular Pacific	1	10.0	7	10.4	8	10.4
North America	0	0.0	34	50.7	34	44.2
South America	0	0.0	8	11.9	8	10.4
Total	10	100.0	67	99.9	77	100.1

N = 122, Missing* = 45, $\tau = 0.30$.

*Missing includes those cases coded Female Puberty Rite Absent and Unascertained (see Table 15).

(1966), Jorgensen (1966), and others who support their claim that geographic factors are better predictors than functional antecedents.

CHAPTER 5

CONCLUSION

The purposes of this paper were twofold: first, to re-examine and re-evaluate the methodology of Brown's (1963) cross-cultural analysis of female puberty rites, and second, to present a more general examination of the relationship between female puberty rites and specific cultural variables. These have been accomplished through the review and re-evaluation of Brown's hypotheses and the formulation and testing of alternative hypotheses involving new variables. In the process, the validity (i.e., whether what is purportedly measured, is in fact measured) and reliability (i.e., whether the results can be replicated) of Brown's tests were investigated as well. The results of the tests are reviewed below.

Residence and Rites

Brown's hypothesized relationship between post-marital residence and female puberty rites was measured and produced a tau value of 0.17 based on a subsample of 74. This indicates a very weak association. An examination of the construction of Brown's variable, post-marital residence, casts doubt on its validity. The test of the redefined post-marital residence variable and female puberty rites

produced a tau value of 0.0 based on a new subsample of 104 cases.

Sex-Identity Conflict and Severe Rites

Brown's test of the relationship between environments which foster sex-identity conflict and female puberty rites involving genital operation produced a tau value of 0.12. This very weak association was based on a small subsample of 34 cases. The test of the revised variables produced a tau value of 0.13 based on an even smaller subsample of 13. Though these are similar results, both are too low and derived from subsamples too small to support the hypothesis.

In addition to the main hypothesis concerning the severity of female puberty rites, Brown tested whether these severe rites were the reflection of similar male rites. Based on a subsample of 63 cases, a gamma value of only 0.07 was calculated. The test of the relationship between the complexity of male and female puberty rites for the new sample produced a tau value of 0.03. This was based on a subsample of 69. This low value for tau does not indicate a strong association. An additional test of the new sample for a relationship between female puberty rites involving genital operation and similar male puberty rites produced a tau value of 0.36 based on a subsample of 96. This high value does not support the hypothesis, however, because the observed frequencies did not vary in the expected manner.

Women's Contribution to Subsistence and Rites

Brown's test of the relationship between women's contribution to subsistence activities and female puberty rites produced a tau value of 0.05 based on a sample of 75. The retest of the same hypothesis produced a tau value of 0.0 when an alternate formula for the calculation of women's contribution to subsistence was employed. The subsample size was 95.

Alternative Hypotheses

An alternative hypothesis posited a relationship between level of societal complexity and elaboration of female puberty rite. The test of this hypothesis produced a tau value of 0.07 based on a subsample of 87. The proposed relationship between level of societal complexity and complexity of adolescent puberty rites produced a tau value of 0.10 on a subsample of 67.

The test of the relationship between spatial proximity (geographic area) and female puberty rites in general and female puberty rites which include genital operation produced values for tau of 0.23 and 0.30 respectively. The subsample size for the first test was 104 and 77 for the second. The evidence does lend support to the diffusionists' claim that geographical factors are better predictors than functional factors, since none of the proposed functional hypotheses found support in the data.

New Directions

The evidence presented in this paper performs two very important functions in the field of social science research. First, it suggests the advisability of re-evaluation of hypotheses which have been accepted as empirically proven. Brown's study is the first attempt at large scale cross-cultural analysis of female puberty rites. To date, criticism of her work has been directed primarily at her underlying theory (Driver 1969, 1970). However, the re-examination of her tables has shown that none of the hypothesized relationships account for more than 17 percent of the variation in female puberty rites. The retest of Brown's hypotheses on a new sample with, in some cases, altered variables, does not evidence support. Brown's hypotheses must be valued for their heuristic nature rather than their empirical proof.

The findings also suggest new directions for research on female puberty rites. Though tests of the relationship between societal complexity and the complexity of female puberty rites and adolescent rites did not support the hypothesis, the fault may lie in the definition of variables rather than in the hypothesis itself. The formula used here to calculate societal complexity was taken from Marsh (1967), but several others have employed alternate methods (Blumberg and Winch 1972; see also Shiels 1975). Additional factors might be incorporated into the index calculation (e.g., mean

size of local community, settlement patterns, technology, annual per capita energy consumption, etc.) to produce a more valid and discriminating index. Although some of these factors could be taken from Murdock's (1967) codes, additional new codes would no doubt be necessary.

The redefinition and recoding of the central variable, female puberty rites, might also be considered. The incorporation of Young's (1965) puberty rite codes would permit a greater number of attributes to be discriminated. In addition to Young's four attributes (undramatic recognition, customary minimal recognition, personal dramatization, organized social response, and affective social response), information on the status and role of other individuals participating in the ceremony could give insight into the mechanism of social integration of the initiate. One aspect of initiation rites which is recorded in most contextual analyses pertains to the emic interpretation of the rite (Richards 1956; Frisbie 1967). This information could provide data for a cross-cultural analysis of the conceptual or symbolic cause and effect of ceremonial practices. These kinds of data could also be incorporated into the definitional criteria of the puberty rite.

Another interesting avenue of investigation is the relationship between the marriage ceremony and the initiation rite. Brown seems to imply in the rationalization of her first hypothesis that in different societies, these two

ceremonies may have similar functions (i.e., they signal the addition of another adult to the community). If this is true, a comparison of the elaboration of marriage and puberty rites might be expected to prove an indirect relationship between the two for each society.

None of the hypotheses tested examined the relationship between female puberty rites and other ceremonies within each society. Perhaps elaborate female puberty rites are indicative of societies whose members take every opportunity to celebrate anything. This might be tested by devising a societal ceremonial index and comparing it with a puberty rite elaboration index.

Tests of these new variables and directions for research will aid in the definition of nomothetic principles and laws of institutional social interaction.

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APPENDIX A

TABLE 17

BROWN'S RECODES FOR SUBSISTENCE ACTIVITY PARTICIPATION BY SEX

World Ethnographic Sample Code	World Ethnographic Sample Categories	Recodes
a	Standard division of labor by sex, i.e., men clear the land and women do the cultivation (in Column 3, men herd and women milk; in Column 4, men do the major fishing and/or marine hunting and women do the minor shore or reef fishing and/or shellfishing; in Column 5, men hunt and women gather). For any other distribution of sex participation in a subsistence activity the following symbols are employed to indicate the relative importance of the sexes in the total activity.	4
b	Both sexes participate approximately equally in the activity.	3
f	Females conduct the activity, male participation being negligible.	6
g	Both sexes participate, but the female share is appreciably greater.	5
m	Males conduct the activity, female participation being negligible.	1
n	Both sexes participate, but the male share is appreciably greater.	2
o	The activity is absent, unimportant, or recent.	0
s	The activity is conducted mainly by slaves or members of servile castes.	0
.	Insufficient information.	0 or 3.5*

*When "." occurs in conjunction with "I," "I" is multiplied by 3.5, or the mean rating for female participation (Brown 1963:851).

TABLE 18

BROWN'S RECODES FOR IMPORTANCE OF EACH
SUBSISTENCE ACTIVITY BY SOCIETY

World Ethnographic Sample Code	World Ethnographic Sample Categories	Recodes
C	Codominant, i.e., sharing the position of principal subsistence activity with another such activity.	14,15,16, 16.5,18
D	Dominant, i.e., the principal subsistence activity.	24,26,27, 28,30,36
I	Important, though not the major subsistence activity.	4,6,12
O	Absent, insignificant, or sporadic as a subsistence activity.	0
P	Present but relatively unimportant as a subsistence activity.	2,3,5

TABLE 19

BROWN'S RECODES FOR RELATIVE IMPORTANCE
OF EACH SUBSISTENCE ACTIVITY*

Possible Combinations of World Ethnographic Codes for Relative Importance of Subsistence Activities	Brown's Assigned Values			
	D	I	P	C
D I I I	24	4		
D I I P	26	4	2	
D I P P	28	4	2	
D I I O	24	6		
D I O O	24	12		
D P P P	30		2	
D P P O	30		3	
D P O O	30		6	
D O O O	36			
D I P O	27	6	3	
C C I I		4		14
C C I P		4	2	15
C C I O		6		15
C C P P			2	16
C C P O			3	16½
C C O O				18

*Adapted from Brown (1963:852).

TABLE 20

BROWN'S PROCEDURE FOR CALCULATING SCORES FOR
WOMEN'S CONTRIBUTION TO SUBSISTENCE ACTIVITIES

World Ethnographic Subsistence Activity	Agriculture	Animal Husbandry	Fishing	Hunting & Gathering			
World Ethnographic Sample Column*	2	3	4	5			
World Ethnographic Sample Rating for Cuna	Dn	Oo	In	Pm			
Brown's Recoding	27(2)	0(0)	6(2)	3(1)			
Brown's Score	54	+	0	+	12	+	3 = 69

*Murdock (1957:668, 669).

APPENDIX B

TABLE 21

BROWN'S AND CARNEY'S CODES FOR 23 COMMON CASES

Societies by Name	Ethnographic Atlas Serial Number	Female Puberty Rites		Painful Rites	
		Carney	Brown	Carney	Brown
Hottentot	102	1	1	0	0
Ganda	306	1	1	0	0
Tallensi	114	0	0	0	0
Mossi	992	1	1	1	1
Dilling	317	1*	0	1	0
Bulgarians	357	2	0	2	0
Kazak	35	2	0	2	0
Ainy	325	0	0	0	0
Bhil	328	0	0	0	0
Toda	143	1**	0	0	0
Tanala	144	0	0	0	0
Kiwai	656	1	1	0	0
Lesu	163	1	1	0	0
Yurok	172	1	1	0	0
Sanpoil	176	1	1	0	0
Ojibwa	77	1	1	0	0
Iroquois	663	1	1	0	0
Chiricahua	81	1	1	0	0
Navaho	182	1	1	0	0
Cagaba	187	1	1	0	0
Jivaro	191	1	1	0	0
Yagua	192	1	1	0	0
Nambicuara	198	0***	1	0	0

1 = Present; 0 = Absent; 2 = Unascertained.

*Nadel notes that late marriage is a recent trend so it is highly likely that the first child may have been born before the woman's twentieth birthday (1947:430). Also according to Nadel, a row of scars is made from the xiphisternum to the umbilicus after catamenial flow begins (1947:391). Brown states, "no rites, clitoridectomy practiced shortly before the birth of the first child (1962:85).

**Brown states, "no rites, mandatory ritual defloration practiced" (1962:86). I find that this ritual does not conflict with Brown's definition of a puberty rite.

***Oberg describes an elaborate puberty ceremony for girls but adds, "there is no special marriage ceremony, for when young people go through the puberty rites they are ready for marriage" [1953:10 (A)]. Levi-Strauss also comments, "at the end of the rite, she [the initiate] takes a long bath in the river; this also constitutes the first step of the marriage ceremony" (1948:367).

TABLE 22
RECODES FOR POST MARITAL RESIDENCE

Murdock's Code (from Column 16)	Recodes
A Avunculocal, i.e., normal residence with or near the maternal uncle or other male matrilineal kinsman of the husband.	1
B Ambilocal, i.e., residence established optionally with or near the parents of either the husband or the wife, depending upon circumstances or personal choice.	3
C Optionally uxorilocal or avunculocal. This may be the case in a uxorilocal society where many men marry a MoBrDa and thus, in fact, live avunculocally.	2
D Optionally partilocal (or virilocal) or avunculocal.	1
M Matrilocal, i.e., normal residence with or near the female matrilineal kinsmen of the wife. Cf. U Uxorilocal.	2
N Neolocal, i.e., normal residence apart from the relatives of both spouses or at a place not determined by the kin ties of either.	1
O Nonestablishment of a common household, i.e., where both spouses remain in their natal households, sometimes called "duolocal" or "natolocal" residence.	2
P Patrilocal, i.e., normal residence with or near the male patrilineal kinsmen of the husband. Cf. V Virilocal.	1
U Uxorilocal. Equivalent to "matrilocal" but confined to instances where the wife's matrikin are not aggregated in matrilocal and matrilineal kin groups.	2
V Virilocal. Equivalent to "patrilocal" but confined to instances where the husband's patrikin are not aggregated in patrilocal and patrilineal kin groups.	1

Recode Values:

- 1 = Movers (women move from childhood residence)
- 2 = Stayers (women stay in or near childhood residence)
- 3 = Unascertained

Table adapted from Murdock (1967:48).

TABLE 23

RECODES FOR POST-PARTUM SEX TABOOS

Murdock's Code (from Column 36)	Recodes
0 No taboo, especially where the husband is expected to have intercourse with his wife as soon as possible after childbirth for the alleged benefit of the child.	0
1 Short post-partum taboo, lasting not more than one month.	0
2 Duration of from more than a month to six months.	0
3 Duration of from more than six months to one year.	0
4 Duration of from more than one year to two years.	1
5 Duration of more than two years.	1
. Insufficient information.	2

Recode Values:

- 0 = Post-partum sex taboo absent or not longer than one year
- 1 = Post-partum sex taboo longer than one year
- 2 = Unascertained

Table adapted from Murdock (1967:52).

TABLE 24

RECODES FOR MALE GENITAL MUTILATIONS

Murdock's Code (from Column 37)		Recodes
0	Absent or not generally practised.	0
1	Performed shortly after birth, i.e., within the first two months.	0
2	Performed during infancy, i.e., from two months to two years of age.	0
3	Performed during early childhood, i.e., from two to six years of age.	0
4	Performed during late childhood, i.e., from six to ten years of age.	1
5	Performed during adolescence, i.e., from eleven to fifteen years of age.	1
6	Performed during early adulthood, i.e., from sixteen to twenty-five years of age.	1
7	Performed during maturity, i.e., from twenty-five to fifty years of age.	0
8	Performed in old age, i.e., after fifty years of age.	0
9	Circumcision customary, but the normal age is unspecified or unclear.	2
.	Unascertained.	2

Recode Values:

- 0 = Genital operation not included in adolescent rite
- 1 = Genital operation included in adolescent rite
- 2 = Unascertained

Table adapted from Murdock (1967:53).

TABLE 25

RECODES FOR SEGREGATION OF ADOLESCENT BOYS

Murdock's Code (from Column 38)		Recodes
A	Absence of segregation, adolescent boys residing and sleeping in the same dwelling as their mothers and sisters.	0
P	Partial segregation, adolescent boys residing or eating with their natal families but sleeping apart from them, e.g., in a special hut or in a cattle shed.	1
R	Complete segregation, in which adolescent boys go to live as individuals with relatives outside the nuclear family, e.g., with grandparents or with a maternal or paternal uncle.	1
S	Complete segregation, in which adolescent boys go to live as individuals with nonrelatives, e.g., as retainers to a chief or as apprentices to specialists.	1
T	Complete segregation, in which boys reside with a group of their own peers, e.g., in bachelor dormitories, military regiments, or age-villages.	1
.	Unascertained	2

Recode Values:

- 0 = Segregation absent
- 1 = Segregation present
- 2 = Unascertained

Table adapted from Murdock (1967:53).

*Procedure for the Calculation of
Female Contribution to Subsistence*

Sanday (1973) bases her calculations on two of the codes in the Ethnographic Atlas (Murdock 1967). The first is the estimated relative dependence of each society on each of the five major types of subsistence activities: gathering, hunting, fishing, animal husbandry and agriculture (see Table 26). The second code indicates the degree of participation by sex for each subsistence activity considered (see Table 27). If a society had a high percentage of what Sanday (1973:1687) considers insufficient information (codes O, I, P, ., in Table 27) it was excluded from this test. For this test, the level of exclusion was set at 20 percent in order to coincide with that set by Sanday (1973:1686); for all those cases which appear on Table 12 (see text) there was enough information on participation by sex to account for at least 80 percent of the subsistence activity.

The recoded values for participation by sex and the relative dependence on each subsistence activity were multiplied. The sum of their products was then multiplied by ten, so that this product fell within a zero to 100 scale of subsistence contribution. The scale ranges from "0" which indicates no contribution, to "100" which indicates 100 percent contribution by women to the society's total subsistence activities. The procedure is illustrated in Table 28.

TABLE 26

MURDOCK'S CODE FOR THE ESTIMATED RELATIVE DEPENDENCE OF A SOCIETY
ON EACH OF THE FIVE MAJOR TYPES OF SUBSISTENCE ACTIVITIES*

Recode	Murdock Code
0	Zero to 5% dependence
1	6 to 15% dependence
2	16 to 25% dependence
3	26 to 35% dependence
4	36 to 45% dependence
5	46 to 55% dependence
6	56 to 65% dependence
7	66 to 75% dependence
8	76 to 85% dependence
9	86 to 100% dependence

*Table adapted from Murdock (1967:46).

TABLE 27

RECODES FOR SEX PARTICIPATION*

Atlas Codes	Atlas Categories for Sex Participation	Recode
O	Activity is absent or unimportant	missing
M	Males alone or almost alone	0.0
N	Males appreciably more	0.25
D	Differentiation by sex but equal participation	0.50
E	No marked differentiation & equal participation	0.50
G	Females appreciably more	0.75
F	Females alone	1.00
I	Sex participation irrelevant	missing
P	Activity is present but sex participation is unspecified	missing
.	Insufficient information	missing

*Table adapted from Sanday (1973:1687).

TABLE 28

PROCEDURE FOR CALCULATING THE VALUE OF
WOMEN'S CONTRIBUTION TO SUBSISTENCE*

Atlas Columns†	Relative Dependence of the Society on Each Subsistence Activity (see Table 26)					Participation by Sex in Each Subsistence Activity (see Table 27)				
	7	8	9	10	11	54	56	58	60	62
Atlas Coded for !Kung	8	2	0	0	0	G	M	0	0	0
Recodes	8	2	0	0	0	0.75	0.0	0.0	0.0	0.0
Value of Women's Contribution to Subsistence	$8(0.75) + 2(0.0) + 0.0 + 0.0 + 0.0 = 6$ $6(10) = 60$									

*Table adapted from Sanday (1973:1687).

†Atlas Columns:

7 = Gathering	54 = Gathering
8 = Hunting	56 = Hunting
9 = Fishing	58 = Fishing
10 = Animal husbandry	60 = Animal husbandry
11 = Agriculture	62 = Agriculture

APPENDIX C

TABLE 29

MURDOCK'S CODES FOR POLITICAL COMPLEXITY*

Murdock's Code	Ethnographic Atlas Column 32 (second digit) Political Complexity
0	Stateless Societies
1	Petty Paramount Chiefdoms
2	Larger Paramount Chiefdoms
3	Large States
4	Larger States

Imposed colonial regimes and other organizations held to be illegitimate are excluded (Murdock 1967:52).

*Adapted from Murdock (1967:52).

TABLE 30

RECODES FOR CLASS STRATIFICATION*

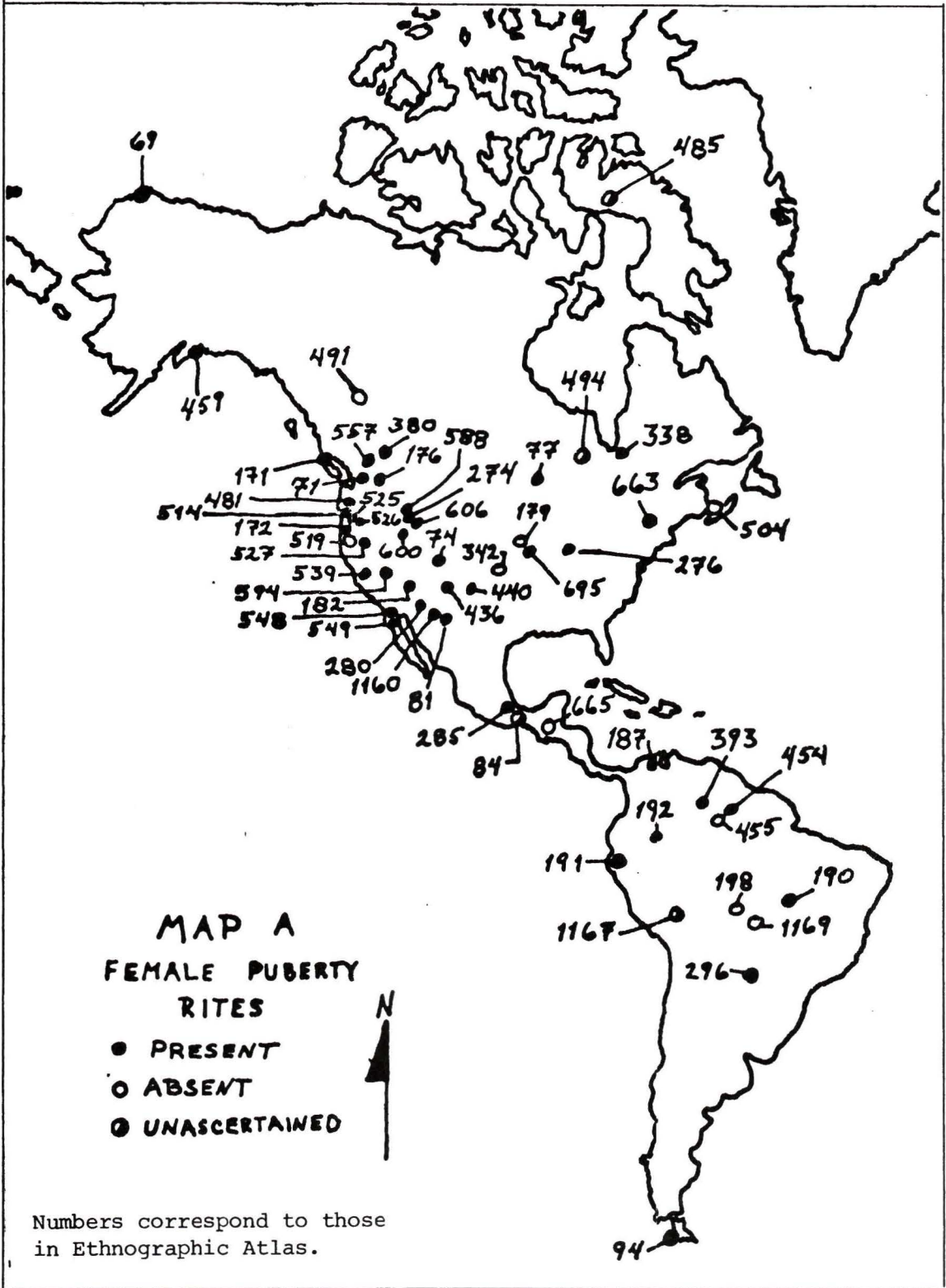
Murdock's Code	Class Stratification: The Degree and Type of Class Differentiation, Excluding Purely Political and Religious Statuses	Recodes
0	Absence of significant class distinctions among freemen (slavery is treated in Column 71), ignoring variations in individual repute achieved through skill, valor, piety, or wisdom.	0
W	Wealth distinctions, based on the possession or distribution of property, present and socially important but not crystallized into distinct and hereditary social classes.	1
D	Dual stratification into a hereditary aristocracy and a lower class of ordinary commoners of freemen, where traditionally ascribed noble status is at least as decisive as control over scarce resources.	2
E	Elite stratification, in which an elite class derives its superior status from, and perpetuates it through, control over scarce resources, particularly land, and is thereby differentiated from a propertyless proletariat for serf class.	2
C	Complex stratification into social classes correlated in large measure with extensive differentiation of occupational statuses.	3

*Adapted from Murdock (1967:57).

TABLE 31

PROCEDURE FOR CALCULATING SOCIETAL COMPLEXITY

	Political Complexity	Class Stratification
Atlas Columns	32 (2nd digit)	67
Atlas Codes for Macassarese	3	D
Recodes	3	2
Societal Complexity	$3 + 2 = 5$	
Possible Range of Societal Complexity	0 - 7	



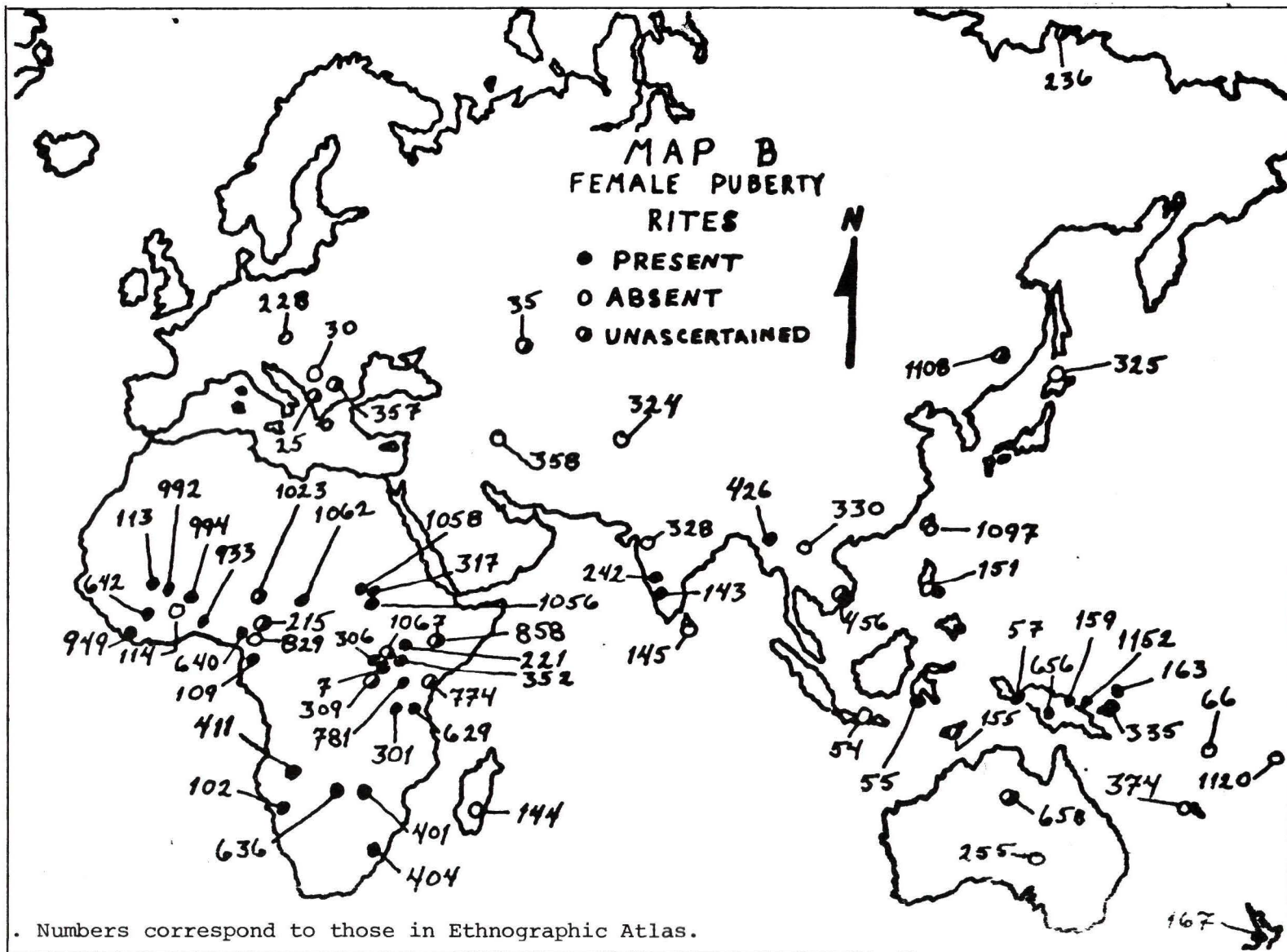


TABLE 32

SAMPLE SOCIETIES LISTED BY ETHNOGRAPHIC ATLAS SERIAL NUMBER

E.A. Serial Number	E.A. Code	Name of Society	Female Puberty Rite	Initiate Secluded	Genital Operation
7	Ad2	Nyoro	1	1	0
25	Ce1	Gheg	2	2	2
30	Ch1	Serbs	0	0	0
35	Eb1	Kazak	2	2	2
54	Ib2	Javanese	0	0	0
55	Ic1	Macassarese	1	0	1
57	Ie1	Kapauku	1	1	0
66	Ij2	Tikopia	0	0	0
69	Na2	Tareumiut	1	1	0
71	Nb2	Twana	1	1	0
74	Nd2	Southern Ute	1	1	0
77	Nf1	Ojibwa	1	1	0
81	Nh1	Chiricahua	1	1	0
84	Nj1	Chinantec	2	2	2
94	Sg1	Yahgan	1	0	0
102	Aa3	Nama	1	1	0
109	Ae3	Fang	1	2	0
113	Ag3	Dogon	1	1	1
114	Ag4	Tallensi	0	0	0
143	Eg4	Toda	1	0	0
144	Eh3	Tanala	0	0	0
145	Eh4	Vedda	0	0	0
151	Ia5	Subanun	0	0	0
155	Ic3	Belu	2	2	2
159	Ie4	Wogeo	1	0	0
163	Ig4	Lesu	1	0	0
167	Ij2	Maori	1	0	0
171	Nb3	Kwakiutl	1	1	0
172	Nb4	Yurok	1	1	0
176	Nd4	Sanpoil	1	1	0
179	Nf3	Omaha	0	0	0
182	Nh3	Navaho	1	1	0
187	Sb2	Cagaba	1	1	0
190	Se2	Tapirape	1	2	0
191	Se3	Jivaro	1	1	0
192	Se4	Yagua	1	1	0
198	Si4	Nambicuara	0	0	0
215	Ah4	Mambila	2	2	2
221	Ca4	Iraqw	1	1	1
228	Ch3	Czech	0	2	0
236	Ec6	Yukaghir	2	2	2
242	Eg5	Coorg	1	0	0
255	Id4	Diere	0	0	0

Continued

E.A. Serial Number	E.A. Code	Name of Society	Female Puberty Rite	Initiate Secluded	Genital Operation
274	Nd5	Hukundika	1	1	0
276	Nf4	Miami	1	2	0
280	Nh5	Maricopa	1	1	0
285	Nj4	Totonac	1	0	0
296	Sh4	Caduveo	1	0	0
301	Aa6	Sandawe	1	2	1
306	Ad7	Ganda	1	1	0
309	Ae8	Rundi	2	2	2
317	Ai8	Dilling	1	0	1
324	Ea5	Nuri	0	2	0
325	Ec7	Ainu	0	0	0
328	Ef5	Bhil	0	0	0
330	Ej7	Akha	0	0	0
335	Ig7	Lakalai	1	0	0
338	Na7	Attawapiskat	1	1	0
342	Nf6	Pawnee	0	0	0
352	Ad9	Gisu	1	0	0
357	Ch5	Bulgarians	2	2	2
358	Ea6	Basseri	0	0	0
374	Ih7	Lifu	0	0	0
380	Nd7	Kutenai	1	1	0
393	Sc7	Yabarana	1	1	0
401	Ab9	Ndebele	1	0	0
404	Ab12	Zulu	1	1	0
411	Ab19	Ambo	1	1	0
426	Ei18	Palaung	1	0	1
436	Nh12	Santa Ana	1	1	0
440	Nh16	Jicarilla	1	1	0
454	Sc15	Taulipang	1	1	0
455	Sc16	Makiritare	0	0	0
456	Ej10	Rhade	2	2	2
459	Na10	Chugach	1	1	0
481	Nb19	Chinook	1	1	0
485	Na22	Iglulik	2	2	2
491	Na28	Sekani	0	0	0
494	Na31	Eastern Cree	2	2	2
504	Na41	Micmac	0	0	0
514	Nb31	Tututni	1	1	0
519	Nb36	Wiyot	0	0	0
525	Nc10	Achomawi	1	0	0
526	Nc11	Yana	1	1	0
527	Nc12	Maidu	1	1	0
539	Nc24	Lake Yokuts	1	0	0
548	Nc33	Luiseno	1	1	0
549	Nc34	Kiliwa	1	0	0
557	Nd15	Sinkaietk	1	1	0

Continued

E.A. Serial Number	E.A. Code	Name of Society	Female Puberty Rite	Initiate Secluded	Genital Operation
588	Nd46	Agaiduka	1	1	0
594	Nd52	Shiwits	1	0	0
600	Nd58	Uintah	1	1	0
606	Nd64	Wind River	1	1	0
629	Ad10	Shambala	1	2	0
636	Aa7	Naron	1	1	0
640	Ae9	Fut	1	0	0
642	Af9	Baule	1	0	0
656	Iel3	Kiwai	1	0	0
658	Ij7	Mangarevans	2	2	2
663	Ng10	Iroquois	1	0	0
665	Sal9	Lanandon	0	0	0
695	Nf10	Iowa	1	2	0
774	Ad32	Giriama	2	2	2
781	Ad39	Sonjo	1	1	1
829	Ae50	Hamum	0	2	0
858	Ca28	Basketo	2	2	2
933	Af33	Ekiti	1	2	1
949	Af49	Sapo	1	1	1
992	Ag47	Mossi	1	1	1
994	Ag49	Kabre	1	2	0
1023	Ah36	Gude	2	2	2
1056	Ai41	Tira	1	1	0
1058	Ai43	Nyima	1	0	0
1062	Ai47	Mao	1	2	1
1067	Aj17	Alur	2	2	2
1097	Ia11	Puyuma	0	2	0
1108	Ec9	Goldi	2	2	2
1120	Ii8	Futunans	0	0	0
1152	Ie29	Manam	1	2	0
1160	Ni6	Pima	1	1	0
1167	Sell	Chacobo	2	2	2
1169	Si8	Umotina	0	0	0

Codes:

0 = Absent

1 = Present

2 = Unascertained

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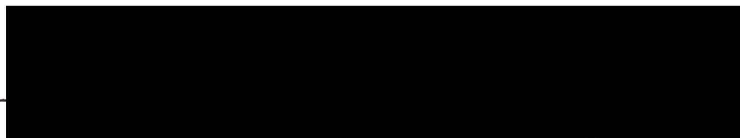
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FEMALE PUBERTY RITES: A TEST OF CROSS-CULTURAL

METHODOLOGY AND COMPARATIVE ANALYSIS OF FEMALE

INITIATION RITES.

Author



KERRY KATHLYN CARNEY

Name

10 June 1977

Date