

INTENSIVE AGRICULTURE AND ITS RELATIONSHIPS WITH UNILINEALITY AND SOCIAL STRATIFICATION

Jiann Hsieh

I. INTRODUCTION

The purpose of the present study is to check a world-wide representative sample by the application of a statistical technique to find the relationships among the factors of intensive agriculture, unilineality, and social stratification. Although many anthropologists have dealt with this subject, such as Murdock's work on the division of labor by sex, postnuptial residence, and rule of descent (1937, 1949), Aberle's study on matrilineality (1961), and Sahlins' survey on the correlation between subsistence productivity and social stratification (1958)—a partial concern of the present paper—the writer considers that this problem is worth further study through an elaborate design and a large quantity of data.

The present paper is organized initially with a series of hypotheses and their theoretical considerations concerning the interrelationships among the three factors mentioned above. Next, a sample consisting of 412 societies is designed, and a few variables of coding are proposed. The results of the statistical chi square test are then shown, followed by an intensive analysis of several null hypotheses. Finally, some significant ideas are given for further studies in terms of the findings in the present study.

For a long time cultural anthropology has been distinguished by intensive ethnographic analysis of particular societies through field work directed toward a series of problems, rather than by extensive cross-cultural survey based upon world-wide samples through library work leading to comparative problems and general concepts. Studies such as those by Murdock (1949, 1957, 1967), Naroll (1963, 1956, 1966), Otterbein (1968, 1969), and others during the last two decades have tested many hypotheses cross-culturally in ways which would not be possible in one society. Although critics of cross-cultural studies argue that culture traits, the meanings of which are dependent on the total culture context and

should not be torn out, display an enormous variation from culture to culture and from time to time, it does not necessarily follow that some general theories cannot in principle be attained. Just as Nagel has pointed out:

The recognized differences in the ways different societies are organized and in the modes of behavior occurring in them may be the consequences, not of commensurably dissimilar patterns of social relations in those societies, but simply of differences in the specific value of some set of variables that constitute the elementary components in a structure of connections common to all the societies (Nagel, 1961: 462).

Furthermore, if we take anthropology as the science of man, we should realize that a unified science of mankind cannot be built on outmoded premises. A new perspective based upon some general concepts and findings regarding all kinds of phenomena of man through cross-cultural comparison is urgently needed. In other words, "it is only by the use of the comparative method that we can arrive at general explanations. The alternative is to confine ourselves to particular explanations" of particular problems (Radcliffe-Brown, 1952: 113-114). Although there are problems concerning the methodology of cross-cultural studies, including the lack of sufficient library materials, the Sapir-Whorf's hypothesis on the equivalence of meanings in translation,¹ and above all, the perplexing exception to the rule, all these problems seem to be more or less present in other kinds of studies. Cross-cultural study, in addition to the practical objective of facilitating diverse forms of social science research, has a special theoretical objective. On a large scale and by quantitative methods, it is organized so as to make possible the formulation and verification of scientific generalizations of a universal human character (Murdock, 1961: 45). In actual practice, comparison in cross-cultural study has often been concerned with propositions about the relation of some extra-cultural conditions to other extra-cultural conditions (Goodenough, 1970: 124).

II. THEORETICAL CONSIDERATIONS

In Jamaica, land was relatively plentiful due to the small size of population and was controlled by a number of unrestricted groups based on ambilineal descent rule. Recently, an increase in population as a result of the introduction of new cultural elements has inevitably led to a shortage of land which in turn

has resulted in some members being excluded from the unrestricted groups. People excluded are those members not living on the land. Once certain lines of descent are excluded from the unrestricted groups, a unilineal descent rule will emerge. Thus, an increase in population will result in the emergence of unilineality for the control of limited land resources (Otterbein, 1964: 31-42).

Another case is the *kainga* in the Gilbert Islands of Micronesia. The *kainga*, as a nonunilineal group with a tract of land, has prompted some intensive discussion (cf. Frake, 1956: 170-173; Goodenough, 1955: 71-83; 1956: 173-176; Lambert, 1966: 654-655; Lundsgaarde and Silverman, 1972: 101-110). Generally speaking, the *kainga* is based on the choice of parent residence (Goodenough, 1955: 74). Data from the islands of Nonouti and Tamana suggested that before mass introduction of new culture elements, such as the technique of cultivation, the number of *kainga* units had long ago reached a state of relative equilibrium. The very nature of the island habitat and its limitation on productivity have presented new *kainga* divisions from becoming excessively numerous (Lundsgaarde and Silverman, 1972: 102); meanwhile, the traditional *kainga* on Beru Island had been partitioned into small parcels and the new ones were increased soon after it became necessary to accomodate the expanding population due to the introduction of new cultivating technology (Maude, 1963: 27-32). In some places they became unilineal descent groups (Goodenough, 1955: 79).

A similar case was found in the Taromak Rukai of Taiwan. According to J. C. Hsieh (1968: 68-80), a group of persons who live in a house are called, collectively, a *dadana*. As usual, such people form a "family" or a "household." Each *dadana* has a house name which is identical with the members of the group and expresses their status, obligations, land, and other kinds of properties. Once a *dadana* is established, theoretically speaking, it will be continued generation after generation indefinitely. The descent rule for the continuation of a *dadana* is by no means of ascription or exclusion through specified kin relationship, but it is non-unilineal (Ibid.: 80).

Like the *kainga* of Micronesia (cf. Goodenough, 1955: 81), the traditional *dadana* of the Taromak Rukai in Taiwan seems to have as one of its functions keeping group memberships balanced in relation to its limited land resource in the insular situation. With a choice of residence, people will remain at home as group's population decreases; or move away to join other groups as it increases.

However, there was a tendency, which the writer personally observed in the field in 1963, of the change of nonunilineal into unilineal descent mainly due to the introduction of the subsistence technology of wet-rice cultivation.

Generally speaking, an intensive agriculture due to new cultivation technology will lead to an increase in population, which in turn will result in a shortage of land. Because the desire of the land owners is to pass their land and wealth on to descendants and the means of production cannot be divided without destroying productive efficiency, a unilineal rule will be developed and strengthened through excluding some members from the descent groups. This can be hypothesized as follows:

HYPOTHESIS I: There is a positive relationship between the intensive agriculture and the unilineal descent.

It is also true that the development of intensive agriculture must be rather more closely related to non-kin groupings, such as hacienda, manor, work teams of various compositions, and especially organization for the purposes of marketing, purchasing, irrigation, drainage, etc, than to kin groupings, such as family, clan, lineage, etc (Loomis, 1968: 20). Some anthropologists even regard irrigation as a determinant factor in the socio-economic system.² Since intensive agriculture necessitates a more advanced technology and a more elaborated division of labor, the latter will in turn lead to the increase in social differentiation. As a state, differentiation can be defined as "the number of structurally distinct and functionally specialized units in society" (Marsh, 1967: 31); as a process, it may be defined as "the emergence of more distinct organizations to fulfill more distinct functions" (Ibid.). In both of these definitions, conflicts and inequality have to be engendered and will constitute the essential part of social stratification. For example, superior-inferior relationships may exist among unbonded groups formed by the coalescence of two or more unbonded values or interests, such as caste and class (Sorokin, 1968: 406). In short, intensive agriculture leads to complicated social differentiation and the latter will in turn result in social stratification. Therefore, the writer offers another hypothesis:

HYPOTHESIS II: There is a positive relationship between the intensive agriculture and the social stratification.

Interestingly, Plato discussed the conditions for a genuine egalitarian society in *The Republic* more than two thousand years ago, and suggested that the

family be the key support of inequality, which must be one of the essences of social stratification (Lipset, 1968: 296). Therefore, he insisted that the private family system be abolished to all the Republic Guardians, and thus said:

Again if man's person is his only private possession, lawsuits and prosecutions will all but vanish, and they will be free of those quarrels that arise from ownership of property and from having family ties (Cornford, 1945: 166).

Obviously, Plato's argument, which is still followed by many contemporary sociologists and anthropologists, was that individuals are motivated to secure for other family members, for whom they feel affection, privileges that themselves enjoy (Lipset, 1968: 296-297). To the writer, unilineality in descent rule, that is, to exclude some members and include others in the kin group, is one of the most significant inequalities which will definitely result in social stratification. This is a type of superior-inferior relationship defined by Sorokin as intragroup differentiation (Sorokin, 1968: 408). It leads to a hypothesis as follows:

HYPOTHESIS III: There is a positive relationship between unilineality and social stratification.

Now, the problem is how to test these hypotheses with reliable data. According to Naroll:

The ideal practice is to base the hypothesis on traits that involve easily recognizable criteria about which observers will tend to agree (Naroll, 1962: 14-15).

In the following sections the writer will attempt to test the three hypotheses based on traits with easily recognizable criteria.

II. METHODOLOGY

A. Sampling Design

The sample, derived from Murdock's *Ethnographic Atlas* (1967), consists of 412 societies distributed widely throughout the world. It is cited as follows:

Intensive Agriculture and its Relationships with Unilineality and Social Stratification

	The Present Sample		Murdock's Sample	
	number of societies	%	number of societies	%
Africa	85	20.63	239	27.72
East Eurasia	67	16.26	95	11.02
Circum Mediterranean	55	13.34	93	10.78
Insular Pacific	69	16.74	128	14.84
North America	69	16.74	218	25.29
South America	67	16.26	89	10.32
Total	412	100.00	862	100.00

In his book, Murdock (1967) collected 862 societies and classified them into 412 culture clusters in terms of their cultural and geographical conditions. From each cluster the writer selected the first one of the societies as a sampling unit without any bias. Therefore, the sample presented here seems to have satisfied the following conditions:

1. It is roughly geographically representative, and no culture area is over or under-represented.
2. Since each unit represents a specific culture cluster, there are no duplicate cases, such as where two societies are geographically contiguous or characterized by mutually intelligible languages (Murdock, 1967: 23); or Galton's problem: whether a society is an individual cultural unit or a subunit of a larger cultural entity (Tylor, 1961: 23).

In cross-cultural study, statistical tests of significance are appropriate when the only possible errors affecting a sample result are due to chance but not bias (Ember, 1963: 254). The device to select the first society from each culture cluster ensures that there is no possible way in which subjectivity could enter the sample construction of the present study.

B. Coding

For exact coding, two problems should be resolved initially: 1. how to find the primary resources; 2. how to select the traits properly to meet the needs of some specific study. In the present sample, information is taken from Murdock's *Ethnographic Atlas* (1967). For the second problem, the writer tries to re-organize the traits coded from that source under the following variables:

VARIABLE 1: Intensity of Agriculture

This comes from Column 28 of Murdock's book (1967), in which the types of agriculture and their intensity are indicated. The writer classifies all the types

into three groups. They are:

- A. Intensive agriculture (including Murdock's Type I, i.e., intensive agriculture on permanent fields, utilizing fertilization by compost or animal manure, crop rotation, or other techniques so that fallowing is either unnecessary or is confined to relatively short periods; Type J, intensive agriculture largely dependent upon irrigation).
- B. Horticulture (Murdock's Type H, i.e., semi-intensive agriculture limited mainly to vegetable gardens or groves of fruit trees rather than the cultivation of field crops).
- C. Incipient agriculture or absence of agriculture (Murdock's Type C, casual agriculture, i.e., the slight or sporadic cultivation; Type E, shifting cultivation, where new fields are cleared annually, cultivated for a year or two, and then allowed to revert to forest or brush for a long fallow period; and Type O, complete absence of agriculture).

Here some questions may be raised. First, is horticulture really more advanced or intensive than the shifting cultivation of Group C? Second, are the societies of Group C (incipient agriculture or absence of agriculture) lower in total economic productivity than those of Group B (horticulture) or Group A (intensive agriculture)?

According to Farmer (1968: 204), there is a close connection between shifting cultivation and low productivity, unless the cultivators adopt some techniques which sedentary cultivators employ to cultivate the same field year-in and year-out. This is one way by which the transition from shifting to sedentary cultivation may be affected; another is the planting of commercial crops, especially permanent tree crops, in clearings abandoned by shifting cultivators. By doing so, people have actually transformed shifting into sedentary cultivation.

Logically speaking, societies belong to Group C (i.e., casual agriculture, shifting agriculture, and absence of agriculture) sometimes have to utilize other subsistence techniques for sufficient food supply because of their poor or even no production in agriculture. They have the options of gathering, hunting, fishing, and animal husbandry. Those technologies are said to be co-dominant: for instance, hunting and gathering, hunting and husbandry, etc (Otterbein, 1972: 16). However, the societies of Group C usually have a poorer and less secure pro-

ductivity than those of horticulture and intensive agriculture (McClelland et al., 1968: 302).

The intensive agriculture of Group A is distinguished by the technology of farming with a plow and/or draft animal. It is a more advanced form of cultivation than horticulture because more crops can be raised per unit of land (Otterbein, 1972: 17).

To sum up, economic productivity will increase in quantity and become more secure in the ascending order of Group C, Group B, and Group A.

VARIABLE 2: Unilineality (either patrilineality or matrilineality).

Information is taken from Column 20 and Column 22 (also see Variable 4).

VARIABLE 3: Patrilineality

From Column 20.

- a. Present (presence of patrilineal kin groups: lineages, moieties, phratries, or sibs).
- b. Absent (absence of any patrilineal kin group).

VARIABLE 4: Matrilineality

From Column 22. The same coding as those of Variable 3.

VARIABLE 5: Social Stratification

Either class stratification or caste stratification, or both. Information is taken from Column 67 and Column 69 (see Variable 6 and Variable 7).

VARIABLE 6: Class Stratification

From Column 67.

- a. Present (complete class stratification, dual stratification, elite stratification, or wealth distinction).
- b. Absent (absence of any significant class stratification).

VARIABLE 7: Caste Stratification

From Column 69.

- a. Present (complete caste stratification, despised occupational groups, or ethnic stratification).
- b. Absent (absence of any significant caste stratification).

VARIABLE 8: High God

- a. Present (high god present but not concerned with human affairs, or active in human affairs but not offering positive support to human morality, or active and specifically supportive of human morality).
- b. Absent (no concept of a high god).

IV. RESULTS AND DISCUSSION

A. Results

Since the data presented here are expressed in the form of nominal scale, the application of statistical techniques for testing the hypotheses becomes extremely important. Although Pearson's chi square test has its limitations, it can indicate the degree of support of certain theory (Weiss, 1968: 258). So far, it is the oldest but still the most useful one of the non-parametric tests (Weiss, 1968: 256; Freeman, 1965: 213). Here the writer will follow it. As regards the statistical procedures, he has done computations with *The Statistic Package for the Social Sciences* (SPSS).

When patrilineality was tested in relation to non-patrilineality for present intensive agriculture versus absent intensive agriculture, the results were significant (see Table 1).

Table 1: Relationship between Intensive Agriculture and Patrilineality

Patrilineality	Intensive Agriculture		Total
	Present	Absent	
Present	70	58	412
Absent	123	163	
Total			

$\chi^2 = 5.0387$, $\phi = 0.1105$, $df = 1$, $p < 0.05$

This indicates that societies with patrilineality tend toward present intensive agriculture, while societies with non-patrilineality (matrilineal societies and the others) tend toward absent intensive agriculture. For example, in 76 matrilineal societies, there are only 12 societies with intensive agriculture. Therefore, the first hypothesis, the relationship between intensive agriculture and unilineality, should be modified as will be discussed later.

Association of intensive agriculture with social stratification were also subjected to the chi square test. The tests yielded significant results. The societies of intensive agriculture strongly tend to present social stratification (Table 2).

Table 2: Relationship between Intensive Agriculture and Social Stratification

Intensive Agriculture	Social Stratification		Total
	Present	Absent	
Present	98	28	412
Absent	136	150	
Total			

$$\chi^2 = 31.3440, \quad \phi = 0.2758, \quad df = 1, \quad p < 0.001$$

With regard to the relationship between patrilineality and social stratification, the results of the chi square test were also significant. They are:

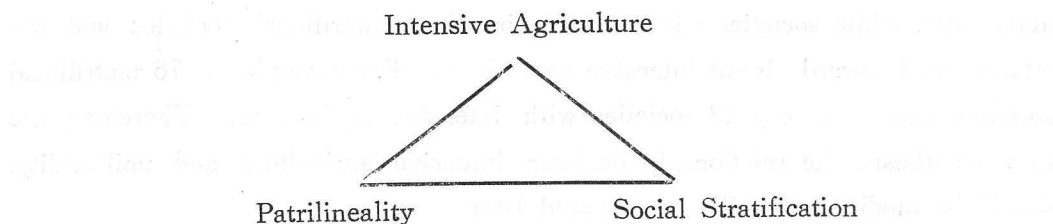
Table 3: Relationship between Patrilineality and Social Stratification

Patrilineality	Social Stratification		Total
	Present	Absent	
Present	127	64	412
Absent	105	114	
Total			

$$\chi^2 = 14.1650, \quad \phi = 0.1854, \quad df = 1, \quad p < 0.001$$

This indicates clearly that societies with patrilineality lean toward present social stratification, that is, caste stratification, or class stratification, or both. Relatively speaking, societies without patrilineality tend to fall at the end of absent social stratification.

Judging from the relationships stated above, we may build up a model and diagram it as follows:



Since all the computed values of chi square tests are much larger than the critical value of 3.84, the associations presented here will result from sampling variation no more than 5 times in every 100 sample.

B. Discussion

The model indicates that it is far from complete support of any "anthropologism." There is no evidence for the evolutionist view, such as Bachofen's, of universal matrilineal priority (Marsh, 1967: 107), or the hypothesis that matrilineality is associated with lower cultural levels (Murdock, 1937: 469). For instance, if we take the agricultural development as an evolutionary sequence, we will find that the correlations (ϕ) of matrilineality in relation to societies of Group A (intensive agriculture), Group B (horticulture), and Group C (incipient agriculture or non-agriculture) are 0.1459, 0.2447, and 0.0004 respectively. In other words, matrilineality seems more significantly associated with Group B (horticulture) than with Group C (incipient agriculture or non-agriculture), a relatively lower cultural level.

It has been observed by many writers that sexual division of labor in subsistence will influence the descent rule (Murdock, 1949: 36-39; Aberle, 1961: 655; Driver and Massey, 1957: 431-432). If men play the major role, it is to be expected that men will win the property used in the subsistence, and that related men will live together and bring their wives to live with them. Therefore, men will form the core membership of the kin groups. In the cases where women play the major role, the kin groups will be matrilineal. Because men are physically stronger than women, difficult technological activities often fall upon men and less strenuous pursuits often fall upon women. Therefore, in the subsistence mode of agriculture women are likely to participate more in horticulture (major task: hoeing, digging, seeding, weeding, harvesting, etc.) than in intensive agriculture (major tasks: tilling, plowing, etc) (Otterbein, 1972: 21; Aberle, 1961: 702) (Table 4).

Table 4: Relationship between Horticulture and Matrilineality

Horticulture	Matrilineality		Total
	Present	Absent	
Present	21	24	412
Absent	55	312	
Total			412

$$\chi^2 = 24.6780, \quad \phi = 0.2447, \quad df = 1, \quad p < 0.001$$

Although the results of the chi square test seem significant showing the relationship between horticulture and matrilineality, the almost equal numbers of societies of horticulture with and without matrilineality indicate a theoretical weakness of functionalism, such as Otterbein's. That is, logically speaking, the less strenuous tasks of horticulture, including those of hoeing, seeding, weeding, etc, can be done either by male or female. What then are the factors which make these tasks fall upon women but not men? The writer considers that in a horticulture society males will have as equal a chance as females to undertake productive work and to control property. This seems to have been demonstrated by the nearly equal numbers of horticulture societies with and without matrilineality (see Table 4). In other words, in the subsistence mode of horticulture women seem not necessarily to participate more than men, as some functionalists stated (Otterbein, 1972: 21).

Horticulture is a considerably advanced type of agriculture on which people can live almost entirely, and in many cases it is significantly characterized by matrilineality (see Table 4). In contrast with those of intensive agriculture, the horticulture societies are relatively short of the concept of a high god (see Table 5 and Table 6), which is defined by Swanson as an idea of supernatural being who created the universe and/or is the ultimate governor of the universe (Swanson, 1960: 56).

The belief in a high god is very common among the societies studied by anthropologists. For instance, in a cross-cultural study of the origins of religious beliefs, Swanson (1960: 55-81) found that the belief in a high god was associ-

Table 5: Relationship Between Horticulture and High God

Horticulture	High God		Total
	Present	Absent	
Present	6	39	
Absent	189	178	
Total			412

$$x^2 = 21.9157, \quad \text{phi} = 0.2306, \quad \text{df} = 1, \quad p < 0.001$$

Table 6: Relationship between Intensive Agriculture and High God

Intensive Agriculture	High God		Total
	Present	Absent	
Present	75	51	126
Absent	120	166	
Total			412

$$x^2 = 10.1328, \quad \phi = 0.1568, \quad df = 1, \quad p < 0.01$$

ated with social and political complexity. This is also confirmed in the present study, that is, the concept of a high god is related to social stratification. The data are reported as follows:

Table 7: High God in Relation to Social Stratification

Social Stratification	High God		Total
	Present	Absent	
Present	129	105	234
Absent	66	112	
Total			412

$$x^2 = 12.4979, \quad \phi = 0.1741, \quad df = 1, \quad p < 0.001$$

The problem raised here is how to explain the concept of a high god in relation to horticulture and intensive agriculture.

The chi square test yielded significant values to indicate that the societies of horticulture are considerably associated with matrilineality (Table 4), but it yielded no significant results for the relationship between the horticulture societies and social stratification. The correlation (ϕ) between these two variables is certainly negligible (Table 8):

Table 8: Relationship between Horticulture Societies and Social Stratification

Horticulture Societies	Social Stratification		Total
	Present	Absent	
Present	27	18	45
Absent	207	160	
Total			412

$$x^2 = 0.0901, \quad \phi = 0.0147, \quad df = 1, \quad p < 0.99$$

Considering the facts stated above, the writer would hypothesize that the lack of a strong male image in the horticulture societies due to the association with matrilineality may lead to a weak social stratification, but the strong concept of a high god (Table 5) should be interpreted as a result of predominant femininity (Table 4), which, instead of the male image in the strongly stratified patrilineal societies, represents a power of creative fertility.

In one of the conclusions of his study on Polynesia societies, Sahlins (1958) proposed a hypothesis concerning the positive relationship of productivity and social stratification. He showed that social stratification is a function of a society's economic productivity, which in turn depends upon physical environment and technology. Two years later Nimkoff and Middleton (1960) furthered his theory and pointed out that social differentiation is a function of the general pattern of subsistence in hunting and gathering, animal husbandry, and agricultural societies. Societies with the lowest degree of social differentiation tend to be nomadic or semi-nomadic (i.e., hunting and gathering, and animal husbandry), whereas societies of intermediate differentiation tend to be sedentary and agricultural societies (Nimkoff and Middleton, 1960: 219). Both of those hypotheses have been partly confirmed in the present study if we take social stratification as an indicator derived from social differentiation³ and the subsistence classification as an indicator for economic productivity. In Table 2 the results of the chi square test are significant for the societies of Group A (intensive agriculture) in relation to social stratification, and they demonstrate that societies of Group A tend towards this direction, while societies without intensive agriculture do not show this tendency.

The chi square test also yielded a significant result for societies of Group C (incipient agriculture or non-agriculture) in relation to social stratification. The data are presented in the following table (Table 9):

Table 9: Societies of Group C in relation to Social Stratification

Societies of Group C	Social Stratification		Total
	Present	Absent	
Yes	85	91	412
No	149	87	
Total			412
$\chi^2 = 8.4535$, $\phi = 0.1432$, $df = 1$, $p < 0.05$			

The figures suggest that the societies of Group C tend to be found more with absent social stratification rather than with social stratification. The correlation between those two variables is negligible. Since in these societies the level of productivity does not yield much surplus, high level of social complexity will not be generated.

Even Sahlins himself realizes that his hypothesis of positive relationship between economic productivity and social stratification cannot be easily extended to all societies and only a world-wide comparative study can indicate whether it is indeed a universal generalization or only an example of specification. He stated:

It is possible that in particular alternative means may be found to cope with the problems of surplus production.... means that may or may not lead to a high degree of social stratification. Therefore, cross-cultural comparisons of productivity and stratification may not lead to as significant results as were obtained here (Sahlins, 1958: 250).

In the present study the writer finds that Sahlins' hypothesis can be applied to the societies of Group A and Group C only, but not to those of Group B. This may be due to the association of horticulture societies with matrilineality and, hence, the lack of strong social stratification.

NOTES

1. Cultural differences have a great impact when the comparative data come from a number of different language families. E. Sapir (1931) made some pertinent observations about the influence of language on thought in different cultures, and his study was followed by B. L. Whorf. The latter asserts that different linguistic communities perceive of reality in different ways, and that language, in its structure and lexicon, determines people's thought.
2. As early as 1920, C. F. Lummis, while mentioning aridity and the need for irrigation among Southwest Indians, remarked that "ignorance of this fact (irrigation) has caused serious blunders" (*Pueblo Indian Folk Stories*, 1920, New York; first published in 1891, p.166n). In one of his elaborate articles, Wittfogel, following Lummis, emphasized the linkage between irrigation and social structure (Wittfogel and Goldfrank, 1943: 21). Later in his theory of hydraulic society, he even regarded the irrigation system as a key factor to the strict hierarchy and despotism in ancient China (Wittfogel, 1957). In the present study, the writer realizes that the function of irrigation is important in an agricultural society and that it will result in some kind of social differentiation and stratification, but he would avoid overestimating its influence.
3. According to Sorokin (1968: 406), there are two basic types of social differentiation: intragroup differentiation and intergroup differentiation. He considered that social stratification, especially the superior and inferior relationship, have their origins in social differentiation. For example, he said:

When such subgroups (division of a government into different departments—the writer) become ranked, factually or formally, as "superior" and "inferior," then intragroup differentiation becomes intragroup stratification (1968: 406).

BIBLIOGRAPHY

Aberle, D. F.

- 1961 "Matilineal Descent in Cross-cultural Perspective," in D. M. Schneider and K. Gough (eds.), *Matrilineal Kinship*. Berkeley: University of California Press, pp.666-737.

Beals, R. L. and H. Hoijer

- 1959 *An Introduction to Anthropology*. New York: Macmillan.

Cornford, F. M. (tr.)

- 1945 *The Republic of Plato*. New York: Oxford University Press.

Driver, H. E. and W. Massey

- 1957 "Comparative Studies of North American Indians," *Trans. Am. Phil. Soc.*, 47: 165-456.

Ember, M.

- 1963 "The Relationship between Economic and Political Development in Non-industrialized Societies," *Ethnology*, 2: 228-240.

Farmer, B. H.

- 1968 "Agriculture," in D. L. Sills (ed.), *International Encyclopaedia of the Social Sciences*. New York: Macmillan.

Frake, C. O.

- 1965 "Malayo-Polynesian Social Organization," *American Anthropologist*, 57: 71-83.

Freeman, L. C.

- 1965 *Elementary Applied Statistics: For Students in Behavioral Science*. New York: John Wiley & Sons.

Goodenough, W. H.

- 1955 "A Problem in Malayo-Polynesian Social Organization," *American Anthropologist*, 68: 71-83.
- 1970 *Description and Comparison in Cultural Anthropology*. Chicago: Aldine.

Hsieh, J. C.

- 1968 "Ta-nan Lu-k'ai tzu Chia-hsi chih Ch'ih-hsü" (The Continuation of the Family Line among the Taromak Rukai), *Bulletin of the Ethnology, Academia Sinica*, 26: 67-82.

Köbber, A. J. F.

- 1967 "Why Exceptions? The Logic of Cross-cultural Analysis," *Current Anthropology*, Vol. 8, Nos. 1-2, pp. 3-19.

Lambert, R.

- 1966 "Ambilineal Descent Groups in the Northern Gilbert Islands," *American Anthropologist*, 68: 641-664.

Lundsgaarde, H. P. and M. G. Silverman

- 1972 "Category and Group in Gilbertese Kinship: An Updating of Goodenough's Analysis," *Ethnology*, 11: 95-110.

Lipset, S. M.

- 1968 "Social Glass," in D. L. Sills (ed.), *International Encyclopaedia of the Social Sciences*. New York: Macmillan.

McClelland, D. C. et al.

- 1968 "Agriculture," in D. L. Sills (ed.), *International Encyclopaedia of the Social Sciences*. New York: Mcmillan.

MacIver, R. M. and C. Page

- 1950 *Society: An Introductory Analysis*. New York: Holt, Rinehart and Winston.

Marsh, R. M.

- 1967 *Comparative Sociology*. New York: Harcourt, Brace & World, Inc.

Maude, H. E.

- 1960 "The Evolution of the Gilbertese Boti: An Ethnohistorical Interpretation," *Polynesian Society Memoir*, No. 25.

Murdock, G. P.

- 1937 "Comparative Data on Division of Labor by Sex," *Social Force*, 15: 551-553.

- 1940 "The Cross-cultural Survey," *American Sociological Review*, 5: 361-370.
- 1949 *Social Structure*. New York: Macmillan.
- 1957 "World Ethnographic Sample," *American Anthropologist*, 59: 664-687.
- 1967 *Ethnographic Atlas*. Pittsburgh: University of Pittsburgh Press.
- Nagel, E.
- 1961 *The Structure of Science*. New York: Harcourt, Brace & World, Inc.
- Naroll, R.
- 1956 "A Preliminary Index of Social Development," *American Anthropologist*, 58: 687-715.
- 1962 *Data Control—A New Research Technique: Prolegomena to a Cross-cultural Study of Culture Stress*. New York: The Free Press of Glencoe.
- Nimkoff, M. F. and Middleton, R.
- 1960 "Types of Family and Types of Economy," *American Journal of Sociology*, 46: 215-225.
- Otterbein, K. F.
- 1964 "A Comparison of the Land Tenure System of the Bahamas, Jamaica, and Barbados," *International Archives of Ethnography*, 50: 170-173.
- 1968 "Internal War: A Cross-cultural Study," *American Anthropologist*, 70: 277-289.
- 1969 "Basic Steps in Conducting a Cross-cultural Study," *Behavior Science Notes*, 4: 221-236.
- 1972 *Comparative Cultural Analysis*. New York: Holt, Rinehart & Winston.
- Radcliffe-Brown, A. R.
- 1952 *Structure and Function in Primitive Society*. New York: The Free Press of Glencoe.
- Radin, P.
- 1937 *Primitive Religion, Its Nature and Origin*. New York: The Viking Press.

Sahlins, M.

- 1958 *Social Stratification in Polynesia*. Seattle: University of Washington Press.

Sapir, E.

- 1931 "Conceptual Categories in Primitive Languages," *Science*, 74: 578-579.

Sorokin, P. A.

- 1968 "Social Differentiation," in D. L. Sills (ed.), *International Encyclopedia of the Social Sciences*. New York: Macmillan.

Swanson, G. E.

- 1960 *The Birth of The Gods*. Ann Arbor: University of Michigan Press.

Taylor, E. B.

- 1961 (1899) "On a Method of Investigating the Development of Institution: Applied to Laws of Marriage and Descent," in F. W. Moore (ed.), *Readings in Cross-cultural Methodology*. New Haven: HRAF Press.

Weiss, R. S.

- 1968 *Statistics in Social Research: An Introduction*. New York: John Wiley & Sons, Inc.

Wittfogel, K. A.

- 1957 *Oriental Despotism: A Comparative Study of Total Power*. New Haven: Yale University Press.

Wittfogel, K. A. and J. Goldfrank

- 1943 "Some Aspects of Pueblo Mythology and Society," *American Folklore*, 56: 17-30.

Whorf, B. L.

- 1952 *Collected Papers on Metalinguistics*. Washington, D. C.: Department of State, Foreign Service Institute.