The characteristics of Taiyal weaving as an art form

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THE CHARACTERISTICS OF TAIYAL WEAVING AS AN ART FORM

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A thesis is submitted to the Graduate School
For the degree of

Master of Arts

Department of Anthropology
University of Durham

December 1998

ABSTRACT

The Taiyal are one of the nine aboriginal peoples in Taiwan. They had been regarded as the fiercest headhunters, and famed for their facial tattooing. The Taiyal are also known for work in rattan and bamboo weaving, together with weaving and shell bead embroidery. Weaving once had great ritual importance and women's social status was closely linked to skill in weaving.

This thesis takes the study of weaving as a key to explore the characteristics of Taiyal art, of which weaving is the principle expression. Weaving is bound to its socio-cultural context, the Taiyal egalitarian system.

The method of symmetry analysis is applied to the exploration of the design structures to illustrate how certain principles of order are consistently applied by weavers in Taiyal production of cloth.

This study of Taiyal weaving also conducts a comparison with other cultural art forms, both related traditions in Southeast Asia and unrelated ones in Africa. Its aim is to explore why the similarities occur in different cultural traditions by posing three probabilities, historical links, cognitive universals and technical constraints.

Contemporary change in Taiyal weaving is also discussed in this thesis. The changes in textiles may be used for an evidence of the great changes that have occurred in the social environment of the Taiyal.

TABLE OF CONTENTS

Chapters

* Footnotes will be found following each chapter.

LIST OF MAPS, TABLES AND ILLUSTRATIONS

Maps

Tables

Figure

Plates

CHAPTER ONE
INTRODUCTION

1-1 Motivation to The Study of The Taiyal People

The initial reason why I choose the Taiyal to study is simply because they are the first aboriginal people with whom I had contact. This goes back an unforgettable experience that happened when I was a twelve-year-old girl. My family and I spent a holiday at a sparsely populated spot with a hot spring and pristine scenery in Miao-li County of Central Taiwan. When I was walking alone along the path through the secluded wood leisurely and carefree, an elderly Taiyal woman with facial tattooing, carrying '*gisi*'(a common burden basket used by Taiyal women) and holding a long knife, suddenly appeared in front of me. I had heard before that tattooed 'Whan-na' (a very rude and impolite term that Han Chinese called the Aborigines) indicated they experienced killing people and might be very fierce and bloody, so I was extremely frightened. However, the elder grinned at me and nothing happened. I was ashamed of my excessive imagination as I gazed at her receding and stooped figure.

During the summer vacation when I had just graduated from teacher's college, I visited a Taiyal tribe in Hsin-tsu County. I stayed there for nearly a month, and that was the first deeper contact with the Taiyal people. They were very kindly to me. At that moment, I began to realize that other people had no real understanding to them, including myself. For years I had been noticing newspaper, magazine and related reports regarding the aborigines, especially the Taiyal. While such reports convey superficial knowledge, however, I feel that it is hard to know the feelings of people unless one has lived with them. Therefore, I volunteered to transfer from bustling Taipei city to tranquil Ts-yu Village, home of a small Taiyal hilltribe in Ho-pin

Hsiang of Taichung County. As a teacher in the primary school for nearly two years, I could make use of my spare time to make further observations to the Taiyal people. Through this thesis, I analyze what I have learned from them during these years.

The Taiyal people have maintained a principle of simplicity in their lifestyle as well as in their art form. While some may subjectively think they have no talent or creativity in their art. I think it is not a fair judgment because, whether in a small-scale or complex, egalitarian or hierarchical society, the structure and principles of people's thought toward the material world are basically founded on a reasonable way of life. For this reason, all human communities have their own special way of life, within which are their strategies of environmental adaptation. We cannot judge a people by our own value system but should respect each other.

Traditional Taiyal art contains no representational or figured designs. It seems hard to detect why the Taiyal women weave only geometric patterns in their textiles. I supposed there should be some reasons why they adhered to this form. The desire to discover the reason gave me a motive for testing and evaluating possible design strategies. Thus, I chose their weaving tradition as the object of this study to approach the Taiyal because their art is apparently realized in their textiles.

1-2 Scope of This Study

1.2.1 The Study of Clothing in Small-scale Society

In the study of material culture, anthropology examines material in its social context, that is, anthropologists who study material culture investigate not only the objects themselves but also the relationship between culture and the object that people make,

decorate and use. The study of textiles may therefore offer a viable means to approach cultural processes. The broad possibilities of decorative variation give cloth an almost limitless potential for communication, whether through the patterned weaving of colour warps and wefts, or through techniques such as inwoven patterns, embroidery and staining (Weiner and Schneider,1989:1).

Within the last twenty years, the social, economic and symbolic significance of cloth has been recognized, leading anthropologists to understand that clothing is one of the important symbols of group identity used to distinguish "us" from "them", due to its high visibility (Ferraro,1992:307). Thus, another characteristic of cloth related to its social and political roles is central to this thesis. Weiner and Schneider (1989:5) comment that cloth draws its strength as a metaphor from its use as a powerful expressive medium in the life of the small-scale society. It also serves to define concepts of humanity and culture and social interaction. That is, clothing is usually seen as outward manifestations of "one's station in life---occupation, status, wealth and well-being" (Borgatti,1983:31). In papers on the study of ship cloths in Southeast Asia, Gittinger (1972;1979) repeatedly emphasizes the symbolic function of textiles as a means of transition in rites of passage. Milgram (1991) has argued, in her study of the textiles of Highland Luzon, in the Philippines, that the materials, techniques and patterns of textiles embody a system of formal relationships that provide information about people's world view.

The fabrics are "among the last remnants of an indigenous artistic tradition which flourished throughout the area, preserving traditional pattern systems and articulating the values of society" (Ellis,1981:227, c.f. Milgram,1991:1). This can be applied to

the case of the Taiyal. Mori Ushinosuke (1977[1915]:5) has noted that "weaving is most prevalent activity in the Taiyal society; it is the next most prevalent in the Yami (the Ta'u people nowadays) society.....". In the past, all cloth production was performed by the women in traditional Taiyal society and a woman's social status was determined by her weaving skill. This may be the reason why the weaving is important even in the recent past.

1.2.2 The Characteristics of An Art Form

Anthropologists are no longer satisfied with the idea that studying the art of small-scale societies requires merely detailed description. Therefore, many researchers start asking questions such as, how can an art form be recognized? When we see a split animal representation, we may have an example of the art form of North West Indian of America while the squatting morphology may be linked to the art of ethnic groups of Pacific Ocean. Why are there curvilinear lines in art form of Maori people of New Zealand whereas there are zigzag lines like snake shape in art style of Taiwanese Aborigines, especially the Paiwan groups? Answers to such questions are basically hypotheses that the art form in a given culture reflects the characteristics of the culture to some extent.

The concept of style has been an area of inquiry in anthropology for almost the entire history of the discipline. Anthropologists have described its diachronic and synchronic aspects for specific cultures and its idiosyncratic contexts and contents within a culture. A style is a schema, a distinctive patterning of elements, which is recognised within a culture as appropriate to a given medium (Washburn,1995:102). Each style has characteristic arrangements of pattern. So we cannot help but ask the

following questions: what are the characteristics of an art style? What factors determine style? How important are contextual factors in determining style? Which attributes of a style are more or less relevant to reconstructing past process, conditions and social units? It is undeniable that art must conform to culturally appropriate rules if it is to be considered art. This rule implicates the value system of a given group. If an artifact's style is perceived and can be analyzed partitively, then which attributes reflect, for example, technological constraints, the identity of social units of various spatial scales, personal identity or collective consciousness and view of value?

Anthropologist Alexander Alland defines art as "play with form producing some aesthetically successful transformation-representation" (1977:39). Art form can be referred to the rules of the art game: the culturally appropriate limitations or restrictions on the way this kind of play may be organized in time and space (Schultz and Lavenda,1987:164). Besides, many arguments emphasize the contextual and historical-specific nature of expression of the processes that cause material style (Carr and Neitzel,1995:ix).

This thesis will take Taiyal weaving as a case study to approach the general issues of clothing itself, including design patterns and technology as well as the significance behind cultural phenomena related to weaving. The thesis also aims, by taking a material anthropological point of view, to examine the motifs and designs in Taiyal textiles, to explain its general characteristics in terms of their symbolic meaning and function in their own culture and thus reveal the full significance of the textile. It incorporates an anthropological method with an archaeological and an art historical approach, and also argues that the objects are both intentionally designed and utilized

according to formal principles of order through which it communicates information to the members of the community.

Though M'Closkey (1994:122) in her critique suggests that many of the geometric forms incorporated in Southeast Asian textiles may be iconic forms, the style may not be determined by the meaning of design element. In the Taiyal case, it is not easy to look for abstract meanings and significance in Taiyal weaving art because of their characteristic geometrical form. So this thesis is not oriented toward perspectives on representational art forms. It is a straightforward exploration of an approach to textile design analysis that attempts to get beyond description and classification and into the realm of the cognition and grammar of geometric design. A cognitive approach to design production can, as Van Esteric notes (1981:1), be defined as an approach that searches for rules or regularities in design and explanations as to how these rules could have been used to organize and interpret the behaviour of producing art objects. By analyzing the formal elements of tripartation occurred in the weaving of Highlanders of Philippine, Milgram (1991:167-175) argues it is expressive of human relationships, especially those associated with rituals.

Beyond the examination of formal design arrangements, I shall try to take the geometric characteristic of Taiyal weaving as a path to gain an understanding of material style in the light of the anthropology of art and further to ascertain the characteristics of the Taiyal people.

1.2.3 Contents

As Layton writes in his study to anthropology of art (1991[1981]), the concepts "small-scale societies" and "the art in different cultures"---may reflect his two main research strategies. Hence, studying Taiyal weaving by reference to the two means, in my opinion, includes not only studying its process (techniques) and its products (textiles and clothing) but also finding out the probable causes of similarities and differences in different weaving traditions. The contents of each chapter are as follows: Chapter One is the introduction of this thesis, including the motive, method and literature reviews. Chapter Two provides a general introduction to the Taiyal people. In Chapter Three, I try to make a comparison of two different art forms in two societies and demonstrate the function of the decorated textiles by analyzing them in their own social setting. The representational quality of motifs in the art of the Paiwan can be easily assessed in terms of their social context in a hierarchical system whereas the outstanding forms of geometric designs in Taiyal weaving can be related to the socio-cultural context of their egalitarian system. Chapter Three attempts to argue that decorated textiles and adornments are integral elements in the socio-cultural systems. Both the Paiwan and Taiyal belong to the Austronesian family and live on the same Island (Taiwan), however, they have more distantly related art traditions. Did these differences develop over time as the social structure of these communities diverged? Anthropology usually has a dual goal. The first one is to describe the diverse social and cultural systems throught different peoples. The other may be attempting to discover the significant similarities of art forms between different cultural traditions. In this thesis I have tried to explore the latter through three possibilities, a historical connection, human cognitive universals and technical constraints. In Chapter Four the hypothesis that there is a historical connection

between aboriginal groups is examined. It is clear that the Taiwanese aboriginal peoples share a common heritage of artistic traditions with people in Southeast Asia. I will make use of the related linguistic, archaeological evidence and cultural anthropological hypothesis to explore the probable connection of geometrical form in Taiyal textiles with the textiles of other Southeast Asian societies. Chapter Five consists of an examination of the structure of the geometrical design system in Taiyal textiles by using the method of symmetry analysis. And, on this basis, I will try to assess the extent to which similarities in textile designs between Taiyal and other aboriginal groups can be regarded as expressions of cognitive universals. In Chapter Six, I will explore whether the similarities between different cultures are due to the universal techniques of weaving, i.e. whether the use of warp and weft threads arranged at right-angles to each other renders some design forms much easier to realize than others in weaving: square, diamond and triangular forms are much easier to produce in weaving than circular forms, for example. Chapter Seven focuses on the condition of contemporary change. Contemporary adaptation in recent years has witnessed many changes among the indigenous peoples vis-à-vis the Han Chinese in Taiwan. The plight indigenous people face is a social problem of great importance which deserves immediate attention. I will intend to illustrate the change of weaving by reference to that of great environment.

1-3 Literature Reviews about Taiyal Weaving Tradition

1.3.1 The Study of Material Culture and Art among Taiwanese Aborigines

Anthropological studies in Taiwan began with the studies of the indigenous Aborigines (Chen,1988[1968]:422). Dutch missionaries in the seventeenth century and the Chinese rulers in the Ching Dynasty (from 17th to 19th century) have more or

less left us some documents on the aborigines. Those documents were valuable even though they were brief. These records, none the less, cannot assist in understanding the indigenous people, particularly the ethnic groups living in the deep mountains.

Anthropological or ethnological studies did not appear until the Japanese occupation period (1895-1945). Japan was the first country in Asia that promoted anthropology as a specialized and academic discipline. During the period of colonization, Taiwanese Aborigines became one of the most interesting fields of study. The Japanese set out a great deal of surveys and researches about the Formosan Aborigines in the fields of ethnology, physical and cultural anthropology, ethnicity, geography, archaeology and linguistics[i]. These scholars more or less completed the tribal identification of Taiwanese Aborigines and achieved a basic understanding of the culture, economy, social structure, population and tribal distribution. Their research works have always played a crucial role, even today. In the case of most of the investigations and researches accomplished by disciplined anthropologists or ethnologists they were offered as a reference for policy-making and served as the foundation of administrative monitoring and control during the period of colonial occupation. They can nonetheless be seen as just general descriptions. Perhaps they may merely be called elaborate ethnography, that is, they are considerably detailed in every aspect of aboriginal culture but in common lack deeper analysis. That might be due to the attitude of colonialist government. However, they are important and fundamental documents as groundwork for further exploration for successive academic researches today.

As far as the Japanese studies of the Taiyal are concerned, most survey reports focus on their languages and the management policy. This may be due to the fact that the Taiyal were often the untamed protagonists in a number of rebellions against the Japanese. The Japanese rulers would therefore like to deepen their understanding in order to take efficient suppressive measures. The material culture of the Taiyal is described in certain chapters of aforementioned survey reports or as parts of general studies on Formosan Aborigines.

After restoration of Taiwan to the ROC Government (1945), in addition to general investigations compiled by officials, the methods most Chinese or Taiwanese anthropological specialists adopted to study the material culture of Taiwan Aborigines has been to select a certain group or a special topic to research or make a comparative study of the culture among various ethnic groups, deducing general principles regarding the dynamics and changing trends in these cultures (Chen,1987:90).

Since the study of Taiyal weaving as an art form is also related to the field of anthropology of art, among these contributions, whether the Japanese or Chinese and Taiwanese, there are some related to the study of anthropology of art. Sato Bunichi (1988 194) was the first researcher to take the research of Formosan aboriginal art and material culture as the centre of his study in the period of Japanese rule, although he relied on a basically evolutionist view of aesthetics. Kano Tadao (1955[1946]:167 -208) examines the relationship between Formosan Aborigines and other aboriginal groups of Southeast Asia according to the characteristic features in their material culture. He has been followed by some Chinese and Taiwanese scholars. For instance, Chen Chi-lu (1988[1968]:367-405; 1996[1961]:165-192) explores the

affinity of art forms between the material culture of Formosan Aborigines and other aboriginal groups in the Pacific Ocean by putting them in the framework of the cultural history of the Circum-Pacific region. Besides, Chen (1987:145-166) has approached the characteristics of 'primitive' art by comparing it with folk, children's and modern Western art according to the visual impression of aesthetics. Ho Tsei-pin (1980) introduces some controversial discussions on 'primitive' art, such as sign or symbol, style and aesthetics, and some related theories, such as Cognitive, Symbolic and Cross-cultural Schools. Further, Hsu Kwong-ming is an active Taiwanese scholar who has publishing theoretical explorations in recent years, taking up the thread of the study of the anthropology of art. By taking Hau-cha Village of the Rukai people as the object of her fieldwork, she considers art as a form of cultural behaviour, and places it in the category of society and culture to approach the potential relation between art and its socio-cultural context in Rukai hierarchical society (Hsu,1987; 1991;1994). In addition, some amateur researchers have also sporadically contributions to the study of aboriginal material culture and art, such as Liu Chi-wai (1977;1992;1995) and Kao Ie-ron (1976;1992).

In addition to the chapters providing a general introduction to the Taiyal people or other Taiwanese Aborigines there are, among these researches, others more or less related to the material culture and art of Taiyal. These themes concentrate almost entirely on the aspects in Taiyal tradition which are widely known, such as facial tattooing (Ho Ting-jui,1960; Sung Long-she,1981), headhunting (Ho Ting-jui,1954), shell-bead garments (Chang Kwang-chi,1959), weaving (to which I shall return) and other objects (Chen Chi-lu,1949; Shih Chang-ju,1950; Li Yih-yuan *et al*,1963 and 1964; Li Lai-wun,1992, Shih Mong-ts,1994). In contrast to the many presentations on

the history of population distribution, social organization, economy or political system in studies of the Taiyal there are, generally speaking, relatively few investigations and studies on their material culture and art. That may be, on the one hand, because of the decline in the study of material culture and art in anthropology and, one the other hand, due to the fact that the Taiyal have no obviously 'expressive culture' except their weaving. What their art form offers is not like those opportunities presented in elegant woodcarving and other representational art designs of the Paiwan.

1.3.2 The Study of Taiwanese Aboriginal Clothing

In addition to receiving mention in parts of investigative reports on general ethnography, such as "*Banzoku-chosa-hokokusho*" (Sayama et al,1913-21) and "*Banzoku-kanshu-chosa-hokokusho*" (Kojima et al,1915-22), there are also treatises on aboriginal clothing accomplished by individual researchers[ii]. For instance, Torii Ryuzo (1902:88-105) briefly reported the weaving tradition of the Ta'u people (the Yami), who reside nowadays on Orchid Island, and made a simple comparison with that of the Taiyal people. Sato Bunichi (1988[1942]:125-198) not only described the material, manufacturing process, style and adornments of aboriginal textiles but also presented an analysis based on the psychology of aesthetic activities. Kano Tadao (1955[1946]:173-184) has classified the clothing and weaving instruments such as looms.

After the Post-war period, the weaving and clothing of each aboriginal group in Taiwan has been mentioned in official reports such as the "General Survey of Taiwan" Vol.8—Ethnic Groups (Wei et al,1965). Furthermore, some researchers chose a certain ethnic group or community as their object of study to launch inquiries

into aboriginal weaving and clothing by means of anthropological fieldwork. These include Ling Man-li (1960;1962); Shih Lei (1964); Wang Duan-yee (1980); Sumida Isami (1985); Li Sa-li (1993[1983]), Kao K'un-hui (1989a,b) and Yuma Dalu (1996). Moreover, some take the collections in ethnological or anthropological museum as objects of study in their research, such as Li Yih-yuan (1954;1982); Ho Ting-jui (1953) and Wu Lin-lin (1990). Among these Li Sa-li (1993[1983]:4-5), in her introduction to the book "*The Study of Paiwan Clothing and Ornaments*", sets out a brief table to compare the clothing of each aboriginal group, including the materials, loom, colour, decorative technique, patterning and style. Li's work is the first more systematic study on the textiles of Taiwanese Aborigines.

Other than these articles, there are some books with indispensable photographs, namely the coloured illustrations of Taiwanese Aboriginal clothing, such as Segawa (1983) "*The clothing of Formosan Aborigines*"; Tien-ri Taigagu edits (1993) "*The Clothing and Ornaments of Taiwan Aborigines*". In his book "*The Textiles of Formosan Aborigines*", Okamura (1968) gives a thorough introduction to the clothing of each Aboriginal group in Taiwan.

1.3.3 The Study of Taiyal Textiles

In the survey reports or ethnographic documents mentioned above, Taiyal weaving is sometimes elaborately recorded, either in the period of Japanese colonization or after the restoration. There are some important contributory articles to this field. For instance, Ho Ting-jui (1953;1954) focuses on the clothing and ornaments related to headhunting in his study. The data he used were obtained partly from his own fieldwork and partly from the specimens in the anthropological museum of Taiwan

University, which was established by Japanese scholars. The shell-bead garment used to be regarded as a symbol of wealth and honour in traditional Taiyal society. Chang Kwang-chih not only delineated the shell-bead clothing in the collections in the museum of NTU (1959) but also advanced a reconstruction of the probable origin and diffusion of the shell-bead cultural cluster among Formosan Aborigines (1953). In the investigations at Nan-ao Taiyal of I-lan Hisang, Shih Lei (1964) made a detailed description of many aspects of Taiyal weaving, including materials, techniques, tools, weaving process, design patterns, related taboos, and so on. There are a number of similar reports, such as that of Yuan Chang-rue (1994[1990]).

The majority of the aforementioned studies adopted the methodology of traditional cultural anthropology, for example, by approaching the ritual function and relationship of clothing to life in traditional societies, or taking aboriginal textiles as a research field of material culture, through data analyses on features such as the process of weaving activities, design patterns, and so on. By using the data of anthropologists and ethnologists to examine the characteristic features of material, colour and design pattern in traditional Taiyal and Rukai textiles, Liu Chiu-sze (1990; 1992) takes a different approach, making an effort to re-develop and incorporate the traditional textiles for the modern lifestyle, calling upon her professional knowledge of dying technology and concepts of modern design, including dyeing, weaving techniques and tools. She suggests not only that traditional textiles can be revived in the contemporary situation of a market economy but also that local industry and tourism sources can be advanced in this way.

There are few Western studies of Taiwanese aborigines, let alone of the Taiyal and their culture. Thus, the works undertaken by Nettleship and Vollmer are notable. By virtue of an important collection of Taiyal textiles held at the Royal Ontario Museum, Vollmer (1977;1979;1994) traces the geographical distribution of the foot-braced, body tension loom of Southwest China used in cloth production and outlines the details of this loom technology. By analyzing the causal connections between the loom, the dimensions of the fabric it produces and the resulting options for garment construction, Vollmer concludes that garment-making technology is based on an identifiable and limited set of modules. His examination sets the stage for investigating the links between techniques of cloth construction and costume design in other regions known to use the foot-braced loom.

In his Ph.D Thesis, based on his enthusiasm for action anthropology which holds that a more reasonable policy is needed to safeguard the aborigines' rights and interests as well as help aborigines succeed in their adjustments to the wider society, Nettleship (1971) not only carried out an anthropological fieldwork but also participated in far more active involvement. He spent several years (1964-1969) engaging in promoting the Atayal(Taiyal)-Taroko Weaving Renaissance Project in the Taiyal tribes of Jin Ai Hsiang where the Nantou Hsien of Central Taiwan is located. He attempted to develop Taiyal hand weaving from an aesthetically appealing but economically costly survival of former times, into a local industry which could contribute to their current economic and social needs. Besides, Nettleship's work also provides background material to aid understanding a history of change in Taiyal communities under the influences of the outsider world (Nettleship,1969a,b;1970a,b;1978). However, the change in recent years is dramatically accelerating since Taiwan's economy has

prospered, so that it is proceeding even more rapidly than at the time of Nettleship's observations.

1-4 Conclusion

Coote and Selton (1992:3) comment that the relationship between art and the rest of anthropology seems to remain asymmetrical. That is, the anthropology of art continues to be marginal to the subject as a whole, as if art were considered of secondary importance. The studies of art are rarely drawn on in the anthropological work of politics, economics or kinship. As far as the study of art in Taiwan is concerned, the review of the major literature shows that studies on material culture or anthropology of art seem relatively fewer if compared with the documents and studies on social structure or religion. We can also notice that most researches on aborigines as well as on their material culture are compiled around or before the 1970s. This situation may indicate a decline in the study of material culture and art because the main researches in social anthropology in Taiwan have turned to the Han Chinese community due to the increasing prevalence of the science of human behaviour (Huang,1984:115; Li,1993: iv, Hsieh's preface); however, it also appears that the study of material culture and art has been ignored in anthropological research.

The phenomena just described above apply equally to studies of the Taiyal. With reference to the study of Taiyal weaving, there are even fewer articles, although it has been mentioned in many of the survey reports or research work done by either Japanese or Chinese scholars cited above.

[Footnotes]

[i] The Japanese studies to Formosan Aborigines may be generally divided three stages, as follows: (1) In 1884, Japanese ethnologists and anthropologists set up the Tokyo Anthropological Society and began the publication of the Journal of the Tokyo Anthropological Society (Chen,1987:113). At the incipient stage of Japanese domination, many investigations were conducted by members of this Society, such as Torii Ryuzo, Mori Ushinosuke, and so on. (2) The Special Commission for Inquiry on the Olden Customs of Taiwan was founded in 1901. This official organization made a series of investigations concerning the aboriginal customs and sixteen volumes of Survey Reports were published (1913-1921). (3) With the establishment of the Institute of Ethnology in the Taihoku Imperial University (the predecessor of NTU) in 1928, the study of aboriginal culture was intensified with the introduction of a number of more specialized disciplines, including sociology, agriculture, natural science, technology, medicine, and so on. Besides, two valuable collections were set up, one in the Museum of the Government-General, another in the Taihoku University (Chen,1987:94-104). Most important academia achievements were accomplished in this stage (Liu,1975:11-16).

[ii] According to Li Sa-li's statistic (1993:9), more than thirty researchers have been written articles on the weaving of Taiwanese Aborigines.

CHAPER TWO
INTRODUCTION TO THE TAIYAL

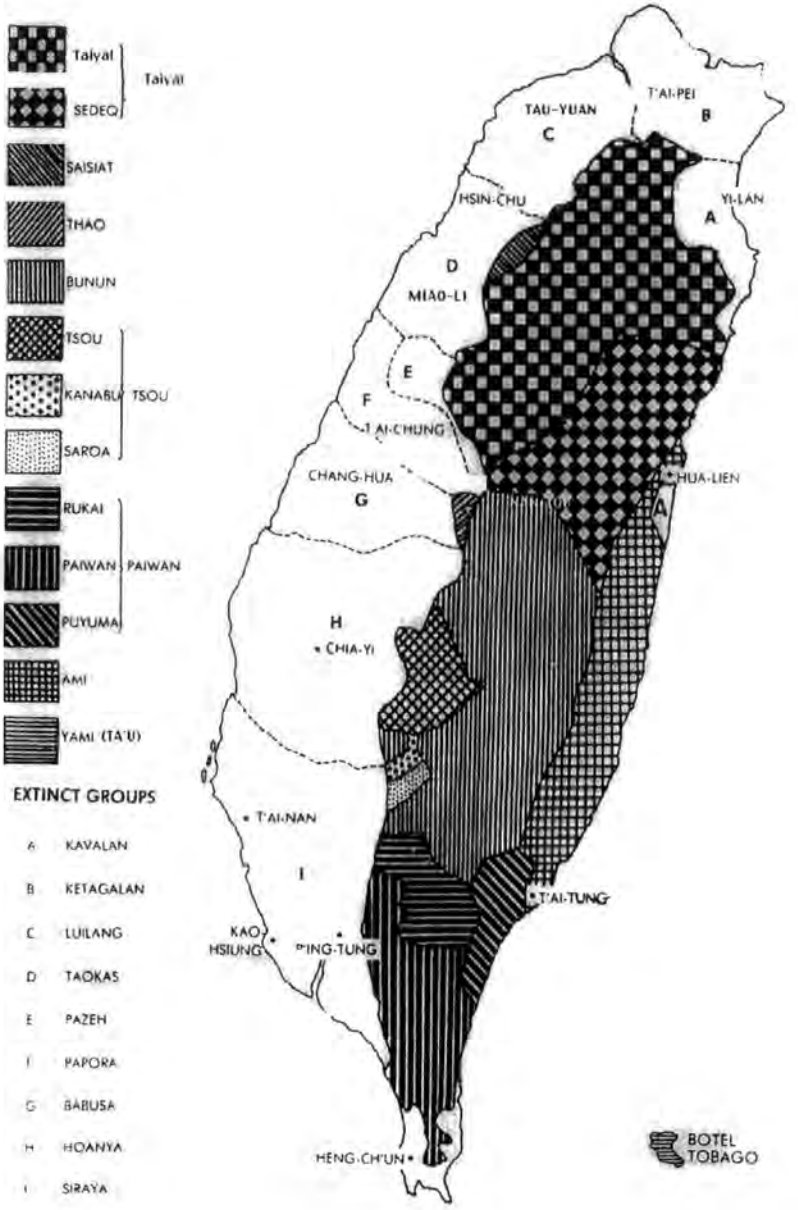
People without a writing system to record their history, can usually hand down their traditions in oral literature and verbal folklore. The folklore of a people embodies the basic aspects of the culture, including not only their history but also an indication of the deep structure of the culture existentially and normatively, expressed through their world view and value system. In this chapter, I would like to introduce the general background of the Taiyal through the medium of folktale and try to see what the fundamental attitude and the motivation of an individual are when s/he lives within his/her own society. From the text of these legends and folktales we may further approach the general character of this people.

2-1 Introduction to the General Background of the Taiyal

2.1.1 Geographical Distribution

The area of Taiwan is 35981 square miles. There are more than two hundred mountains over 3000 feet on the island. Taiwan was granted the glorious name "Formosa"--literally, the beautiful island—by Portuguese sailor who discovered this island in the 1590s. Many researchers regarded Taiwan as a treasure trove which constitutes an excellent field for anthropological researches because of its complexity and heterogeneity in the structure of cultural groups. There are nine Aboriginal peoples: Taiyal, Ami, Bunun, Saisiat, Paiwan, Rukai, Puyuma, Tsou and Ta'u (Yami). All are Austronesian- speaking societies although the languages are not mutually intelligible. According to the 1997 census, these Austronesian speakers had a combined population of 420,000. However, while constituting less than 2% of the

total population of Taiwan, they are dispersed through 67% of the Taiwan island (Map 1). With the exception of the Ta'u tribe on Lanyu (Orchid Island) off the southeast coast, most of the indigenous peoples are scattered in remote areas of the Central Mountain Range or such as the Ami people along the narrow eastern coastal plain.



Map 1: Settlement areas of the aboriginal groups in Taiwan (adapted from Chen,1987:44).

The Taiyal people are one of the nine indigenous peoples. Historical documents are always rare among aborigines without a writing system. The Taiyal are no exception. According to ancient Chinese literature, the Taiyal were perhaps the Min-Yueh (or the Wu-Yueh) people living the lower reaches of the Yangtze River and southeaster China around 3000 years BC (i.e. during the Spring-autumn and Warring period in ancient history of China) because they shared the custom of facial tattooing with the Aboriginal people of this region (Liao,1984:14-19). The Taiyal people were assumed the earliest immigrants among all aborigines of Taiwan. The evidence on which these claims are based will be critically assessed in Chapter Four. Since the seventeenth century Taiwan and Mainland China were frequently in contact with each other. The Chinese called Taiyal "Pei-fan" (i.e. northern aborigines) or "Chin-mien-fan" (i.e. aborigines with face-tattooing).

The name of this ethnic group is pronounced 'Taiyal' but is spelled with an initial "A" as 'Atayal' in all literature. In 1898, Adrecht-Wirth, a German researcher of history, used Atayal for the first time, and in 1911, the Japanese Colonial Government used 'Atayal' as the official name. Since then this has been regarded as their formal name (Liao,1984:1). Despite the common spelling 'Atayal', however, I decided to use 'Taiyal' in this thesis because the Taiyal people I have met, particularly the Ts-yu Villagers, pronounce their name in that way.

The Taiyal number more than 80,000 comprising about a fourth of the total aborigines in Taiwan, second only to the largest group, the Ami. The Taiyal live in the Central Mountain zone of north-central Taiwan, occupying terrain from 500 to 2500 meters in elevation, including parts of Taipei Prefecture, Tauyuan, Hsinchu, Miaoli, Taichung,

Nantou, Hualien and Yi-lan. Their distribution is to be found throughout the 30,000 square miles of the northern territory and extends over almost a third of mountain Taiwan, which is the broadest range of any aborigines in Taiwan.

Mabuchi (1974[1966]:184) conducted extensive fieldwork in the Central Mountains in the 1930s. He traced probable origin points and movements and identified tribal areas of most Taiyal subgroups during the period from the 17th to 20th century. He postulated ca.1700 to 1780 as the time of these movements and argued they were mostly finished by the end of the 18th century. Besides, the Taiyal are usually divided into three main sub-groups---*Saqoleq* in the north, *Tsa'ole'* in the west and *Sedeq* in the east (Map 2). The name in each case is derived from the respective dialect word for "human being." Utsurikawa et al have classified the Taiyal into three main branches according to the folklore of origin (Utsurikawa et al,1935:22-25). They are as follow:

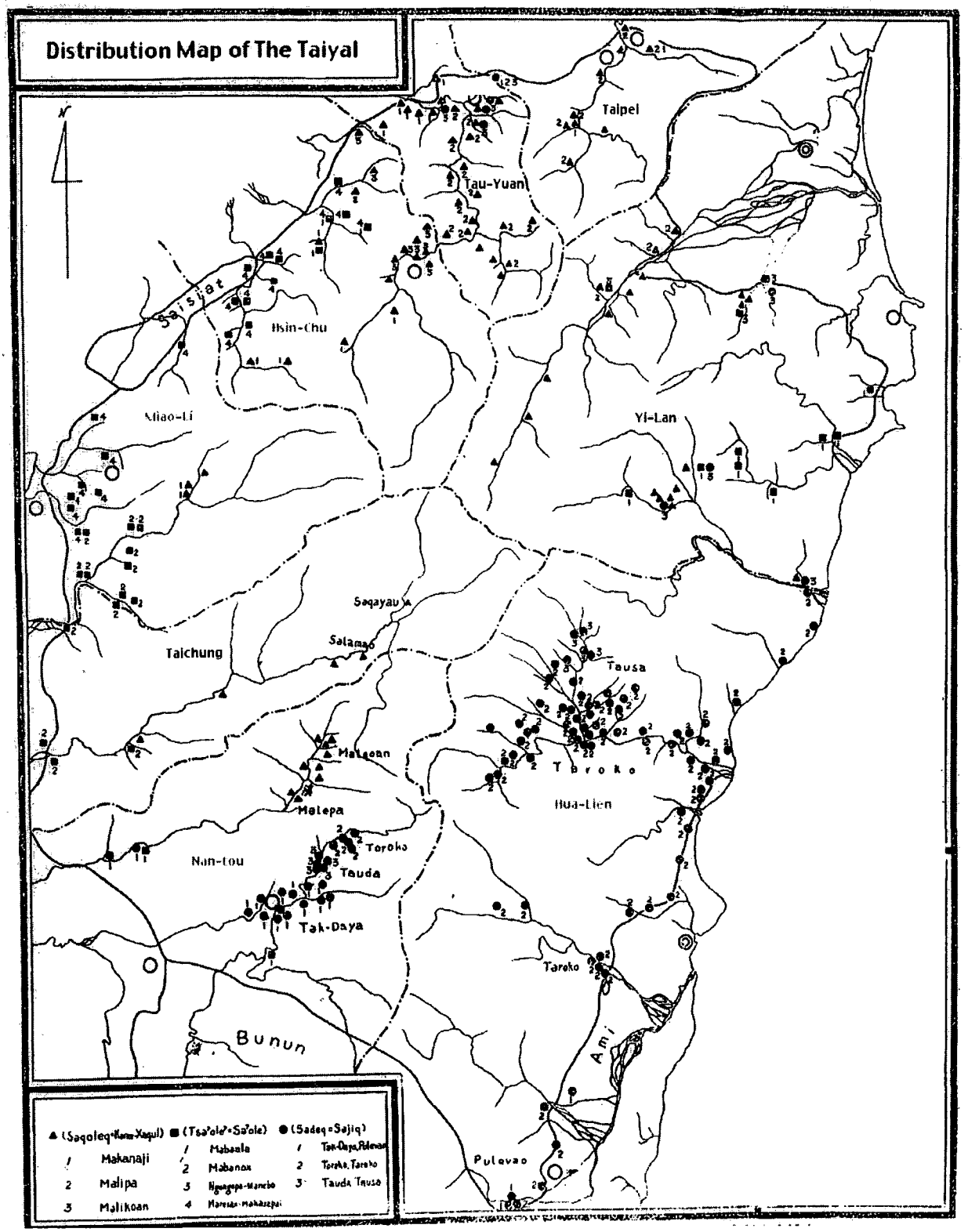
(1) Pin-sbkan as birthplace--- *Saqoleq* proper: Pinsbkan means the place where the rock burst. The rock can be still found at Masi-toban (Fa-siang village) in Nantou Hienh. It is said that in remote antiquity the rock broke apart into two halves, a man and a woman walking out from it. They were the ancestors of Taiyal people. Later on, due to shortage of land and growth of population, the descendants dispersed. Those who stayed at their original home were Taiyal while who went to the plains became other aboriginal groups.

(2) Babak-waqa as birthplace---*Tsəʻole'* proper including Wun-shuei of Miao-li, Kalapai of Hsin-chu and Pei-shi of Miaoli and Taichung: An ancient legend states that the Taiyal's ancestors originated from Dabagen Mountain.

(3) Bunobon as birthplace---*Sedeq* proper: The legend related that there was an old tree called Posho-kafuni (which means the original tree) on the upper reaches of the Karari River. The Taiyal's ancestors were born from the branches of the old tree. Most of the descendants crossed over the Central Mountain and moved out toward the East while the rest shifted toward Taro-wan and formed today's Wu-shoe branch (Nogan,1995:5).

These legends may reveal the Taiyal held animistic beliefs, a kind of belief that can be commonly seen in other aboriginal cultures of Taiwan.

All appellations given by the researchers adopt the word designating human beings in the respective sub-groups. Among these, the *Səqoleq* and *Tsəʻole'* call themselves by the name of Atayal (*Atayal*, *Taiyal*, *tayal*, *ʻtayal*, *ʻtaal*, *Itaal*, etc, depending on the dialects) which seems to approximate the name of the ethnic group; while, the *Sedeq* can be separated into Western and Eastern *Sedeq* (Mabuchi,1974[1966]:185-186). Although sharing many linguistic and cultural traits, the Atayal proper seem to differ in detail from *Sedeq*; however, despite the differences, they still shared common features of physical appearances, customs, material cultures, social structures, religions and ancestral legends. Since all three subgroups possess the great majority of customs, material culture, etc. in common, I will in this thesis treat them as a single ethnic group, the Taiyal.



Map 2: The distribution areas of the Taiyal groups (adapted from Ho,1956:151).

2.1.2 Subsistence and Settlement

The Taiyal were localised into neighbourhoods consisting of dispersed homesteads or clusters of separated hamlets on the high mountain slopes above 1,500 meters. As early writers (e.g. Davidson,1903, cf. Nettleship,1970a:86) described, the Taiyal lived in small dispersed villages and scattered about in single dwellings out among their fields. They moved quite often from one place to another. Moreover, like the other aborigines of Taiwan, the Taiyal traditionally subsisted by hunting and slash-and-burn cultivation, a method of felling trees, burning weeds, slightly turning over the soil and then growing crops. Productivity was basically limited in this way. As the population grew, some communities would be forced to move to virgin areas and open new swiddens[i].

The main staples they traditionally produced were root crops (such as sweet potatoes and taro), millet and upland rice. Supplementary crops included manioc, beans, gourds, bananas, ginger and ramie, etc. (Li,1982[1962]:294). Since the Japanese introduced to them wet-rice cultivation and plowing with water buffalo, the Taiyal had given up their swidden agriculture. After the Post-War period, they farmed with various kinds of machinery, and were helped to learn how to grow highland vegetables, and fruits such as apples, water peaches, pears, of high economic value.

Hunting used to be an important aspect of subsistence. Wild boar, deer, goats and occasional bear were hunted communally. Bats, squirrels, monkeys, bee honey and larvae also contributed to the diet, while deer horns and bear's gall were traded for salt and iron from the lowlands. Though the Taiyal were not to be called hunting peoples, almost all of them were hunters to some extent (Mabuchi,1974[1966]:179).

There were no professional hunters, although there were some differences in individual skills in hunting. Hunting was also the most interesting activity for the men. Each member of a hunting group had to adhere strictly to taboos associated with bad dreams, bird divination and many prohibitions in daily life; otherwise disaster would befall them.

2.1.3 Belief and Religion

Kojima et al (1996[1915]:39) thought that the Taiyal lacked the concept of religion, but commonly believed the soul to be eternal[ii]. The sole object of awe among the Taiyal was the rather vaguely defined "*rutux*" (utux, *kutux*) which referred to all supernatural beings such as souls, spirits, ghosts and gods, which could be divided into two kinds: malevolent and benevolent. Malevolent spirits were spirits of those who died in accidents, who had very limited power. Benevolent spirits were the spirits of ancestors and eliminated enemies, who possessed the greatest power for reward and punishment and were therefore particularly venerated by the Taiyal.

The most important one among these beings was the ancestral spirit. The Taiyal deeply believed that the ancestor's spirit also was the master of the universe and human society, so that its descendants (i.e. the members of a descent group or *gaga*) had to follow it solemnly in order to be rewarded with a peaceful life blessed with glory, wealth, health and harvest and many, prosperous children (Li,1963:266-267; Kojima et al,1996[1915]:40). If, on the contrary, there was any violation of rules and regulations, or wrong conduct, the offspring had to express their repentance and make sacrifice to invoke the mercy of the *rutux* or ancestral spirits. If they did so, misfortune and calamity would be averted (Sung,1963:136).

Taiyal tradition said that people would see a beautiful bridge in the sky a few days after they died. The Taiyal called this bridge the *hongu utux* (the bridge of the soul) and identified it with the rainbow. They believed it gave access to the places where the spirits of their ancestors lived. But only the deceased who were honest, and diligent in hunting and weaving in their lifetime, could pass through it (Kojima et al, 1996[1915]:41).

The central place of weaving in Taiyal thought is revealed in terms such as the reference to one's birth as *tminun utux* (i.e. weaving), one's death as *masoq tminun utux* (i.e. the accomplishment of the weaving), one's good luck as *blaq cinunan utux* (i.e. making a good result) and one's misfortune as *yaqih cinunan utux* (i.e. producing a bad outcome) (Kojima et al,1996[1915]:40).

2.1.4 Social Practice

The Taiyal practised strict monogamy, and the fundamental unit of their domestic organisation was the nuclear family which consisted of the spouses and their unmarried children. The family was a productive and consuming unit, incorporated within one of a limited number of agnatic kin groups. Ideally the eldest inherited the position of household head and served as spokesman for his brothers. Most households received help from kindred, friends and neighbours but that was considered to be reciprocated completely by the return of similar assistance and no debts were built up which would have to be repaid at the death of the household. The residential trend of the family revealed a trend toward patrilocality. However, the structure of traditional Taiyal society was not rigidly patrilineal. The ideology of patrilineal descent was tempered among most Taiyal by locality considerations, with

ritual and other groups tending to include matrilineal, affinal and even non-kin as members.

Sexual conduct was strictly regulated. Young boys or girls at puberty were always instructed that premarital heterosexual intercourse was shameful and should be avoided; even talking or joking about things related to sex between brothers and sisters was forbidden. The Taiyal believed such behaviour would anger the *rutux* existing in everything. If they violated the taboos of sex they would be punished and suffer calamity inflicted by *rutux*. Much folklore warned people not to be incestuous or indecent in their sexual behaviour (Kojima et al,1996[1915]:166).

2.1.5 Gaga

The regional community among the Taiyal appeared to have derived its unity from occupation of a single drainage basin rather than descent from common ancestors (Wei,1958:36; Mabuchi,1974[1966]:187; Sung,1963:127). Tribes[iii] varied considerably in size and areas occupied, were quite mobile and were often unstable in membership because households and groups of households could move from tribe to tribe or split off to start new tribes. An alliance often appeared to be extremely loose because it lacked the organisation which a more centralised political system would have provided[iv]. Even the kin group was solely based on genealogical ties, and not extensive enough to promote the internal cohesion of the tribe.

Since the organisation of their kinship group was too loosely organised into a village confederation to enable their military adventures, the Taiyal relied on *gaga* as a more

efficient complement to the structure of kinship (Li,1982:387; Wang,1992:30).

The term *gaga* (*gaza*, *gaya*, *waya*), or "tradition", includes all the rules of the *rutux*, or the demands and teachings of the ancestors. In addition, the socio-economical organisation of the Taiyal tribe was mainly based on "*gaga* ". It seemed that *gaga* had multiple qualities including a religious function, regional organisation and the structure of a cognatic kin group. The features of the *gaga* may be summarised as follows:

(1) a consangunial group: A *gaga* consisted mainly of members from one, two or several agnatic kin groups or affinal relatives, but included other close blood relatives who worshipped and obeyed taboos collectively (Ruey,1954:7,cf. Orii,1980:8; Wei,1963:26).

(2) a joint production group: In traditional Taiyal society, members of a *gaga* should collectively participate in hunting at specific times. A hunting group was organised by men, one of whom came from each family of the village. This group of people, which was called "*gə lo*" or "*gaga*" ("*gə lo* " means "companions"), hunted together and shared the game they had caught. Another function of the *gaga* was to provide reciprocal aid, that is, members of the group were expected to take on certain mutual obligations and help each other collectively. For example, when an individual married, all members of his kin group had to be invited to the wedding ceremony or they would be insulted, therefore refusing to provide future assistance. This obligation also applied equally at funeral ceremonies (Hsu, 1991:30).

(3) a ceremonial group: Members of a *gaga* shared supernatural power or *rutux*, conferred by the spirits of ancestors. They held rituals together and observed the rules of ancestral cultivation established by *rutux*. By means of ceremonial performance the *gaga* secured the blessing and guardianship for, or the damnation of their enterprises from the *rutux* (Sung,1963:136; Kojima et al,1996[1915]:57). A ritual group was often identical in membership to the tribe and had the same leader though they could be larger or smaller.

(4) a group regulating social conduct: The *gaga* was not only the unit of economic incorporation but also the institution of social regulation, controlling the villagers' behaviour. All members within the kin group were expected to abide by the specific norms of the group. For instance, open discussions about sex were strictly prohibited. It was generally believed that the entire *gaga* was jeopardised when even only one of its members offended the ancestors' orders. Once an offence occurred, other *gaga* members required the transgressor to appease the ancestors' spirits by giving some sort of offering, such as a pig (Sung,1963:135).

In view of these many qualities, *gaga* could be regarded as a group possessing the properties of cognation, joint subsistence, worship and locality[v] (Orii,1980:34). It was the most important element of social structure in traditional Taiyal society because people in a *gaga* group worked together, hunted together, participated in common rituals, observed taboos, and shared good luck and disasters (Hsu,1991:31). The Taiyal believed that life was ensured only by getting the people in the same *gaga* together. One who sinned and failed to confess could be expelled from the group, a

kind of ultimate sanction, since he thereby lost not only the group's comparative labour but, more importantly, the protection of the ancestral spirits. For this reason, a characteristic of traditional Taiyal social structure seems to be a dearth of corporate groups and a reliance upon relatively unstructured groupings for the accomplishment of many activities (Nettleship,1971:108). In principle they were goal-oriented, in other words, each member could act on their own freely to decide whether they joined in or withdrew from the group. All the groups therefore also had a temporary quality; that is, they did not continue indefinitely but were brought together for some specific purpose (e.g. headhunting). Once the common purpose was achieved the organised group would be dismissed. Consequently, the possibility of the accumulation of power was much weakened. Nevertheless, they were not purposive creations of a central ego for their own benefit. The goal orientation was less intense because there was no prestige—only companionship and some material assistance—to be gained through participation in one (Nettleship,1971:118).

On the other hand, a Taiyal village was, relatively, a more autonomous unit in the political sense and the authority of the village was exercised chiefly by a village headman. However, "tribal" chiefs emerged only in wartime and then only temporarily. The social status of a leader in Taiyal tradition was not inherited from generation to generation but basically bestowed by consensus for the individual's moral quality and ability. To be a leader of the village, one had to display good conduct and moral characteristics such as bravery, wisdom, integrity, and honesty. He was usually chosen by consensus. The village chief did not just represent his group in interactions with other tribes but also took responsibility for peace as well as harmony within his own village (Hsu,1991:30). Actually, the most influential thing

of a chieftain was leading all ritual activities and initiations; thus, he was more of a religious leader than of a political leader. Nevertheless, the position was not hereditary among the Taiyal who were devoid of class differentiation. Thus, the Taiyal have never created social classes although they maintained a stern and clear order in human relationships.

To sum up, the social structure of Taiyal can be seen as uncentralized. The authority of leadership was acquired by postnatal ability; thus, each individual had equal opportunity. It was not easy to amass personal power and differences of social class could not arise.

2.1.6 Headhunting

Headhunting was an important historical practice for the peoples of Southeast Asia, including Formosan Aborigines. Its importance is graphically expressed in the common designs which depicted the tree of skulls representing the display of trophy heads in the large warp-*ikat* or *sungkit* supplementary-weft cloths woven by many ethnic groups such as Iban Dyaks of Sarawak (Gillow,1995[1992]:16).

In past time, the custom of headhunting was widespread among the aboriginal groups of Taiwan. The Taiyal were no exception. Though no longer practiced, headhunting used to be one of the distinctive traits of traditional Taiyal culture. In the Taiyal language headhunting is called *m gaga* (Sᵊqoleq and Tsᵊole) or *pᵊgaga* (Sedeq), which means "to observe the old tradition". Taiyal legend presents headhunting as the original means for settling a dispute between two tribes (Kojima et al,1996[1915]:24). In fact, however, three motives may be distinguished, as Ruey (1972:1331) notes: (1)

blood vengeance; (2) military achievement; (3) settling disputes. The former two were enacted against the members of another village or sometimes one's own tribe; the latter was undertaken to settle quarrels and conflicts between kinsmen or tribes. When mediation failed it provided a way to judge what was right or what was wrong. Everybody should submit to the result of headhunting. According to Kojima et al (1996[1915]:40), in the ancient society that there was no formal organisation to adjudicate, when people refused to compromise, and headhunting was regarded as a profound moral action strengthened by conviction transmitted from their ancestors, further sanctioned by religious belief. When headhunting was undertaken, the Taiyal believed that "*rutux*" (the benevolent spirit) would bless and protect people in the right to gain a human head.

In addition to these three motives, Ho (1956:160-61) also deduces other reasons why the Taiyal practised headhunting, such as gaining permission to enter the spiritual world after life, the protection of the dead's soul, worshipping the ancestral spirits, dispelling disaster, gaining maturity and acquiring social position. It seems that headhunting was regarded as sacred and glorious. It was not undertaken for the purposes of robbery or defeating the enemy; instead, it was to sever human heads for religious ceremony. The victim was therefore not an enemy, nor was it taken after declaration of war. The victim was an unlucky person, young or old, who happened to be ambushed by headhunters from other tribes.

The Taiyal men usually went out headhunting as a group of three or four, or even as many as twenty or thirty, often led by the chief of the *gaga*. They attacked villages, or ambushed a passer-by. When they came back home before entering into the

village, they made a hole in the skull, poured out the brain medulla and covered the discharge with grass. The head was offered as a sacrifice in the ceremony of millet planting and harvesting because the Taiyal believed that it had the spiritual power to cause the crops to grow smoothly and prosper year by year. Sometimes they also trusted that the head would bring luck to gain a victory. After the ritual was performed, the skull was placed on the skull-rack of the club-house (Fig. 1), signifying the glory of the village (Ho,1956:192-93). Psychologically, headhunting gave play to the effect of magical economy.

Fig.1: The skull-rack in Wu-lai Village of the Kusshaku group of the Taiyal. (adapted from Tung et al,1996:178)

An individual's motivation in heahunting was not only to increase his own honour but also to demonstrate power and safeguard his village. The dependence of the Taiyal upon the land for subsistence led to continual strife between tribes. In the past the Taiyal were faced with many challenges to their land holdings from neighbouring tribes. Combat with neighbouring peoples due to competition for swidden land or hunting grounds or territorial extension was common. Hence a man's bravery became an essential qualification to maintain the survival of his own people while he struggled against enemies. According to the custom of head-hunting, an Taiyal adolescent should be able to sever a human head as a rite of initiation. Then, like other aboriginal peoples in Southeast Asia, he would be marked by tattoos for his

success in headhunting and pass through an ascending sequence of renown-building rituals until becoming a member of the greatest warriors. Also, he was eligible to marry.

During the period of Japanese colonisation (1895-1945), both headhunting and other rituals and customs, were totally banned by Japanese governors on the grounds of their brutality. Compared with the mass devastation caused by modern warfare it was neither indiscriminate nor ruthless. Pickering, who was an adventurous Englishman and lived among Chinese and mixed populations in Asia for nearly thirty years in mid-nineteenth century, held a more sympathetic attitude to the indigenous people. During his expeditions in the Central Range, described in his memoir, he ascertained that the mountain peoples were indeed head-hunters, yet found that they were neither inhuman nor as ferocious as the Chinese alleged (Pickering,1993[1898]:128). On the other hand, Hoskins draws an analogy that takes a government official or the representative of a petroleum company as the "modern" headhunters. He quotes recent reinterpretations which suggest a postcolonial recasting of headhunting as a form of violence perpetrated not by isolated forest people but by exploitative business interests and a predatory state development program (Hoskins,1996:2).

Therefore, Ho (1956:201-02) comments that headhunting among the traditional Taiyal society should be taken into consideration within its socio-cultural context. Headhunting served as a form of ancestor worship in traditional Taiyal society. In the meantime, it not only showed off individual achievements but also augmented the community's fame in order to gain security around neighbouring groups.

2.1.7 Body Decoration

As is common with body decoration in many cultures, each Taiyal design has a specific meaning within its culture. Some tribal societies make permanent marks upon their bodies in order to express enduring characteristics, but in some small-scale societies it is also a way to establish a group's identity. Some of the native people of America paint their bodies or tattoo their clan totem on their skin. According to the Nuer of East Africa, a man with six sculptured lines on his forehead is a real man. Women of the Cameroon of Central Africa use body scarification to signify the key transition points in life. Bodily extension is a common feature among the peoples of the western Solomon Islands in Melanesia (Ebin,1979:52).

The main means of body decoration are painting, tattooing by puncture and scarification. While most of the Formosan Aborigines practised tattooing, only the Taiyal, the Saisiat and the Paiwan carried on this custom into the twentieth century (Ho,1960:6-7). The Taiyal were famous for their facial tattooing, which made a deep impression upon outsiders. They were called "Ching-mien Fan" (the aborigines with face tattooing).

The Taiyal legend accounting for the origin of face-tattooing has it that in ancient time there were merely two people: a brother and a sister (Kojima et al,1996[1915]: 23). In order to propagate her descendants, the clever sister spread charcoal ash from the cooking pot on her face, so that the brother failed to recognise her. As a result, he married her. Ever since, the Taiyal had made it the custom that only women who bore tattooing upon their faces (this is tantamount to turning themselves into others) would

be able to marry, since such women commemorated their ancestor's deed to save humankind from being extinguished.

For the Taiyal, the tattoo marks were regard as a symbol of beauty as well as reputation. They always referred to the bearer's achievements. Men's face-tattoos represented bravery while women's signified intelligence. In traditional Taiyal society, men received the face-tattoo after they had participated in head-hunting, which involved killing a man, taking his head and preserving the skull. In view of this, some researchers have thought that the Taiyal were well-known for their valour by virtue of the custom of face-tattooing. In 1914, the Japanese administration in Taiwan tried to persuade the Taiyal to abandon this custom; until around 1930, they started to take action against it (Ino,1918:483-484). The actual motive of the Japanese was probably to eliminate the rebellious spirits of the Taiyal in order to keep them under strict control by forbidding the facial tattoo---the root of the Taiyal consciousness (Ho,1960:6).

Taiyal women had to be good at weaving before they were qualified to receive facial tattoos (Fig. 2). Having tattoo marks on one's face and body meant three things: First, it was a symbol of maturity; second, it signified that one was a real woman capable of weaving; and finally but not the least, the tattoo marks could be served as a qualified identification. According to Taiyal folklore, when the Taiyal descendants, either men or women who bore tattoos, passed away they could recognise or be recognised by the spirits of their deceased ancestors who greeted them into a better life after death in heaven (Ho,1960:9).

Fig.2: A face-tattooed elder Taiyal woman. (photoed by the author)

In the past the Taiyal women did not wholly depend upon their husbands for support. They themselves took responsibilities such as weaving, cooking and bearing children, as well as farming tasks such as sowing and reaping. For this reason, it is better to say that the relation between a Taiyal couple was one of interdependence rather than subordination to their husbands. Although the traditional Taiyal society could, as mentioned above, be characterised as inclining to patrilocality and patrilineality, it was in many ways more inclined to parallel status for both sexes, giving rise to bilateral kinship. It seems that the Taiyal women were not as lowly as those in Chinese society and they could earn due respect and reputation in traditional society if they discharged their obligations well. Then, they could pass through the rainbow bridge to meet their ancestors (Ho,1956:163).

Facial tattoos were believed to possess magical power which helped one to avoid evil forces. But more importantly, tattoo marks may serve as signs of identity, indicating to which tribe they belonged. In addition, in New Guinea the Roro people describe

the un-tattooed person as raw human, comparing to uncooked meat. Levi-Strauss (1963,c.f. Ebin,1979:24) has noted the widespread cultural distinction made between raw and cooked meat on the one hand, and fresh and rotten fruit on the other: the former is transformed by a cultural process, i.e. a social being, while the latter is by a natural one. According to Taiyal folk story, a person without facial tattoo was like a monkey and could not be regarded as a real man or woman. In spite of the forms taken by patterns of body decoration among the indigenous peoples in the world, they all therefore appear to express a notion of the true human being in their cognition.

In short, no matter how many legends explain the origins of tattooing in Taiyal tradition, the main motives seemed to be to make themselves more beautiful or handsome, to attract the opposite sex, to help avoid evil power, to be identified as a real human in a specific social group and to be received by their deceased relatives in the other world after death. An individual in society could establish his/her social status through this procedure while the internal unity of the society could be also realised through it. It is therefore frustrating that, as Wight (1967:54) discovered through interviews with tattooed older people in a Taiyal village in Wu Lai, that the informants universally had a strong aversion to the custom of facial tattooing. These people might have been subjected to many years of brainwashing since the Japanese spent a lot of effort convincing the tribes it was a bad custom; and then, they become ashamed of their tattoo marks now that people always sized them up with curious eyes in the present-day (Naogih,1995:15). It indeed contradicts the time they thought the tattooing quite attractive and desirable.

2-2 Summary and Conclusion

Each social group establishes its own set of norms of behaviour to uphold the social order, that is, to fulfil life, all the members must make joint efforts in accordance with an agreed set of principles. During the process of socialisation an individual, as a member of society, should learn all the standards of social expectation and be exhorted not to transgress them. What was the main value system in traditional Taiyal society ?

I have pointed out, at the beginning of this chapter, that the Taiyal were a people without written documents to transmit their history. We may however explore their character and values from their oral tradition. Though an individual's achievement and ability were emphasised, the moral ground was also important. In Taiyal oral tradition, many themes are related to moral tales in which human being are changed into animals due to faults such as laziness. According to the customs of the Taiyal, each stage of human development had its requirements that must be fulfilled responsibly. The evidence presented in this chapter shows that the Taiyal world view and value system may centre on the following: (1) the ancestral spirits and ritual rules, (2) work activities, (3) sex, (4) human relationships. The ancestral spirits and their ritual rules were the centre of the Taiyal life view, and the chief mechanism of social control was the working of collective responsibility within the *gaga*. In addition, in the conception of the Taiyal human fortune and misfortune arose through the intervention of the ancestral spirits (Li,1982[1962]: 379).

Moreover, conformity with the ritual rules was demanded in both sacred and secular activities. The value attributed to observance of ritual rules operated in several areas

basic to human welfare. Industry and vigour were both idealised in their way of life. These values were connected with subsistence, based on agricultural fertility and the supply of game, both vital in a self-sufficient, small-scale society. Values concerned with the regulation of sexual behaviour are expressed in tales about face tattooing. These provided evidence for the abhorrence of incest, which was emphasised everywhere as the basic element for the order of social life. Finally, in human relations, the Taiyal seemed to lay stress on the unity of a group. The group was bound together by transactions, involving exchanges of labour. The earlier discussion of *gaga* revealed that work groups seemed to be the most fundamental units in the social structure, and almost every materially productive activity in the culture was performed in such groups. Their contribution to peace and stable life was substantial.

In conclusion, there was no formal stratification of membership within groups. Differentiation was based entirely upon the moral character of individuals. The Taiyal thought this was the only cause of disparity in social status. Furthermore, the dominant values of their traditional society could be described as harmony, accord and individual dignity (Hsu,1991:31). They followed exactly all kinds of taboos and the system of ethics under the supervision of their ancestors' spirits and considered that everybody had a responsibility to observe the rules to keep his/her society in order. It might be asked whether these cultural characters of the Taiyal are manifested to some extent with their art forms. We will approach this issue in Chapter Three.

The earliest historic mention of the deep mountain Taiyal can be dated in 18th century, but isolation in a rugged terrain protected the Taiyal from major change until

the advent of Japanese military administration from 1895 to 1945. During the first thirty years of current Chinese rule, this picture did not change dramatically. Since the 1970s, when economic development in Taiwan began to take off, tremendous pressure for cultural change was placed on aboriginal communities. Since that time, indigenous peoples have found it difficult to maintain stability in their traditional social institutions. The Taiyal were caught up in the changing current of that time. We will also discuss this in a later chapter.

[Footnotes]

[i] Researchers have tried to explain why the Taiyal shifted so frequently. Some think that population movement may be due to their practice of swidden agriculture (Shih,1964a:504) while some researchers think the custom of burying the dead under the house, which led the family to change their dwelling place after the funeral.

[ii] In fact, the Taiyal generally regarded the 'supernatural existence' as *rutux*, and they had no differentiation between soul, ghost, or god (Li,1982:297).

[iii] I equate the term of tribe to that of village in this thesis. Actually, a tribe was the largest structural unit in traditional Taiyal society. It was occasional military combinations of tribes into leagues. An entire village federation or tribe may comprise a single ritual group in some south-western areas. Tribes were rarely political entities. They were primarily territorial groupings, each of which occupied, and defended, a natural geographical area. They were very mobile and varied considerably in size of population and area occupied. During the period of colonial occupation, the Japanese moved the Taiyal from deep mountains to hill or plain areas. The rulers often forced several tribes to merge into a larger village.

[iv] Modern administrative villages, with village headmen and other functionaries, are created by successive Japanese and ROC government in an effort to gain political control in the tribal areas.

[v] Wei (1958:35) argues that the *gaga* could not completely testify that members in a *gaga* had a common origin though these people might initially stem from the same ancestry, as in point (1) above mentioned. In fact, a *gaga* was occasionally composed merely of the co-members of a village, possessing no blood relationship in common, so the *gaga* could be seen as a composite local and consanguineous group.

CHAPTER THREE
ART IN ITS SOCIO-CULTURAL CONTEXT

The study of "pure" art and that of art in anthropology are somewhat different. The former might lay particular stress on the universal visual language of art and psychoanalyses of creativity while the latter might take more interest in the culturally-specific of meaning and socio-cultural context of art. This means that the study of the visual arts as an anthropological inquiry calls for considering art as an aspect of culture; in addition, taking into consideration a great many things other than one's own personal responses to particular art forms. Anthropology holds that no art work can be researched in isolation from its own socio-cultural context, which influences both the motivation of creation and the viewer's reaction to art objects.

The place of art in society is usually taken to be expressed through symbols. In recent years, social anthropologists are interested anew in the art of small-scale societies, and have gone a further step on the studies of symbolic behaviour and mythology. Art objects, as Chen Chi-nan suggests (1975:30), are not just the things which serve as presentations of pure art but also symbols which indicate the relationship, human/nature or human/society, behind their surface appearance. We cannot actually appreciate the distinct art form of an individual people unless we have a holistic understanding of the social structure or ideology of this people. In small-scale societies, all kinds of ornaments are worn with public approval during certain occasions or rituals. These behaviours can be called displays of art. If we wish to understand the art of a people, we need to know not only where the art was made, who made it, how it was used, what its functions were and what it meant to the people who made use of it, but also perceive it in the situation of use to probe the deeper motivation of these art behaviours. This is

the study of art in its cultural context (Hatcher,1985:1).

Art provides one of the most exacting tests of the cross-cultural method since it is often assumed that art is ephiphenomenal---it is not seen as being directly linked into other aspects of social behaviour or at least the links are thought to be complex (Hodder,1982b:173). If art is idiosyncratic, is it possible to identify statements which are generally true and which relate art to its context of production?

Sato has classified arts into four types: decorative art including artifacts and body decoration and dressing, descriptive art including paintings and sculptures, rhythmic art including dance and music, and verbal art including literature and folklore. The two former belong to visual arts whereas the two latter belong to performing arts (Sato,1988 [1942]:78-79). In this chapter I would like to explore the common features in visual arts of the Paiwan and Taiyal people, and further compare the differences between them with their respective social and cultural structure---hierarchy and egalitarian.

3-1 The Material Culture of Taiyal and its Socio-cultural Context

3.1.1 General Material Culture

It is generally believed that the Austronesian aborigines now found in Taiwan did not arrive before 3,000 B. C.. The Taiyal people are perhaps descended from the earliest immigrants (Chen,1987:48). As there has been no convincing archaeological evidence for Taiyal pottery, it might be possible that their cultures were still in an aceramic phase, i.e., they did not possess the technique of making pottery or the technology was not well-developed enough to be popular.

Instead, they used natural materials such as gourds and bamboo to make vessels and containers. Coconuts, shells and horns were also used as natural vessels. As is common in small-scale societies such utensils are primarily used for subsistence but, due to the satisfaction gained from the feeling of beauty, people tend to ornament them. While this is also true of the Taiyal, compared with similar artifacts among other Formosan Aborigines the Taiyal ones are rarely decorated with any figures. Generally, they are just sculpted with some simple lines on the surface. This is true of household objects in the material culture of Taiyal, both those in museums and in practical daily life at the present time.

Painting has not been found in the Taiyal art tradition, even carving is very simple. Sculpture is popular among some aboriginal societies of Taiwan, especially Paiwan and Rukai, but it has not been found in Taiyal culture. Although the Taiyal made such items as spoons, combs, tobacco pipes, handle and sheath of knifes, mortars and pestles, they scarcely decorated those objects.

The same is true of basketry. All the Formosan aboriginal tribes make baskets for transport, storage, trays, receptacles, fishing-trap, etc., the materials used in their manufacture being bamboo, rattan (*Calamus margaritae* Hance) and *Alpinia speciosa* (Schum). This is also true of the Taiyal people. Yet, although the Taiyal are expert in many of the methods of basket-weaving, the patterns produced cannot be seen as distinctive among those of other aboriginal groups of Taiwan.

Basket-weaving was generally men's work. In the past the Taiyal boys around 11-12 years old were forced to learn basket-weaving. However, contrary to the importance of

weaving for Taiyal women, basket weaving was not a necessary part of Taiyal men's life, so they perhaps gave up it when they became adult, if they had no interest in it (Yuan,1994[1990]:506). The Taiyal still make baskets, but they are not making them as well as they used to. This situation is inevitable because of the change to the natural environment. Moreover, there has been a period when the government forbade collecting the raw materials for basket-weaving; so that the Taiyal, like other aboriginal peoples of Taiwan, used plastic or other materials instead of the original materials[i].

Generally speaking, most traditional craft objects in the round are characterized by their great simplicity of form and lack of additional decoration. In the past, the Taiyal were regarded by the Japanese as the most fierce and uncivilised people among the aborigines in Taiwan. As far as aesthetic representations were concerned, the art of Taiyal was also considered the roughest and dullest of all among the aboriginal groups of Taiwan, especially in contrast to the work of the Paiwan people who were famous for exquisite art. But, it is clearly unfair to criticize work that fails to satisfy the evolutionary prejudices of Western art history. When evaluating Western art, we tend to equate the quality of the art object with the aesthetic ability and technical capacity of the artist. Moreover, it is assumed that contemporary artists are motivated and choose to practice art primarily for aesthetic reasons and because of their talent. The artist's aesthetic ability and technical capacity also affect the quality of art objects produced in small-scale societies, but judgments made on this basis alone do not account for social and cultural factors which intervene.

Most of the objects are utilitarian—needed in day-to-day living—but need does not usually dictate the form or decoration. Therefore, the art of small-scale societies not

only has pure aesthetic expression as its purpose but also tends to emphasize utility to meet any aspects of need in small-scale societies. The artist in such a society is in consequence primarily a craftsman. S/he makes things which will, on the whole, serve material ends and, although they may also give pleasure, such things often as well have a pragmatic role to play in the life of the household or community (Layton,1991 [1981]:42). So we cannot ignore the fact that the majority of primitive works of art have more practical social or cultural functions.

Some researchers try to demonstrate that Taiyal artifacts are not exquisite but utilitarian because of the frequent movements necessitated by their swidden agriculture. It was believed that they did not spare time for ingenious artistry or decorative interest due to the migratory and uncomfortable lives (Sato,1988[1942]:94). Others think that because Taiyal people may be the earliest settlers of Taiwan, so they might still maintain the prototype, or initial culture (Sato,1988[1942]:91). The inadequacy of this theory shows it is not appropriate to take the mode of subsistence of a society or a people as the standard of their spiritual activity and art creativity. Appreciation of primitive art, always requires giving wider consideration to its socio-cultural background. As Nettleship (1971:299;311) suggests, a relatively simple material culture such as the Taiyal is not entirely devoid of aesthetic interest. A well-shaped mortar is, for instance, admired more than a badly proportioned one. Their art tends to emphasize utility function rather than aesthetic expression.

3.1.2 Weaving Tradition

The Taiyal are famous for their weaving, and most of their decorative art can be apparently by seen in their weaving tradition. Some think that Taiyal aesthetic

experiences are relatively limited in scope and variety, but we should re-examine them in their context.

Weaving was always the most important work for the Taiyal female. The ability to weave was once the major index of maturity for girls. Their puberty rite included a weaving dance in which the girl demonstrated her skill at the loom while her female kindred danced around her. The steady resonant boom made by the hollow-log forming the main loom beam as fill threads were correctly beaten home provided the rhythm for the dance. After the performance the girl received her facial tattoos and could be married. Besides, the quantities of almost entirely hand-woven fabric and items made from them were included in the exchange of goods marking a marriage. The cloth was woven by the bride and/or her female kindred. Some of it was redistributed to the groom's female kindred and some was kept for use in the new household. Traditionally, men almost always received some land on marriage but women might or might not. The only land a girl could be sure of having a small share of was the ramie[ii] plantation possessed by her mother (Nettleship,1971:70).

The Taiyal women used the horizontal back-strap loom for weaving. Although it was a very simple apparatus, the Taiyal women were able to produce complex and beautiful textile designs by making use of it. In the past, a set of weaving tools formed the essential dowry when a Taiyal woman got married. This kind of instrument was a little difficult to make, so that it was usually made by the more skilled people in the tribe; notwithstanding, the maker did not acquire any privilege from it. Instead, women's social status was recognized and complimented by their weaving techniques. A woman who could not weave a piece of cloth could not receive facial tattooing, and she would

be ridiculed by other villagers.

Fabric was a part of everyday life as wearing apparel, carrying and storage cloths and home furnishing material. Both weaving and fabric were integrated into Taiyal culture through involvement in their belief and ritual systems. For example, there were some taboos about weaving. In traditional Taiyal society weaving was solely done by women, while men were not allowed to participate in any activities of weaving, otherwise they thought that some disaster would soon befall them. Moreover, the Taiyal believed that the ramie would not grow up smoothly if it was planted by men and that probably led men into danger when they went hunting.

More significantly, Taiyal women who were expert in weaving, like the Taiyal men who were good at hunting and had participated in headhunting as noted in chapter one, could receive face-tattooing. In those days, being a leading weaver was the sure way for a Taiyal woman to cross the rainbow bridge, along with the head-hunters, to a better life in the otherworld after death. Nettleship (1978:184) assumed there were two interrelated consideration that brought prestige to a weaver: one was that the technical and aesthetic qualities of a good work would be complimented, the other was that a skilled weaver would be admired by members of her weaving work group and likely become a group leader. Women who were expert at weaving were called *kneril bale* (it means intelligent people) whereas ones who were not good at weaving were called *putut* (it means foolish people) (Papa,1986:x). These might be the reasons why weaving was the most important and well-developed technique in Taiyal society.

Peoples throughout the world create their own special clothing. The patterns and colors they choose reveal the aesthetics of their clothing and taste for ornaments. People adorn the body both through feelings of beauty and to express cultural identity. For example, American Indians add elegant ornaments to their clothing to distinguish their clan. In some societies, clothing can be taken as a valuable means of communication for ritual in general and rites of passage in particular (McCracken,1987:103).

Among the Taiyal, clothing in addition to face-tattooing, served as a symbol and representation of social status. Leaders and participants in headhunting, political meetings and ritual activities had costumes and those cloths always served as emblems which emphasized their prestige and involvement. Some elements of clothing were not taken merely as ornaments but also as representing the position of the wearer. For instance, a jacket decorated with rhomboid designs in red could be worn only by a brave headhunter on ceremonial occasions. There were also ways to show achievement and prestige in the decoration of apparel or other ornaments. For example, people who hunted wild boars could wear the tusks on armlets while those who hunted bears could add the bears' white fur to their rattan caps. The men who had gained two human heads could wear *ml'ung* (bracelets) on their hands and dress in *ratang cbiran* (a short jacket with red-colour flat-weave) over the *lukus* (garment) work by everyone while the men who had hunted at least three human heads could bear *mstunan* (armlets); the Taiyal called this stage as *masoq mtrang*, that is, they thought that the attire has been decorated completely. Women who were able to weave the common clothing could ornament bracelets while those who had further abilities to create the design of *ratang cbiran* could wear it on their *lukus* (Kojima et al,1996[1915]:82-87). Taiyal people also wore clothing adorned with shells to show their wealth. Sometimes men covered their chest

with a piece of square cloth. If the breast covering was decorated with white button-like discs (made of shell or porcelain), it could be worn only by headhunters (Chen,1988 [1968]:167).

A given person's dress is 'read' as a statement of his position, personality, economic status etc.. In so doing, the 'readers' do not make their assessment from only one part, but from how all the parts are put together to make the total ensemble. Likewise, the ability to read the structuring of the parts of a design will expand our understanding of how the decorative system relates to the cultural whole (Washburn and Crowe,1987:69). Taiyal weaving can be also seen as a decorative art. From this point of view, we would expect two main functions of ornament among the Taiyal: (1) individual sensibility of beauty, being the fundamental purpose of ornament; (2) representation of social status and achievements.

The traditional motifs of woven designs were mainly geometrical forms; in other words, there are no human, animal or plant figures in the texture and design. Furthermore, the 'meaning' or symbolic significance of the textile motifs is quite obscure. It is difficult to find any artistic connections from the contents of traditional oral literature or the themes of traditional moral precepts. Some researchers have however tried to find out the meanings of these geometrical designs in Taiyal weaving. Fr. Alberto Papa (1995: 105-115) supposes the designs might be a kind of ideographs which were used to calculate the numbers of stitches in the textiles according to the principle of the Taiyal language, especially articulation of number. But, there is still insufficient evidence to support this deduction. Thus, when we encounter problems in reading art produced in an unfamiliar cultural tradition, we may, as Layton suggests, not be sensitive to identify

whether the significant meanings exist.

3-2 The Art of The Paiwan People and Its Socio-cultural Background

About a thousand years after the arrival of the Taiyal, when the Megalithic culture of Southeast Asia was flourishing, the various tribes of the Paiwan group came to Taiwan. They are the Rukai, the Paiwan proper and the Puyuma. They inhabited in the southern and southeastern mountain regions of Taiwan now belonging to Ping-tung, Kao-hsiung and Taitung counties (Map 2). Although there are some differences between these three Paiwan groups---for example, in the past time leadership among the Paiwan was inherited by the eldest child either male or female while chiefs among the Rukai were succeeded only by the eldest son and the Puyuma society was more closely matrilineal (Shih,1971:89), the traditional social organization of all these tribes can be seen as strictly hierarchical.

These small-scale and hierarchical societies are famous for their exquisite material cultures, and most of the finest art traditions of the Paiwan are performed in their woodcarving and weaving. The three tribal societies share very similar artistic features with one another. In their art styles, the most common motifs were human figures, human heads, snakes and deer, as follows:

(1) Human Figure: According to the statements of the Paiwan people themselves, the human figures might be related to their ancestors' worship. The human heads may be thought to represent the ancestors of the upper class (Chen,1987:50), and I have heard Paiwan made this statement in public meetings, but they may also have a connection with the custom of head-hunting. Some figures can be observed in which

the heads are separated from the bodies and there are others in which the head is carried or held in the hand of human figure.

(2) Snake Figure: The snake is one of the important components in Paiwan plastic art perhaps due to the aesthetic appeal of its shape (i.e. its head is triangular) and the designs of its body. The prevalence of the Hundred-Pace Snake[iii] motif has a particular significance. There is much folklore about the Hundred-Pace Snake. The Rukai thought that the snake was the incarnation of their ancestor's spirit, for this reason, they were warned not to hurt it (Hsu,1991:59-60). Another belief is related to the origin of the Paiwan people. It is said: once upon a time a piece of bamboo on a mountain split open, giving birth to many Hundred-Pace Snakes. After maturing the snakes transformed into human beings; those people were believed to be the ancestors of their ruling class by the Paiwan.

The Hundred-Pace Snake is also probably a symbol of power because of its virulent poison which kills its victims before they can walk more than a hundred paces after being bitten. In Paiwan language, the generic term for common snakes is *qacuvi* or *sura* while the Hundred-Pace Snake is specially called *vorovoro* or *sura pulu u* which means the elder (Chen,1988[1968]:297-99;1996[1961]:160-161). According to another legend the pottery jar married the sunlight, and then they gave birth to an egg. The egg was hatched in the jar giving birth to the chief of the Paiwan. At that moment, a pair of Hundred-Pace Snakes stood guard outside the jar[iv] (Utsurikawa et al,1935:307). Thus, the Paiwan people regard it as their patron spirit, venerate it in awe and observe many taboos in relation to it. The sun and the clay jar also become designs in Paiwan art.

(3) Deer Figure: The deer is both one of the common design motifs in Paiwan woodcarving because it used to be the most abundant animal in their territory. It may be used to symbolize plenty and richness in the territory of the Paiwan (Chen,1987:50). These decorative elements (human figures, human heads, snakes and deer) are also found on their textiles.

Each design mentioned above, which can be found in either woodcarving, weaving or other media in the material culture of Paiwan groups, is also abstracted from the shapes of iconic pictures and has its own symbolic meaning.

The social organization of traditional Paiwan culture was strictly hierarchical. The upper class and the class of commoners were determined by birth and passed on from generation to generation. Furthermore although the Paiwan, as other aboriginal groups, traditionally relied on the slash-and-burn agriculture, the ruling class theoretically held the rights to land. In tilling the land owned by the nobility, the subject people were obliged to pay taxes and render services to the rulers (Chen,1988[1968]:187). On the whole, therefore, Paiwan society displayed an economy of redistribution which reinforced its hierarchical political system. Under these circumstances, the ruling class became wealthy, wearing fine clothes decorated with motifs of the human head, human figure and Hundred-Pace Snake, and living in the slab houses with elegant woodcarving.

The family was the most fundamental as well as important social unit in this community. The nobles in the upper rank attached importance to their lineage and their names of family. Each family of the ruling class had its own family name. The chief's family name significantly demonstrated his status and authority. Thus, we can see a

noteworthy response mirrored in art, through the great care taken in adorning the houses of lineal leaders.

The Paiwan built their houses with slates. The houses in which the ruling class lived were usually decorated with excellent carving on the wall planks, door lintels, panels, pillars, eaves and beams. There was often a large slate tablet erected on the platform in front of the chief's house (Fig. 3), and it not only represented the nobles' ancestors but also reinforced the honour and dignity of the chiefs. Furthermore, most of the designs on the carved posts of Paiwan houses are human figures. Ho (1960:38) has noted that many small-scale societies call themselves 'human" in their own language. He therefore surmises that they put the design of human figure or head on their clothing as a form of self-expression. Therefore, the human figure might imply the sense of self. The parts which the figure design occupies are always the most obvious places, on either sculpture or textiles, and the human is depicted by the whole human figure. In light of this, I postulate that the nobles regarded themselves as the only entire and real "human beings", and as well show off their glorified social status, which could not be overstepped.

Fig.3: A slate house of the Paiwan village chief. The stone post erected in the courtyard was a symbol of the leader. (adapted from Mori,1977 [1915]:26)

Most of the human figures are conventionalized and symmetrical in form---round head, long nose, small eyes, small mouth, hands raised in front of the chest or on both sides at shoulder level, legs straight or slightly bowed, outward-pointing feet and usually clearly indicated sex. In general conventionalized styles and realistic forms are co-existent. However, there is an interesting correlation between style and social context. Where human figures take realistic forms they generally have no religious or social significance, and sometimes these figures may be owned by commoners. On the other hand, possession of the conventionalized figures is the exclusive privilege of the nobility (Chen,1988[1968]:297).

Secondly, we can take a look at the art style in weaving to further observe what other correlation within hierarchical society occur. The design arrangements of Paiwan weaving are mainly filled with various decorations. There is rarely any empty space in the design area, that is, the space is often filled by repeating the same motifs or by lining up different motifs. Furthermore, the designs are usually made up of enclosed motifs. According to the Paiwan, they conceive this kind of design as an expression of nobility because enclosed designs symbolized the power of the noble---the centre symbolizes the noble and the more strata there are in the enclosed rhomboid designs the higher the noble's rank (Li,1993:75). It seems that even within the noble rank, there are some differences in decorative forms[v]. There is for example a kind of flower design. According the Paiwan narrative, the number of petals represents the size of the subservient population. The more petals, the more the number of the subordinated there are, and that also means the more powerful the ruling class is. The design of a human head with hair indicates higher status than one without hair. The human head wearing

headgear with plume, boar tusk or antler represents the symbol of the highest class, and only the most dignified chief can wear a costume bearing this design.

Generally speaking, the right to the decorative designs was traditionally restricted to the nobles and the commoners had no right to ornament their artifacts in Paiwan hierarchical society. From this point of view, the nobles possessed the privileges not just economically but also artistically. When it comes to consideration of art's cultural context, a distinction is sometimes made between the use of a work of art and its function. Use involves the treatment of the object in the purely physical sense while the social function is usually conceived as being how art works to "hold society together and reach the balance of social order" (Hatcher,1985:12). We can see from the Paiwan case, how the hierarchical system is emphasized by means of decorative art and how these art forms also reflect their socio-cultural context.

It seems, moreover, that in Paiwan hierarchical society people had their own role to play and their respective professions were inherited through their family line. According to the artists' (craftsmen's) statements, they were usually in the rank of the upper class (Hsu,1991:35-50). At this level there is more specialization in the uses of art as well as in making it. For this reason, scholars think that the existence of a noble aristocracy explained why the art of the Paiwan achieved a more extensive standard than that of other aboriginal peoples of Taiwan because the nobles constantly made use of their spare time to devote themselves to art activities (Chen,1987:75). To sum up, by means of the different decorations, the members of Paiwan society can distinguish their social statuses. The decoration in this class-conscious society has its specific function. It regulates directly how the people in different classes behave to suit their different roles

and obligations.

3-3 Discussion

3.3.1 The Problem of Generalization

Some scholars have tried to generalize the relations between human behaviour and societies and the configuration of art forms. Alschuler and Hattwick (1947, cf. Hodder, 1982b:173), for example, found that children who emphasized circles tended to be more withdrawn and submissive than children who mainly painted vertical, square or rectangular forms. Kavolis (1965, cf. Hodder,1986:173) suggested that a psychological attitude towards domination was associated with a preference for geometric outlines while resigned subjugation was congruent with a preference for flowing smoothly rounded outlines.

Fischer (1961:81) has also talked about stylistic categories associated with social stratification, resident pattern and form of marriage. He deduced four main hypothetical polar contrasts in art style as follows: (1) Design with the repetition of a number of rather simple elements should characterize egalitarian societies; design integrating a number of unlike elements should be characteristic of hierarchical societies. (2) Design with a large amount of empty space should characterize egalitarian societies while with little empty space should be characteristic of hierarchical societies. (3) Symmetrical design correlated with the egalitarian societies while asymmetrical design correlated with the hierarchical societies. (4) Figures without enclosures should characterize egalitarian societies; enclosured figures should characterize hierarchical societies.

The correlation is somewhat simplistic. Hodder (1982a:173) comments that in such generalizations the major difficulty lies in the tenuous nature of the links between the

various components of the models. Unless some universal behaviour and cognitive response is supposed, which denies any active involvement of art and design in social strategies, the reasons for the relationships are ill-defined. I would like to make a brief comparison of the art styles between the Taiyal and the Paiwan to re-examine Fischer's point of view.

If we examine the distinctive features of composition in Paiwan decorative art according to Fischer's hypotheses, space-filling and enclosures may be more closely coincident with hypotheses (2) and (4). However, these two design patterns can also be found in some Taiyal textiles. Therefore, the fact that the Paiwan and the Taiyal have almost completely different political systems, hierarchical and egalitarian, indicates that these two art forms are not only found in hierarchical societies; it is also possible to find them in the egalitarian communities. On the other hand, the plainer and undecorated pattern is not merely used in Taiyal weaving but also seen in some of Paiwan examples, often commoners' clothing but occasionally used for nobles' casual and informal dress.

Hsu Mei-chi (1992:100) considers that little empty space in Paiwan clothing implies the expansion of nobles' power to the maximum. As noted, the right of decoration solely belonged to the upper class in traditional Paiwan society, so they always adorned themselves by filling the object's surface as much as they could in order to differentiate themselves from the commoners. Reversely, the empty field, commonly displayed in the upper part of the short blouse or garment, may reflect the consistent principle of simplicity in the art form of Taiyal material culture. Although people could show off an individual's achievement via additional ornaments, as mentioned, they could not be expected to signal the individual's social rank in such a close-knit, egalitarian society.

Hence it was rare to find exaggerated designs with symbols of the individual's prestige in Taiyal art.

Furthermore, Hsu further supposes that the characteristic of enclosure in designs can be a most suitable form to perform the property of strictly hierarchical society (Hsu,1991: 100). This hypothesis is contradicted when we find the same design pattern in the more egalitarian Taiyal society. For instance, the enclosed rhomboid pattern may symbolize a noble's power in the hierarchical Paiwan society while it may represent harmony, accord and individual dignity in the egalitarian Taiyal society. The same enclosed design probably held different symbolic significance according to their different socio-cultural contexts.

Fischer has assumed that symmetry is synonymous with bilateral mirror reflection. As the mistake done by some experimental psychologists' test[vi], Washburn and Crowe (1988:16-17) comments that Fischer's inappropriate assumption makes a simpler definition of symmetry classes in the plane (we will introduce this method later). They also point out that such simplistic correlation as proposed by Fischer supposed cannot be supported through symmetry analysis of design structure for further research confirmed the preference symmetrical shapes over asymmetrical ones (33-34). Different societies do choose and use different symmetries preferentially to structure their patterns.

In addition, Washburn and Crowe (1988:33) think that many examples can be cited where Fischer's correlations do not exist. For example, the incredibly sophisticated colored patterns with two-dimensional symmetries on pre-Columbian Peruvian textiles

were produced by the many empires along the coast of Peru-societies, hardly to be classified as egalitarian. In fact, most designs produced by most societies are symmetrical, whether the societies are egalitarian or hierarchical, and we also can easily find related evidence of this declaration from some examples in the textile designs of the Paiwan and Taiyal. For this reason, one might expect, given the systematic nature of culture, to find "formal themes", that is, modes of organization, and also to find some of these structures mirror organizational modes. This is not the same as proposing that all symmetrical designs are produced by egalitarian societies while asymmetrical designs are produced by complex, hierarchical societies.

In sum, art forms may be seen as a sort of cognitive map of the society, but the logic of the map may be relative to the culture. Fischer tries to search for the general rules of connection between art forms and social conditions by making use of objective statistical tests; then, he concludes that social practice is an important determinant of art form. Nevertheless, his generalized outcomes of cross-cultural study, that the complexity of art style invariably parallel with that of society, cannot be accepted completely. The detailed examinations mentioned above show that these complex aspects can not be captured in generalized statements.

3.3.2 A Comparison Between the Beliefs about Snakes between the Taiyal and Paiwan

Among small-scale societies, geometric designs occur frequently in border areas of all decorative art. Chen (1987:63) thinks that in the pristine art of Taiwan Aborigines, these prevalent geometrical patterns may be mainly traced to two motifs, the "Hundred-Pace" Snake (Fig. 4) and the human head. They have specific significance, connected

with ancestor worship or head-hunting. However, while snakes are ritually important to other aboriginal groups they are not particularly honoured by the Taiyal. What I would like to explore here is whether these motifs held the same, or different significance, in the context of the different characters of Paiwan and Taiyal societies, hierarchical and egalitarian.

Fig.4: A Hundred-Pace Snake showing stripes on its skin. (source from Ho,1960:48)

It has been claimed that the snake is one of the most ancient and important motifs in art and that numerous legends about it can be formed among all peoples in the world. Ramona and Morris (1956:15,cf. Hsu,1991:65) argue that although they are not as big as some animals, snakes are the nimblest hunters, and can completely paralyze their prey in the shortest time by injecting poison into the bodies of the victims. Ramona claims this extraordinary power is sufficient to explain why peoples were frightened and held the snake in awe. Snake motifs in traditional Kodinese *ikat* of West Sumba may be associated with ancestral deities and afterlife. Perhaps the python's ability to change its skin is a powerful analogy for rebirth (Maxwell,1990:65).

As we have seen, the snake is the most repeated among the four prevalent motifs in the plastic art of Paiwan groups. According to the analyses about those legends, we can

clearly see the relation: "human--snake--ancestor". There was a direct or indirect relation between human beings and the spirits of snake, especially in the lineage of the ruling class. Moreover, the world of snake, following the model of human's dual world, was also divided into two kinds: one was the *amani* (Hundred-Pace Snake) that was the chief of all the snakes and the nobles' ancestors, whereas the others belonged to the stratum of commoners and the forbears of the populace (Hsu,1991:63). This small-scale and hierarchical society had no writing system to record their history, the chieftains had the right and obligation to transmit and carry on their traditions; in other words, they were the controllers and interpreters of oral narrative. Hence, the myths indirectly became instruments to strengthen their ruling role (ibid.,62).

On the other hand, the snake image has been little allusively applied as a design element. It is interesting here to compare the concept of snake in traditional Taiyal society, in which the hierarchical system did not exist. Although it is very difficult to find related legends about the snake in the ethnographic documents of Taiyal, unlike the well-known myth in Paiwan society, there is still an item of folklore. It is said that in ancient time both human beings and snakes were born from excrement of the pig. They came to an agreement to clean their bodies mutually for each other. The snake cleaned down for the human at first, however, the human broke the contract and did not to wash the snake's body. Accordingly, the snake constantly cast off its skin once every year and could live forever; on the contrary, the human had to die because he did not know how to moult. In addition to death, headhunting, weaving and face-tattooing were the price which was exacted by the snake (the symbol of god) (Utsurikawa et al,1935:568). Thus, the Taiyal were taught to devote themselves to diligent hunting and weaving to secure a better life after death.

In addition, as mentioned in chapter two, the Taiyal believed in *rutux*---the spirits of their ancestors. In their opinion the reason why human beings die was because the *rutux* of the dead took that of the living people from their bodies. If people broke the rule, they would be punished. Moreover, according to Masuda (1958, cf. Chen et al,1994: 351), the Taiyal regarded the Hundred-Pace Snake as the embodiment of their ancestors.

Another story, found among the Perugawan subgroup, relates that once upon a time a mother and a daughter went to a mountain and worked, and they saw a snake with extremely beautiful design. They wanted to weave that design into the *lukus lumoan* (a kind of garment or gown with float-weave). After making painstaking efforts they were finally successful in imitating it. Later, they also tattooed this design on the women's faces (Ho,1960:15). From this, even though we may somewhat associate the designs in textiles or tattoo marks with the snake, however, it still could not connect with the sense of a specific social class system like that in Paiwan society.

Moreover, if the art can be taken as a medium of simpler and more rapid communication, there is thus a good reason to believe that the cultural context of an art work and its intended function may provide a possible explanation why some geometric or schematic styles are adopted (Layton,1991[1981]:159). The design of snake and its variations are served as a symbol of noble people in hierarchical Paiwan society. The relationship between decorative art and its socio-cultural background are coexistent in one and the same way of the outside and the inside. In Taiyal society, on the contrary, it seems hard to find strong evidence from related oral stories or legends to supports the link between the geometric forms, especially the diamond design, and Hundred-Pace

Snake. And, they did not need any decorative designs to emphasize or distinguish which rank they belonged to in such an egalitarian society.

3.3.3 A Comparison of Performance of Art Forms on the Behaviour of Headhunting and Tattooing between the Taiyal and Paiwan

The human figure (human figure and human head) has been the most important theme in the art of small-scale societies. In Paiwan sculptures and textiles the human figure motifs can be found almost everywhere. As mentioned above, the carved statues of the Paiwan are said to represent their ancestors. In addition, the human head may have a link with the custom of headhunting.

Headhunting was, as stated in a former chapter, not only a way to settle a dispute but also of symbolic significance in ritual. A head hunting expedition was regulated by taboo and bird divination; after that, the dead person's head was taken as the sacrificial offering to pray for safety and a good harvest. These manners may psychologically give play to the function of magic power [vii], i.e. a process of trophy → spirits → power (Hsu, 1991:70,89). Moreover, the trace of headhunting can be still seen in the human head designs that are repeatedly used as one of the most important motifs in the plastic art of the Paiwan although the custom itself has disappeared today. Hsu contends that this phenomenon, namely, symbolic behaviour, may indicate a process of cognition---the motif of human head → the trophy (the expression of art form → the behaviour of headhunting)---in the Paiwan art tradition (71).

As far as the behaviour and belief of headhunting were concerned, the Taiyal and Paiwan shared a great deal of similarities, even with other aboriginal groups, if we refer

to what I wrote about headhunting in traditional Taiyal society in chapter two. Nonetheless, headhunting was differently translated into the performance of their art form and concept of decoration.

In hierarchical Paiwan society, as mentioned, the right of decoration was confined to the upper class. However, a brave headhunter from the rank of commoners had some rights to show his salient achievement, for instance, by carving the human head design on wooden pipes, shields or by tattooing and adorning himself with the plume of *adisi*, which symbolized the highest value, a ring of fruit and other decoration made of plants on his head. It appears that there are two main reasons for decoration in Paiwan art; the more important one links to the system of social classes, while the other is connected with individual achievement. But, a commoner's privileges of decoration, which originally belonged to the nobility, were explained as only a reward from the chief.

Traditional Taiyal society on the other hand was egalitarian and individual ability was emphasized. The leader was generally recommended by his own prestige and competence. He had to be a good organizer to get anything done. In contrast to hierarchical Paiwan society, however, the position of a chief was not inherited from generation to generation. The leader was moreover the same as the others, that is, he still had to participate in any productive activities on ordinary occasions. Consensus was the source of a chief's power and the only way to maintain his leadership and the very existence of the group (Nettleship,1971:154).

From these points of view, everybody was treated as equals in such an egalitarian community. Individual achievement was attributed to a man's own ability and thereby

people did not need any special decoration to distinguish themselves as members of a certain rank because there was no hierarchical structure in their society. Headhunting provided an indispensable process through which every Taiyal adult man was certified as a 'real' and brave human. Thus, what the decoration showed was an individual's reputation and it was not given as another's reward.

According to Hsu's opinion (1991:90), headhunting may function as an internal institution which resolved the potential problem of dualism between the ruling class and the subservient people in hierarchical Paiwan society. But there was no such potential conflict in egalitarian Taiyal society. So, headhunting may be considered as a way to settle disputes in this small-scale society rather than taken as a mechanism of social differentiation as it was in Paiwan society.

We can further examine body decoration to highlight the differences between the Paiwan and Taiyal. In hierarchical Paiwan society tattooing is connected with their social class system. It signified the nobles' family background and social status. For this reason, it was confined solely to the nobility while the commoners were forbidden to tattoo themselves. As a result the tattoo designs of Paiwan, in addition to lines and dots, also included realistic motifs that were able to represent their privilege such as human heads, human figures and the Hundred-Pace Snake. On the other hand, the commoners might purchase the right from the big chief. Sometimes a commoner was tattooed because he was chosen as a guinea-pig by the practitioner, when he was going to tattoo a big chief (Chen,1988[1968]:251).

On the contrary among the Taiyal, facial tattooing was the right that everybody could

CHAPTER FOUR
HISTORICAL CONNECTION

In anthropological terms we may identify two approaches to the explanation of formal similarities in the art of different peoples, the diffisionist and the structuralist (We shall also note the third possible factor, i.e. the influence of technique on form, in Chapter Six). In this chapter the aspect that I shall adopt to deal largely with the similarities on design motifs is the first one, i.e. the diffusionist view; while, the alternate approach will be discussed in next chapter.

4-1 The Diffusionist View on Similarity

Anthropologists no longer consider the debate over diffusion and independent invention to have any contemporary theoretical significance but the issue is alive in practice because of various inferences based on stylistic resemblance in the realm of art interpretation. The approaches that trace art styles through time (tradition) and space (diffusion) are related (Hatcher,1985:179). Each particular manifestation will allow a distinct historical sequence of change and development (op. cit.:174). However, Chen (1988[1968]:377) argues that while details of an art style may change, its basic elements usually remain fixed. Styles provide information on the geographical extent of culture and cultural sequences. When the similarities of a decorative detail between different traditions are found, there is a tendency to infer cultural contacts, borrowing, diffusive phenomena or a connection of ancestral history. The Taiwanese Aboriginal peoples may have a closer link with aboriginal peoples of Southeast Asia than other aboriginal groups is extremely probable, in light of the linguistic and genetic evidence and the relevance of geographical distance.

The most radical proposal was made by von Heine-Geldern, who postulated a single prehistoric culture, probably as early as the third millennium BC or even earlier from which the sculptured art of the Pacific region is derived. This, "the Old Pacific Style" was supposedly based on the Shang and Early Chou Style of ancient China and Dniestro-Danubian Style of Southwest Russia, integrated later styles (Late Chou, Danubian and Causian) and Dongson Style of Indochina areas and then led to the great "transpacific influence" due to the current of migration through the Circum-Pacific regions.

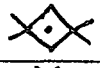
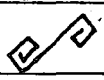
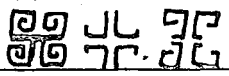
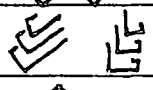
Chen has also identified common elements in the art forms of the Circum-Pacific region. They are as follow (Chen,1988[1968]:378-403): (1) squatting posture figures; (2) frog-shaped figure; (3) human figures with joint-marks; (4) figures jointed limb to limb; (5) figures arranged by vertical series; (6) bilateral splitting of an animal motifs shown as two profiles jointed at the forehead; (7) jointed human figures; (8) human figure with protruding tongue; (9) human head with serpent-shaped body; (10) three-headed human figure. All these art motifs can be seen in the art form of Taiwanese aborigines, especially the Paiwan. Nevertheless, advocating von Heine-Geldern's approach and based on a diffusionist's point of view, Chen presumes that this 'Old Pacific Style', that probably originated from the West, may spread northeastward through the island chain, or southward through the archipelagoes to the American continent. He further deduces that, in the course of diffusion, some may have become adapted to their region of origin and developed into local styles, whereas some combined with native forms and evolved into new styles in the course of their journeys (Chen,1988[1968]:403).

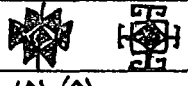
4-2 A Computer Analysis on Geometric Textile Designs

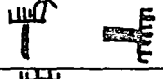
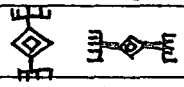
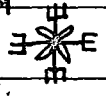
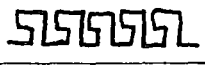
Geometric designs are widely used by different people in the world for they are easy to make in textiles, and often flanked by decorative borders. This provides a third way of explaining similarities in the form of art among different peoples, and we will discuss it when we talk about the factor of technique. Since the textile designs in Taiyal weaving are only geometrical forms, we chose to use the geometrical motifs in Southeast Asian and Taiwanese Aboriginal textiles in an attempt to establish the relationships of these two cultural traditions through the computer analysis (SPSS). In the meantime, we also take the geometric design motifs in African textiles as an antithesis to test that whether the two bodies of material are consistently more similar to each other than either is to the more unrelated, i.e. African traditions.

Table 1: Geometric motif types recognized in the computer analysis for dendrogram. (also see Figure 5)

Motif Pattern	Taiyal	Paiwan	M.SE Asia	I. SE Asia	N. Africa	W. Africa	Madagascar
m1 	1	1	1	1	1	1	1
m2 	1	1	1	1	1	1	1
m3 	1	0	0	0	0	0	0
m4 	1	0	1	0	0	0	0
m5 	1	1	1	1	0	0	0
m6 	1	0	1	0	1	0	0
m7 	1	0	0	0	1	0	0
m8 	1	0	0	0	0	0	0
m9 	1	0	0	0	0	0	0
m10 	1	0	0	0	0	0	0

m11 	1	1	1	1	1	1	0
m12 	1	1	0	1	0	0	0
m13 	1	0	0	0	0	0	0
m14 	1	0	1	0	0	0	0
m15 	1	0	1	0	0	0	0
m16 	1	1	1	1	0	0	0
m17 	1	0	0	1	1	0	0
m18 	1	1	1	1	1	0	0
m19 	0	0	1	0	1	0	0
m20 	0	0	1	1	0	0	0
m21 	0	0	1	1	0	0	0
m22 	0	0	1	0	0	0	0
m23 	0	0	1	1	0	0	0
m24 	0	0	1	1	0	0	0
m25 	0	1	1	1	0	0	0
m26 	0	0	1	1	0	1	0
m27 	0	0	1	1	0	0	0
m28 	0	0	1	1	0	0	0
m29 	0	1	1	1	0	0	0
m30 	0	1	1	1	0	0	0
m31 	0	0	0	1	0	0	0
m32 	0	1	0	0	0	0	0
m33 	0	1	0	0	0	0	0
m34 	0	1	0	1	0	0	0
m35 	0	1	1	1	0	0	0
m36 	0	0	1	1	0	0	0

m37		0	1	1	1	0	0	0
m38		0	1	0	1	0	0	0
m39		1	1	1	1	1	0	0
m40		1	0	0	0	0	0	0
m41		1	0	0	0	0	0	0
m42		0	1	0	0	0	0	0
m43		1	1	0	1	0	0	0
m44		0	1	0	0	0	0	0
m45		1	1	0	1	0	0	0
m46		0	0	1	1	0	0	0
m47		1	0	1	1	1	0	0
m48		0	0	0	1	0	0	0
m49		0	0	0	0	1	0	0
m50		0	1	1	1	0	0	0
m51		0	1	0	0	0	1	0
m52		0	1	0	1	0	0	1
m53		0	1	0	1	0	0	0
m54		0	0	0	1	1	0	0
m55		0	0	1	0	0	0	0
m56		0	0	0	0	0	0	1
m57		0	1	0	1	0	0	1
m58		0	0	1	1	0	0	1
m59		0	0	1	1	0	0	0
m60		1	1	1	1	1	1	0
m61		0	0	0	1	0	1	0
m62		0	1	1	1	0	0	1

m63 	0	1	0	1	0	0	0
m64 	0	0	1	1	1	0	0
m65 	0	0	0	1	1	0	0
m66 	0	0	1	1	0	0	0
m67 	0	0	1	0	1	0	0
m68 	0	0	0	0	1	0	0
m69 	0	0	1	1	1	0	0
m70 	0	1	0	1	0	0	0
m71 	0	1	1	1	1	0	1
m72 	0	1	0	1	1	0	1
m73 	0	0	0	0	0	0	1
m74 	0	0	0	0	0	1	0
m75 	0	0	0	0	0	1	0
m76 	0	0	0	0	0	1	0
m77 	0	0	0	0	1	0	0
m78 	0	0	0	0	1	0	0
m79 	0	0	0	0	1	0	0
m80 	0	0	0	1	1	0	0
m81 	0	0	0	0	0	1	0
m82 	0	0	0	0	0	1	0
m83 	0	0	0	0	0	1	0
m84 	0	0	0	0	1	0	0
m85 	1	0	0	1	0	0	0
m86 	0	1	0	1	0	0	0

Among these three cultural traditions, we further divide them for the following reasons. First, Taiwanese Aboriginal weaving cultures is separated into the Taiyal and Paiwan because they have great differences that have been argued in preceding chapter. Secondly, Southeast Asia is divided into two areas, mainland and insular, to contrast the Taiyal and Paiwan traditions that have been recognized as derivation from a common origin. Thirdly, the Africa is separated into two areas, northern and western, for they seem to have more distinctive cultural traditions: the former is influenced by Muslim while the latter exists pagan societies, as well as Muslim tribespeople. The weaving practice in Madagascar is different from that of other Africa areas. The Malagasy peoples are distinctive within the context of Africa, and their textile arts, the antiquity of complex *ikat* traditions, reflect those of the Borneo regions (Picton and Mack,1989[1979]:131; Maxwell,1990:57).

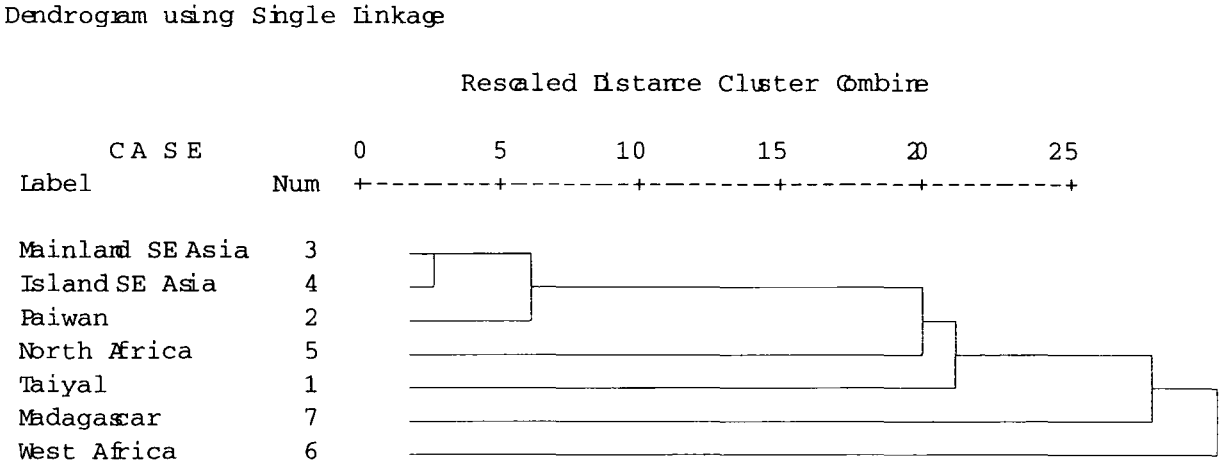


Fig.5: A cluster analysis of geometrical design motifs in the textiles of Taiwanese Aborigines, Southeast Asia and Africa.

The dendrogram above reveals the close or distant relationships between these analyzed samples. The dendrogram suggests that mainland and insular Southeast Asia have close affinities with each other, and it means they must share a great

amount of design motifs. In spite of many later outsider influences, there is no doubt the peoples in both mainland and island Southeast Asia belong to the same ethnic family (the Austronesian) and have a common cultural tradition. Kano (1955[1946]: 167) has argued that basically the cultures of archipelago Southeast Asia stem from that of mainland Southeast Asia. Other than geometrical designs such as scroll-shapes, spirals, diamonds and hooks, they also share similar representational motifs include stars, stylized reptiles such as frogs, lizards, crocodiles and snakes, elephants, and anthropomorphic figures such as dancing warriors or passengers on 'ships of the dead'. These designs were widely disseminated throughout Southeast Asia and appear on pottery, wooden sculpture, metalwork and textiles to the present day. In fact, some archeological evidence support the hypothesis that motifs and patterns in mainland and insular Southeast Asian textiles have inherited the designs on ancient bronze drums (Fraser-Lu,1988:3).

With reference to Africa, the diagram shows that the three parts, North, West and Madagascar, differ. As mentioned, this situation derives from the effects of different cultural traditions. The tribal weaving areas of the continent of Africa are usually divided by the desert and scrub of the Sahara due to their highly individual and regionally disparate styles of cloth.

The diagram indicates that North Africa is closer by Southeast Asia. This may stem from the fact both are influenced by Muslims and share more Islamic motifs such as stars and floral designs. The Muslim countries of North Africa, such as Tunisia, Algeria and Morocco, are and have long been linked in culture and commerce between numerous, diverse foreign and indigenous tribal peoples. Over one thousand

years of Muslim domination ensures that the patterning of the weavers is, for the most part, a blend of pagan and Islamic geometric designs. Geometric patterns are often stylized flora, architectural and other figurative designs (Barnard,1995[1989]:38-39). The Berbers of the western High Atlas wear a most distinctive black hooded cloak emblazoned with a large red eye motif that serves to ward off the evil in a covetous glance (43). The diamond pattern in the jacket of Ayt Ouaouzguit in Morocco is regarded as a talisman, and possibly implies protection as well as security (Spring and Hudson,1995:44).

In Islamic West Africa, Fulani and Hausa textiles display a fusion of Muslim and African tribal motifs. On the other hand, pagan West Africa had a different tradition from the Islamic-influenced countries. The narrow-strip weaving style presents a distinctive compositional variety. In addition, a comb motif and its transformations often appear in African textiles. Ewe weaving has quite distinctive features, characterized by some representational designs depicting animals, insects and objects of everyday life, while the Ashnte produced colourful and highly patterned stripwoven cloths. The raffia cloth of Zaire are utterly absorbed by the expression of geometric and rectilinear forms. These shapes are known by name, such as tortoise, forest vine and eyebrows (Barnard,1995[1989]:43).

From the tree diagram, it can clearly be observed there are great similarities between the art forms of the Paiwan and Southeast Asia, especially the archipelago. On the basis of such similarities, scholars (Ling,1956; Chen,1988[1968],1996[1961]) have launched an inquiry into the implications of the Paiwan art styles and the cultural tradition of the Pacific Basin. In fact, features such as spiral and hook, characteristic

of the indigenous styles of Southeast Asia can be found in the Paiwan art motifs. Moreover, the similarity in three-headed human figure motifs that combined other cultural traits such as headhunting and a social hierarchy and their continuous and adjacent distribution indicate that they have close affinities, either temporal or spatial.

Although some scholars state that Formosan aboriginal art is similar to that of the circum-Pacific areas, which is flattish, decorative and space-filling (Chen,1988[1968]: 377), this claim is based only on Paiwan art style. If, notwithstanding, the characteristic features of geometric designs in Taiyal weaving are also taken into consideration, this claim apparently seems less convincing, because the diagram suggests that Taiyal art is less closely related to that of mainland and island Southeast Asia, and we must consider why that might be so. Linguistic and geographical evidence leads one to expect the Taiyal and Paiwan would certainly have a close association with each other because both belong to Austronesian family and live in the same island, Taiwan. Contrasting with the mainland and insular Southeast Asia that share the same Austronesian family, on the contrary, the computer analysis does not show this predicted match; instead, they seem to have a more distant relationship. On account of this unexpected result, we need to discuss their relationships bearing on the issue of the Proto-Austronesians.

4-3 Taiwan's Position in the Austronesian Studies

Taiwan lies in the junction of southeastern coast of mainland China, Southeast Asia archipelago and Philippine islands (Map 3). It is critical for any understanding of the prehistoric movement of peoples along the coast of mainland Asia or the island world of the Philippines and Indonesia (Kano,1955:167; Ferrell,1969b:3). All the

indigenous peoples of Taiwan belong to the Austronesian family. Living in the mountain areas and geographically isolated, the nine (mainly nowadays) different aboriginal peoples have each preserved ways of life that are presumably similar to primitive forms of ancient South China and Southeast Asian tribal culture.

Map 3: Taiwan and its surrounding areas.

Within the past century, two issues have deeply concerned scholars: (1) where did the ancestors of present-day Austronesian originate? (2) How closely related to one another are the present Austronesian groups dispersed over Oceania and Southeast Asia? In fact, these two questions are, to a certain extent, relevant to the questions that have been posed, that is, since they both belong to the Austronesian family why are there great differences between the Taiyal and Paiwan, presented in the result of computer analysis as well as in their social structure, egalitarian and hierarchical? Did these differences develop over time as the social structure of the two communities diverged? We shall examine the possible situations and relevance to the hypotheses to the Taiyal from linguistical, archaeological and cultural anthropological points of view.

4.3.1 Linguistic Hypotheses

All Taiwanese aboriginal groups, both plain and mountain aborigines, belong to the Austronesian family. Linguistic evidence indicates that Austronesian languages are distributed in a great arc, extending from Easter Island in the east to Madagascar in the west, and from Taiwan (Formosa) in the north to New Zealand in the south; the arc spans about 40% of the distance between the North and South Poles. This area covers about 70% of the Pacific and most of the islands of Southeast Asia and Oceania, including Malaysia, Indonesia and the Philippines. Linguistic studies demonstrate that there are around 1200 to 1500 Austronesian languages spoken in this large area.

If the hypothesis that the homeland of the ancestral speakers of any group of related languages is more likely to be located in or near the region currently exhibiting the greatest linguistic differentiation (Li,1997[1993a]:34,90) is accepted, Taiwan could be one of the probable homeland of the Austronesian language family (Blust,1985:45); if not the point of origin, it could be a major center for the radiation (Chang,1989b:88). Bellwood (1991:90-91) argues that the early spread of Austronesian culture to Taiwan predates the origin of Austronesian horticulture. Recently, based on the method of Kern's linguistic paleontology (1889, c.f. Li,1997[1979]:23-34) and by examining the early linguists' hypotheses, Li Jei-kuei (1997[1979]:51) tends to support the theory that the origin of the Austronesian family is probably located in coastal areas of Indochina and southern China not in Taiwan, and it may have a certain relationship and interaction with Thai-Kadai groups.

No matter whether Taiwan is the original homeland or a dispersal centre, the linguistic and cultural legacy of Formosan populations speaking Austronesian languages must be in an important position in Austronesian studies. Both the heterogeneity of the Austronesian languages of Taiwan and the remains of many old linguistic features of these languages in such a small area favour this idea.

On the basis of the legends, culture and languages, it may be supposed that the ancestors of Formosan Austronesian peoples at a very early date began migrating to Taiwan. In the use of a primarily geographic-historical basis for classification, Ferrell (1966:97;1969b:25) makes a tripartite classification of the Formosan languages into Tiayalic (Atayalic), Touic and Paiwanic. The Taiyalic subfamily has been classified as an independent primary member of the Austronesian family (Dyen,1965; Haudricourt,1962,1965, c.f. Rau,1992:5-6). Blust (1977, c.f. Li,1997[1979]:46) recognizes it as one of the four major branches of the Austronesian languages[i]. It seems that the Taiyal languages may be an early offshoot from the Austronesian family. Ferrell (1969a:186) also notes that "the degree of divergence of Taiyalic from other Formosan languages indicates an extremely long separate existence". Li (1985:260), presenting phonological, lexical and syntactic evidence, postulates that Taiyal and Sedeq have closer relationships with some of the aboriginal groups living in the plain of western Taiwan, such as Pazeh, Taokas, Babuza, Papora and Hoanya (originally treated as members of Paiwanic group 1 by Ferell and now extinct). Li also came to the conclusion that Taiyal was strongly divergent from the rest of the Austronesian group. Besides, according to the percentage of reconstructed lexicostatistical evidence, the relevance between the Taiyalic and other Austronesian languages is only 13.6%. It means that the Taiyal branch probably divided very early

from the other Austronesian groups and the date could be 2640 BC (c.f. Li,1997:41). It therefore supports the statement that the Taiyal were perhaps the earliest inhabitants so far among all ethnic groups of Taiwan (Chen,1987:48), and they lived in Taiwan at least before 1500 BC. Rau (1992:10) thus argues that it can give data on the proto-language of a sort that no other language can give, in the field of comparative Austronesian linguistics, because they offer the clearest proof of its antiquity in the syntax and morphology.

4.3.2 The Aspect from Archaeological Evidence

Recently, scholars in Austronesian studies have generally agreed with the theory of Asian mainland origin. The geographic area stretching from the northern regions of Southeast Asia to the basin of the Yang-tze River in present-day China, has been widely considered the original homeland of all Austronesians (Hsu,1996:1-2). Generally speaking, the Asiatic mainland origin theory integrates linguistic and archaeological evidence well and is widely accepted in academic communities (Bellwood,1995; Chang,1987; Tsang,1992; Hsu,1996). In light of ethnological and archaeological evidence, therefore, Hsu (1996:8-9) postulates that Proto-Austronesians might have evolved in today's southern China more than 12,000 years ago. During the long process of separation and adaptation, Proto-Austronesians started to differentiate—biologically, linguistically and culturally—before migration. They probably began migrating because of weather change, epidemics or war with related Austronesian groups or with intruders from the north. In fact, early Neolithic cultures have been found in the vast land of today's southern China, with a date of about 7,000 years before present. These Neolithic peoples are thought to have been the Austronesians.

Since the Proto-Austronesian culture belonged to a marine and estuarine environment (Li,1997[1991]:151-182), archaeological research suggests that the Austronesian peoples of Taiwan may have arrived by sea. It may be useful to briefly consider the archaeological literature on Taiwan, particularly as this relates to the broader issues of determining the Austronesian homeland and major population movements.

Since similar cultures were found in Taiwan, Chang Kwang-chih (1989b:91) infers, from recent archaeological studies, that the possible homeland of the reconstructed Proto-Austronesian people could have included a dispersal zone which took in the coastal areas of southern China, including Taiwan[ii]. Chang (1995a[1987]:180) conceives of Taiwan as a participant in the interaction sphere of southern coastal China over several millennia. He also suggests that the Proto-Austronesian peoples came to Taiwan at different times and from different areas of their original homeland, and that they were perhaps related to the people of the Ta-pen-keng culture (probably the people of Cord-Marked Pottery Culture)[iii], which is identified as the earliest Neolithic cultural tradition of Taiwan. Upholding Chang's statement, Bellwood (1991:89) also stresses that Austronesian-speaking peoples settled Taiwan initially from the adjacent mainland of China before their migration.

The Tapenkeng Culture is not only distributed around Taiwan but also present-day southern mainland China. The culture with the features of Cord-Marked Pottery in Taiwan may belong to a general Cord-Marked Pottery Culture horizon among southeastern and southwestern China regions (Chang et al, 1969:249). Further, archaeological evidence shows that two distinctive segments---Yuan-shan in the north and east and Longshanoid in the south and west---which appear to be divergent

continuations of the Tapenkeng, formed in Taiwan around 2500 BC (Chang,1970:59). This finding appears to coincide with the linguistic hypothesis. Chang premises that the Yuan-shan culture is probably closely to the Taiyal culture[iv] while the Longshanoid culture is related to the Paiwan culture (74). This, on the other hand, raises the question that whether these two cultures diverged after arrival in Taiwan, or alternatively whether they are descended from two different colonisations, one by the ancestors of the Taiyal, one by the forefathers of the Paiwan?

Chang's postulate seems to mean the Taiyal and Paiwan diverged before they came to Taiwan. Ferrell (1969a:189) thus says that the mutual similarities and dissimilarities of their cultural traditions may lead us to suppose that the Taiyal and Paiwan diverged from a remote common ancestor anywhere but in Taiwan. This argument believes that at least the three major Formosan divisions (Taiyalic, Tousic and Paiwanic) had separated before they arrived in Taiwan and they came to Taiwan in different waves of migration. More recently, nevertheless, the consensus is that the Longshanoid Cultures in Taiwan were indigenous growths from the Tapenkeng, but they may have received a vast amount of cultural infusion as the result of interaction or contact with the Longshanoid Cultures of mainland China (Tsang,1988:96-97; Chang,1995a [1989a]:193). Liu I-chang (1988:24-26) moreover concludes that developments on both sides of Taiwan Strait were basically concurrent, and there may have been frequent contacts until middle and later period (from 4500 BC to 2000 BC). Yet this trend gradually changed. The prehistoric cultures of southern China increasingly interacted and influences with other parts of mainland China and, almost at the same time, individual prehistoric cultures of Taiwan by degrees developed their own local styles. Finally, they moved along different trajectories; the cultures of southern China

converged with those of northern China and later entered the Bronze Age while Taiwan, isolated from the mainland, retained some of the ancient qualities and then shaped its distinctive cultural styles. The aboriginal peoples of southern China have unfortunately been almost completely Sinicized, so that it is extremely difficult to investigate any original configuration related to the Proto-Austronesian cultures today. Liu's postulation not only relies on a diffusionist view but also includes an aspect of continuing interaction.

4.3.3 The Cultural Anthropological Points of View

Although the more reliable method that explores a people's origin and ascertain its relationship with other ethnic groups may depend on the linguistic evidence (Li,1997 [1993a]:89), the anthropological and ethnographic studies can also play a role as mutual proof. In the field of cultural anthropology, one method of reconstructing past migrations is to compare the distribution patterns of similarities in material culture.

Many cultural anthropologists agree that the aboriginal cultures of Taiwan not only retain many qualities of considerable antiquity characteristic of the Proto-Austronesian cultures but also share numbers of cultural traits with Southeast Asia, for example slash-and-burn farming, back-strip weaving, bamboo harmonica, gerontocratic politics, men's houses and tattooing. Kano (1955[1946]:168-195) has taken seventy-three distinctive traits of material cultures as a basis for comparison between indigenous peoples of Taiwan and Southeast Asia, and he finds that there is a great affinity between both cultural traditions.

According to historical documents and records about ancient China, the respected ethnologist Ling Shun-sheng (1952:50-51) postulated that Taiwanese Aborigines may have a historical connection with the Yueh peoples who were perhaps the ancestor of the Proto-Austronesian peoples. Ling further concludes that the ancient Min-yueh people (one branch of Pai-yueh peoples)---located in what is today southeastern of mainland China---migrated to Taiwan at least 2,000 years ago. Taiwanese Aborigines were perhaps their descendants. This conclusion was made on the observation that Formosan Aborigines and the Min-Yueh shared cultural traits of pile-structure houses, cliff-burials, headhunting and tooth extraction. Keeping an advocatory attitude to Ling, Ferrell (1969b:3) argues that the non-Han languages spoken by the ancient Yueh peoples of the southeastern coastal China may have been the Austronesian.

Huang Shih-chang (1989:70-71) points to common cultural features, presumed by Ling (1952:36), such as pile foundation buildings, cliff burials, headhunting, tooth evulsion, tattooing, wooden drums, to support Ling's claim. Further deduction by Huang suggests, according to the archaeological evidence and historical documents, that the Geometric Pottery Culture which were found throughout the lower Yangtze River and the coastal regions of southeastern China correspond to the regions where the historically known cultures of Wu and Yueh were to be found. In addition, the fact that the culture of Pai-yueh basically belonged to a maritime environment is consistent with the hypothesis that the Austronesians were argonauts.

"Pai Yueh" means "the many Yueh peoples" in Chinese. It is thus a categoric reference actually including a large number of different peoples. Haung believes the relationship between the prehistoric cultures of Taiwan was not just the result of

cultural diffusion but involved the actual migration of a people, the Pai-yueh (Huang, 1989:78). In the light of the archaeological record, from the Neolithic to the Chin-Han periods (221 BC- 9 AD), these Pai-yueh peoples may have migrated to Taiwan in a continuous stream (Huang,1989:71-83). This deduction is similar to Chang's argument stated above, and both are basically derived from Ling's hypothesis.

Based on this point of view, we must consider the possibility that prehistoric settlers of Taiwan were none other than Pai-yueh peoples. This is reminiscent of the situation of the aboriginal peoples of Taiwan, either hill people or plains groups. It is not necessarily the case that all of these ancestral settlers separated and formed only after their ancestors arrived in Taiwan. Instead, it is entirely likely that many of them originally belonged to different branches of the ancient Pai Yueh peoples, and migrated to Taiwan at different times, from different localities on the southeast coast of mainland China. Due to their assimilation to the Han, some of the Pai-yueh descendants who remained on the coastal mainland no longer speak their native language. The branch of 'Pai-yueh' peoples in Taiwan, on the other hand, speak their ancient tongue until this day and maintain other ancient cultural features (Huang, 1989:83). This influence is similar to Liu's conclusion on the migrating model of the prehistoric Taiwan and southern China. If it is the case, it might explain why there are considerable differences between the Taiyal and the Paiwan or other aborigines of Taiwan in their social structures and art forms.

4.3.4 Summary and Discussion

Although no final conclusion is reached, with regard to the problem of the origin, most scholars agree that the coastal areas of Indochina and southern China are

probably the homeland of the Austronesian peoples. In view of linguistics, no matter how far and wide the geographical distance of the distribution, languages that have a genetic relationship must have a homeland before their dispersal. Besides, the earlier a language becomes separated, the most divergent it is (c.f. Li,1997[1993a]:90). Thus, the Formosan branch might have migrated into Taiwan in very early times. This can be evidenced by the great divergence among the languages of the Formosan Aborigines. Nevertheless, the statements in linguistic, archaeology and cultural anthropology are just hypotheses. Although the issues of the Austronesian's origin and dispersal comes in large part from the apparent continuity from the prehistoric cultures of the island to the modern-day Austronesian inhabitants of Taiwan, little evidence so far can show a clear link between prehistoric peoples and the present aborigines in internal Taiwan for the prehistoric archaeological record of Taiwan is still marked by a seeming discontinuity between what may be an earlier stage of widespread cultural homogeneity, the Ta-pen-keng cultures and a later stage of increasing heterogeneity through time (Huang,1989:71). For this reason, it is a bit difficult to understand the transition from the early uniformity to the later varieties of distinctive cultures (Liu,1995:94). Hence, we cannot clearly draw a final conclusion as to whether the two distinctive traditions of the Taiyal and Paiwan divided prior to their arrival in Taiwan or whether they developed their own local style after they came to Taiwan.

In spite of the possible connection between Taiwanese Aborigines and ancient Pai-yueh people, on the other hand, Ling, as mentioned, has noted that the Yueh peoples in fact included two major branches, one was the Pai-yueh peoples who were distributed among southeastern coastal areas of China whereas the other was the Pai-

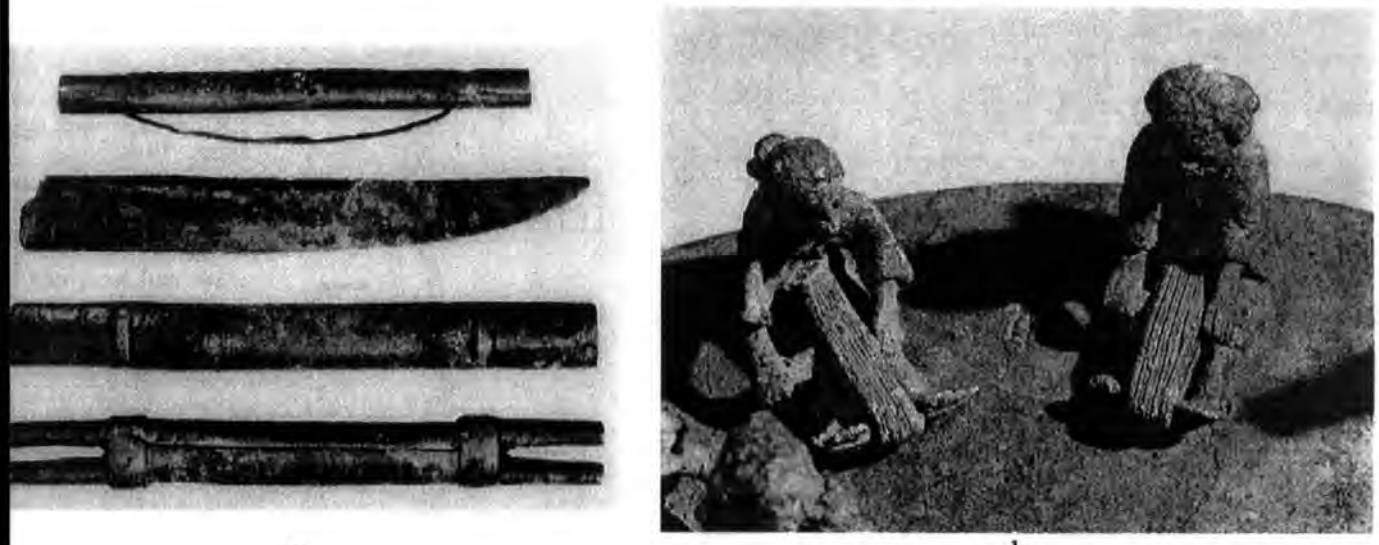
pu peoples who were distributed in southwestern China (Ling,1952:37). If it is possible, it is might be intriguing to note an affinity with the cultural traits of southwestern China region in Taiyal material culture (Ferell,1966:124; Chang et al, 1969:240-242), such as Vollmer's examination to the Taiyal loom and archaeological materials of Shizhaishan.

The Taiyal loom belongs to the foot-braced body-tension loom, which utilizes the weaver's feet to brace the warp beam. In spite of the deficiency of evidence for its provenance, Vollmer (1979:80; 1994:79) notes that this loom is by no means common; similar types appear ethnographically in several parts of Southern Asia, among the Angami Naga of the Assam Highlands, the Nong Mnong and Maa peoples of central and southern Vietnam, the Li peoples of Hainan Island, Melanesians of West Irian at Sarmi and in the St. Mathaias Island in the Bismarck Archipelago. The greatest variety and concentration occurs in Taiwan (Chen,1988[1968]; Kano,1955[1946]; Nettleship:1970b). In archaeological contexts, furthermore, the earliest evidence for the presence of looms in Southeast Asia area comes from the sites of Shizhaishan in the former Dian Kingdom during the Western Han Empire (206 BC – 8 AD) around south of Kunming, the capital of Yunnan Province (Shizhaishan Report,1959, vol.2, pl.98, c.f. Vollmer,1979:78).

This weaving equipment, found in tombs containing women's graves, was made in bronze, a material seldom used for making looms (all ethnographic survivals are of wood). It probably implies that they were specially produced for burial with the dead. At the sites, four bronze parts for a foot-braced body-tension loom have been uncovered, including a cloth beam with pronged ends and removable centre section to

clamp woven cloth in place, a warp beam which has ridges aligning with the thickened ends of the cloth beam and which cast rounded shadows and suggest that the beam itself is flat, a sword beater and tubular shed stick with a bow-shaped bar (Fig. 6a). In addition, a sculpture on the lid of a bronze cowrie container, depicting six women weaving, was also unearthed. As Vollmer describes as follow:

> ... an enthroned woman surrounded by standing and kneeling figures bearing various offerings. Along the outer edge, facing the central women, are six women weaving on foot-braced looms. The weavers sit on the ground with legs outstretched using their feet to brace a flattened warp beam in order to maintain tension on a circular warp. Each weaver manipulates a large sword beater. Four figures grasp the sword in both hands as they pull it toward themselves beating the weft in place. One holds her sword on edge to facilitate opening the shed. ...the sword is actually shown inside the warp rather than positioned between layers of warp. Another weaver holds a pointed tool poised over her weaving while either inserting or withdrawing the sword. This probably depicts a pin beater used to straighten single tangled threads. The shed stick, heddle rod and lease rod which holds the cross of the circular warp have been eliminated (Vollmer,1979:79, Fig. 6b).



a b

Fig.6: a (left): Bronze loom parts were found in Shizhaishan site. b (right): Bronze cowry container was found at Shizhaishan Tomb 1 (after Vollmer,1979:83).

Vollmer believes the Dian looms show affinities with those currently being used by some hill peoples in Taiwan and Hainan. He states that one of the four objects, described as an "I"-shaped tool, is a device for winding yarn and this type is known

from Shizhaishan and from ethnographic survivals in Taiwan. In addition, the identification of the shed stick can be substantiated from Taiwanese examples, particularly in the weaving equipment of the Taiyal tribes (Chen,1988[1968]; Vollmer,1979:82). In contrast to the single pointed sword from Shizhaishan, this beater is double pointed and similar to those which continue to be used among various Yunnanese minorities today. Hence, Vollmer (1979:82) suggests that this finding may give credence to Yunnan as a source in South Asia and a pattern of Pacific diffusion.

A series of excavations reveals that the Shizhaishan Culture belonged to an impressive Bronze-Iron Age culture during the second and third centuries BC. Nevertheless, it is essential to stress that these sites and artifacts presumably belonged to the Dian people who were believed to be culturally related to the early peoples of Southeast Asia. In view of the features on pottery, basically, this Culture is identified as having an affinity with the Neolithic prehistoric culture, the Cord-Marked Culture, of southwestern and southeastern China. And, they presumably shared a common origin, in the Pai-yueh and Pai-pu peoples. But, there are some questions to be asked of the link between this culture and the Taiyal weaving tradition. According to my observation, the warp beam is a very distinctive part of the Taiyal weaving tools. According to Nettleship (1970b:693), the use of the hollow drum warp beam seems to be restricted to Taiwan. Other Taiwan Aboriginal groups use beams similar to the Taiyal one, but they are usually smaller and more roughly shaped. But, from the sketch of the bronze figure of a weaver found on a cowrie container, the warp beam is like a piece of flat wood, and this type is widely seen in the weaving tools of Taiwanese Aboriginal populations such as Thao of the mountain tribes or other

groups in the Plain (most have disappeared nowaday), such as Pazeh of Taichung and Gavalan of Ilan, but less commonly used among Taiyal groups. The evidence seems not to favour Vollmer's hypothesis on the relation of the Shizhaishan Culture and the Taiyal culture.

It may be noteworthy that there is a cultural tradition related to the geometrical art style among Southeast Asia cultures. Archaeological evidence for the origins of some prevalent Southeast Asian decorative motifs may be seen in beautifully ornamented ritual bronze artefacts, such as kettle drums, weapons and bells, which have been uncovered from many sites throughout the region (Fraser-Lu,1988:4-5). The Bronze Age culture which flourished during the latter half of the first millennium BC, is generally referred to as the Dong-son culture, after a village in Tongking, North Vietnam (Kano,1955[1946]:166).

The most spectacular objects uncovered are in the form of ritual bronze drums which have been found in South China and in virtually every country of Southeast Asia (Fig. 7). Apart from the representational motifs, typical decorative geometrical elements include curvilinear forms, such as spiral, hooks and meanders, and geometric figures, such as zig-zags, lozenges, and parallel lines, placed in a rigid symmetry across a pattern surface. It is interesting to note that there some geometric motifs such as the sigmoid and scroll-shape (), showing the similar art forms of the bronze cultures of Yi-shang, are also found the bronze drums found in southern and southwestern China and Southeast Asia. It demonstrates affinities between the prehistoric and living cultures. These geometric patterns can be seen in textiles of both areas today. Is it possible that this tradition had a link with the geometric

characteristics of Taiyal art? Kano (1955[1946]:172), for example, suggests that the qualities in Taiyal culture are closely related to the ancient form that he calls the Proto-Dongson style. Notwithstanding, despite the many suggestions of close relationships between the Taiyal and the indigenous peoples of southern China or Indochina Peninsula it is a little hard to find some characteristic motifs such as S-shape and scroll-shape (卍), which are common textile designs in Southeast Asia, in the geometric forms in Taiyal textiles. Does this imply that they may have diverged, as the archaeologists supposed? Although the computer analysis shows a closer relationship between Taiyal and Southeast Asia, why is it the hook motif that is pervasive among the Southeast Asia cannot been found in Taiyal art form as well?

Fig.7: Design patterns seen on bronze drums found in southern China and Southeast Asia (source from Fraser-Lu,1988:5).

On the other hand, the peoples that share the same cultural traits cannot conclusively be thought to have a genetic relationship. The similarities may have resulted from interactions of ethnic groups that belong to different genetic populations. This can be evidenced in linguistic phenomena. According to Kern (1889, cited in Li,1997 [1979]:48), there are many words shared by the Proto-Austronesian and the languages of ethnic groups in Indochina. And, the borrowing phenomena can be mutual not one-way. Rather than conclude they had a genetic relationship, Li would argue they probably had frequently contacts in past time. From this point of view, we may notice that the similarities in material culture between different peoples do not conclusively indicate a common origin for the two communities, since they may be caused by the contacts between groups. Based on the hypothesis that cultures more closely related will show greater homogeneity, can we find some evidence which show similarities between the Taiyal and Southeast Asian traditions, supposed having a historical connection with the Taiwanese aborigines? If we can be confident that their cultures derive from the same ancestral group, we shall be on firmer ground when we argue that the differences between and Paiwan weaving designs have arisen as the product of their divergent cultural traditions.

The geometric characteristics of the Taiyal textile designs may retain an ancient form as a result of isolation, as the linguists and archaeologists argue, inferring that the Taiyal might be the earliest settlers among Taiwanese Aborigines and keep the most primitive features. Alternatively, the predominance of geometric designs may be caused by the evolution of ancient forms into a localised style, as the archaeological evidence for a discontinuity between Taiwan and mainland China during the Late Neolithic period implies. Various theories or hypotheses from the fields of

linguistics, archaeology and cultural anthropology can be propounded. But, the evidence required to elucidate these possible connections is still inconclusive because there are few clues to give us more specifics archaeologically and linguistically, such as formal or decorative modes and types, to enable any precise conclusions.

4-4 Conclusion

From the point view of historical research, events that had happened in the past cannot reappear; that is, it is impossible to know the truth of the past. For a people without written records, we may reconstruct their history by combining the knowledge of many fields such as linguistics, archaeology, anthropology and genetic biology. But, all propositions are nothing but hypotheses or theory, whether based on linguistic or archaeological evidence. As soon as new material and evidence are found, the original hypothesis or theory should be reconsidered. Even so, we ought to keep our enthusiasm for constructing many kinds of hypotheses and explore the probability of each in the light of any clues we can adduce.

The evidence presented in this chapter points to a role for diffusion. From a diffusionist point of view, particular art styles, such as squatting, frog-shaped or split representational forms, etc., that may easily be found in the cultures of the Paiwan and peoples of Southeast Asia, there may be taken as an evidence for a closely historical connection between those cultures. On the other hand, although linguistic hypothesis and archaeological evidence may suggest the relationship between Taiwan, Southeast Asia and prehistoric southern China, it is harder to find a clearer link between the Taiyal and the peoples of those areas because those forms cannot be found in Taiyal weaving art. If it is the case that the Taiyal and Paiwan derive from the same

ancestral group which probably has a link with Southeast Asia as well, does it imply that the differences between these two cultures have diverged for a very long time, and the Paiwan and the peoples of Southeast Asia had a more recent divergence? If historical factors alone are not sufficient to explain the similarities between Taiyal and other, unrelated cultures so widely separated in time and space, such as those of Africa, is it possible to hypothesize that the similarities are caused by a cognitive universal, or the fact that independent invention is channelled by the limitations of technique? We will discuss these possibilities in Chapter Five and Chapter Six.

[Footnotes]

[i] The four primary Austronesian branches that Blust proposes are Atayalic, Tsouic and Paiwanic and a single Extra-Austronesian (Malayo-Polynesian including Philippines, Indonesia, Melanesian, Micronesian and Polynesian). Among these subgroupings, three are clearly in Taiwan because this classification is based on Blust's (1977) hypothesis that Taiwan is the homeland of the Austronesian languages.

[ii] Southern Chinese prehistory extends from before 10,000 to about 3000 years ago. The Lake T'ai-hu area has yielded a number and a variety of prehistoric remains, from about 7000 to 4000 years ago, that are classifiable into the Ma-chia-pang, Ho-mu-tu and Liang-chu cultures, which contain many of the plant, animal, architectural and artifactual items that are contained in the Proto-Austronesian reconstruction (Chang,1986:47).

[iii] The Tapenkeng Culture, also called Cord-Marked Pottery Culture (Tsang,1988:85), was regarded as the most ancient island-wide horizon of ceramic cultures with a dating about 4300 BC and the two most important sites of this culture were

Tapenkeng in the north and Fengbitou in the south (Chang et al,1969).

[iv] Ferrell (1966:97) has made a tentative correlation that combines the Cord-Marked Pottery Culture of central and southern Formosa with the ancestral Taiyalics. He further suggests that Taiyal/Cord-Marked Pottery traditions show an affinity with that of the south and southwestern China region (124,129). Bellwood (1979:203, c.f. Tsang,1988:100) also notes that the Cord-Marked Pottery Culture may have a connection with the Taiyalic who were identified as the early Proto-Austronesians and they arrived in Taiwan about 4000 BC. However, no pottery trace has been found in the material culture of Taiyal, so we merely keep a more conservative attitude.

CHAPTER FIVE
ANALYSIS OF GEOMETRIC DESIGN STRUCTURES

Washburn (1990b, cf. Milgram,1991:205) considers the technical and formal elements as the two facets of the artifact. She identifies the former as the object's "component parts" which are object specific such as its dimensions, weave structure, material; while the latter she terms the "configural parts" which comprise those aspects that concern how the object is perceived, such as the symmetry, rhythm or repetition of the composition. The technical effect will be discussed in Chapter Six. In this chapter I shall examine the spatial distribution within the textile. I will try to ascertain the consistent principles and rules which a weaver follows in organizing their woven compositions by describing how the formal design elements in Taiyal textiles are arranged over the surface space. I would also like to test the existence of cognitive universals by comparing the textile design arrangements of Taiyal with those of the probably historically related tribal cultures of Southeast Asia, in addition to those of the unrelated cultural traditions, in Africa.

5-1 The Method of Analysis of Geometric Symmetry

5.1.1 The Property of Geometrical Symmetry

The property of symmetry can generate both geometric, non-representational patterns as well as representational art, i.e., figurative scenes of people, things, animals, plants, etc. Here we will concentrate on the geometrical forms because they are the main characteristic of Taiyal textile designs.

Cross-cultural studies suggested that geometric symmetry is a salient feature, which prevails in border decorative designs used by different peoples in the world. Such compositions of geometric designs may symbolically express cultural value and information about social position or ethnic identity. For example, Linton and Wingert (1946:7-10) have written that "the art of carving in Polynesia is famous for its elegant geometrical designs, and it reflects the strict and complicated social structure which is related to its hierarchical system". However, as I stated in a former chapter, traditional Taiyal society is strongly an egalitarian, so the geometric form in Taiyal art is not associated with social rank. Besides this different use of geometric designs, the influence of social background has been somewhat discussed when comparing Taiyal and Paiwan contexts of art production.

Some researchers think that people in small-scale societies usually geometricise everything which is related to their environment and milieu. This statement may reduce to a mere naturalistic depiction, and some scholars seem not to approve too much. Van Esterik (1979:498) points out that most previous attempts to interpret an artifact's qualities, its designs and motifs, have concentrated on deciphering the content or meaning of the pattern elements. From an iconographic point of view, figurative motifs, flora, fauna, mythical scenes, and even abstract forms have been assessed for the extent that they suggest the presence of more or less recognizable, representational symbols. As far as the geometric characteristic of Taiyal art form in weaving is concerned, however, no iconographic motifs with any allusive meanings have yet been found. Thus, some think these forms may be decorated purely for art's sake. As Franz Boas suggests of Northwest Coast art in North America:

> Our consideration of the fixed formal elements found in this art prove that the principles of geometric ornamental form may be recognized even in this

> highly developed symbolic art; and that it is not possible to assign to each and every element that is derived from animal motives a significant function, but that many of them are employed regardless of meaning, and used for purely ornamental purpose (Boas,1955:279).

However, in addition to the purpose of decoration or aesthetic need, what can we find out about the formal quality of an art style? Boas argues that the organization of the design is of utmost importance in a work of art. He states (1955:154) that "the arrangement in the decorative field is liable to give a specific form to the art of each locality."

As far as the physical qualities of cloth itself are concerned, its material, techniques and design patterns embody a system of formal relationships that provide information about the people's perception, and it may also function as a communication medium to relay information to members of the community. Therefore, it is necessary to explore the geometric characteristic via formal analysis.

Both archaeologists and anthropologists have endeavoured to find ways to interpret a cloth's patterning. The following analysis will apply Washburn's method of symmetrical analysis, to describe how the formal design elements in Taiyal textiles are arranged.

5.1.2 Symmetrical Analysis

Since the elucidation of the cognitive basis of material culture, archaeologists (or anthropologists who study the art) have described the physical characteristics of objects in terms of content and context (Washburn,1990a:1). The descriptive analysis of objects by dividing them into typological categories lies at the heart of

archaeological and anthropological efforts to discover cultural order. But, it is hard to detect the content of Taiyal textile designs. As Washburn and Crowe (1988:269) argue in their discussion of the role of symmetry in the perception process, even non-representational art has an important cultural communicative value. Thus, can we use an approach which is less dependent on the content of obvious iconographic systems?

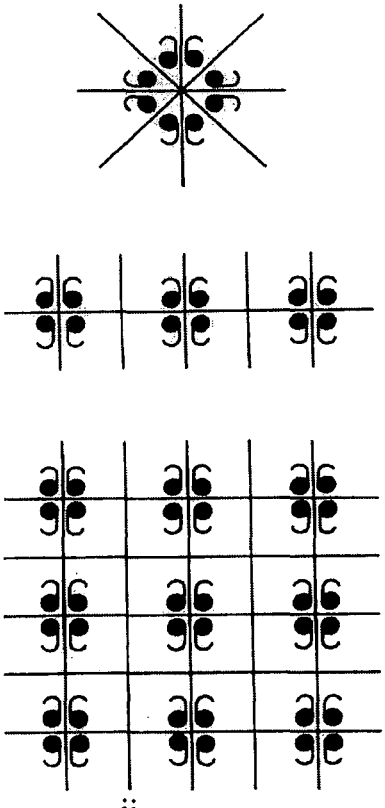
Washburn (1983a:4) suggests that art styles can also be analyzed by structural principles, such as symmetry analysis. Some researchers have attempted to systematize the investigations of cultural order by using the principles of linguistics as a model to decode the structural systematics of various graphic systems. For example, Hanson (1983) has found a predominance of bilateral symmetry on Maori painted rafters, textiles, carved wooden boxes and facial tattoos which he suggests mirrors the pervasive duality in Maori culture as seen in their origin myths and social exchanges.

The formal analyses of design structure are best exemplified by the work of Washburn, who has concentrated on the way symmetry rules can be identified and compared with underlying structures between cultures. She argues that examination of design arrangements can produce a classification not based on design motifs, but on the way the motifs are organized in symmetrical relationships (Washburn and Crowe,1988:25). This examination of the formal analysis focuses on the form (motions) of each of the design elements, not on their content or literal meaning. A consistent system or structure may be detected through which the textile in motion communicates its information (Milgram,1991:13).

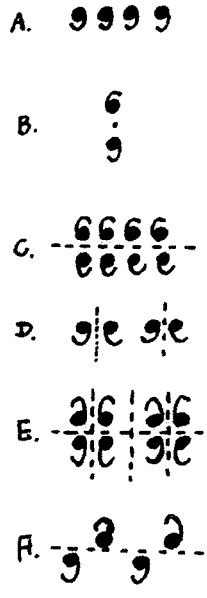
Symmetry may be defined as the rules for the arrangement and position of regularly repeated parts of a design. The term is often understood in its non-technical sense to mean simply well balanced or well proportioned (Van Esterik,1981:22). It can also be described as a rule which generates pattern (Hodder,1991[1986]:38). The use of geometric principles of symmetry is a method that is a mathematically grounded classification system for nonrepresentational patterns that generate different repeated design arrangements in the plane. Such patterns, which we would normally call "geometric" or "abstract" as opposed to those which we call "figurative", are commonly found on textiles, ceramics, basketry, or carving as borders or overall areas of decorative embellishment (Washburn and Crowe,1988:267). A number of archaeologists and ethnographers have begun to apply these principles. This method can offer a framework to study the role of basic properties of form in perceptual process for investigating patterning in human behaviour (ibid,1988:12).

The analysis of geometric symmetry could be based on a kind of structural description of form recognition; that is, rather than being a detailed iconic picture of a scene or object, the geometric descriptions of an art form are structural modes that demonstrate how the perceived information is related to and anthropologically used for further understanding of consistencies in decorative pattern from a communication standpoint in cultural context (Washburn and Crowe,1988:32). Van Esterik (1981:2) also notes that design fields could be defined unambiguously by a limited number of operations. Operations or motions that produce design fields in decorating a vessel were constrained by universally defined and mathematically demonstrable symmetry relations.

As mentioned, analysis of geometric symmetry is mainly grounded on mathematical principles to describe the way a pattern is organized. There are four basic symmetry motions: 1) translation; 2) bifold rotation; 3) horizontal or vertical mirror reflection; 4) glide reflection. There are also three axial configurations around or along which features move by the three symmetry motions: a) finite; b) one-dimensional; c) two-dimensional (Fig. 8). These motions introduce the least number of perturbations and thus preserve the most information about the objects in a composition. Each successive type of motion introduces change in more invariant properties and, thus, change in the parts that are emphasized and in the information that is communicated (Washburn and Crowe,1988:269). Any plane design whose constituent elements are repeated can be said to be generated by arrangements through one or several of these basic rigid motions of the plane.



ii



i

Fig.8: Metric transformations of geometric symmetry analysis.
i. The four isometrics.
A. Translation.
B. Bifold rotation.
C. Horizontal mirror reflection.
D. Vertical mirror reflection.
E. Biaxial mirror reflection.
F. Glide reflection.
G. Alternate rotation and vertical reflection.
ii. Three plane pattern categories.
A. Finite structure.
B. One-dimensional structure.
C. Two-dimensional structure.
(adapted from Washburn, 1983b: 139).

These plane patterns that can be flattened, such as in textiles or three dimensional, as in ceramics, can not only provide a classification for repeated designs but also comprise an analytic framework for comparing the many patterns throughout the world and used in systematically studying how different people express a particular style (Washburn and Crowe,1988:33). Implicit in this observation is the idea that these symmetries and the consistency with which certain motifs are used are related to some cultural factors. The symmetry consistencies may characterize an art form of a cultural group. The same motifs could be arranged according to different symmetries and thus be characteristic of different groups.

5-2 Formal Analysis of The Taiyal Designs

5.2.1 Visual Analysis

According to the traditional classification, there are several kinds of textile products among the Taiyal:

(1) Upper garments can be divided into *lukus* (long garment) and *ratang* (short jacket). They are both made of white cloth that is in the original colour of the hemp, and there are many kinds of geometrical designs woven on them.

(2) *Pala,or bala* is a sort of sheet woven in black and white colours. It was used for blanket or carrying cloth. Sometimes, the Taiyal called all the finished clothes *pala* (Chen et al,1994:118), including the cape and women's skirts (Hsin-tsu Hsien Government et al,1993:28).

(3) *Toujah*, *tojah* or *obeja* is a kind of square cloth used as a chest covering (Kojima et al,1996[1915]:82,87).

(4) *Tiju'*, *tz'yu* or *taoja* is made up of two or three pieces of cloth which are formed into a larger piece of cloth with around one meter square. *Tiju'* can be seen as a

representative among the Taiyal clothing. It functioned similar to a cape, and is usually draped diagonally from one shoulder by women whereas draped on both shoulders horizontally by men (Kojima,1996[1915]:87; Tung et al,1996:199).

(5) *Qujit* are separated sleeves.

(6) *Sragiy* are women's leggings. A pair of leggings was often decorated by different designs.

(7) *Soloh* is a form of girdle which has many colours with geometrical designs. It is a kind of loincloth.

(8) *Valus* is similar to a rug which can be a twill woven multi-coloured cloth with a geometric pattern (Shih,1964:12).

There is little difference between male and female in the decoration of traditional Taiyal clothing. The main styles are stripes, a band with stripes and diamonds, a band of diamonds, diamonds with repeated rows, central diamonds enclosed by a border, zigzag cross-stripes, bands of chevrons and other motifs.

Stripes are one of the most prominent formal patterning agents in Taiyal textiles. For example, the central decorated portion of the *tiju'* is mostly informed by a fill of longitudinal lines, and the variants in rhythm of thread relationships are usually achieved by means of the colours of the warps and wide or thin lines. Hence, it forms one of the characteristic features of Taiyal weaving.

The stripes, including edge stripes, three-stripes and multi-stripe motifs are often seen in the style of Taiyal cloth. The unpatterned natural colour stripe is the simplest type in Taiyal weaving but it is not common (Nettleship,1971:411). The use of thread

lines is mostly horizontal, although vertical lines are quite commonly seen in the clothing of the Bei-shi subgroups living on the upper reaches of the Ta-an River.

Aside from the stripe, the traditional motifs found in Taiyal textiles are full of geometrical forms. They are derived from the triangular, diagonal, rectilinear, rhomboid qualities of warp and fill thread relationships. The diamond motifs have particularly great variations. The most prevalent geometrical elements in Taiyal textiles are the rhomboid and many of its transformations. Although some researchers think these diamond shapes may be historically related to the Hundred-Pace Snake motif seen in textiles of other Taiwan aborigines, especially the Paiwan and Bunun, there is insufficient evidence in oral narration or folklore to establish whether the Taiyal examples had such representational significance (this was discussed in chapter three).

The simplest diamond motif is the Repeated Rows of Diamonds: an overall uniform pattern of identical diamonds arranged in rows of five to seven across the cloth, usually with half diamonds at the selvage. A variant of this motif involves the same layout of uniformly sized diamonds but varies their internal patterns so that all diamonds within a horizontal row or diagonal band have the same internal pattern but each succeeding row is different with a repetition of the whole sequence of variation every three to six rows. Moreover, the bands of diamond motifs are often parallel with one another and are separated by plain stripes.

Also, the Taiyal weavers seem to divide certain series of designs into a group rather than seeing them as identical units or elements, and give the name to the designs

according to which field they are woven into, in different types of clothing. For instance, in Figure 9 (Plate 1) all designs from A to E are variations in parallel stripes, but each has a different name. A, B and C are called *bagil*, which appear on the *qujit*, while D and E are called *buda-zitz*, which are often seen on the *sragiy*. Designs F to J are those which are composed of the rhomboid and rectangle. The Taiyal name for F and G are *ho-ban*, which are inwoven designs on the chest covering, while that of H, I and J are *snu-lu*, which are usually seen on the *pala* or *lukus* (Hsin-tsu Hsien Government *et al*,1993:30-34; Yuan,1994[1990]:497). In addition, the Taiyal call the clothes according to the name of the design. For instance, the term *lukus tu-iuk* refers to a kind of garment with the rhomboid design called *tu-iuk* and its variations.

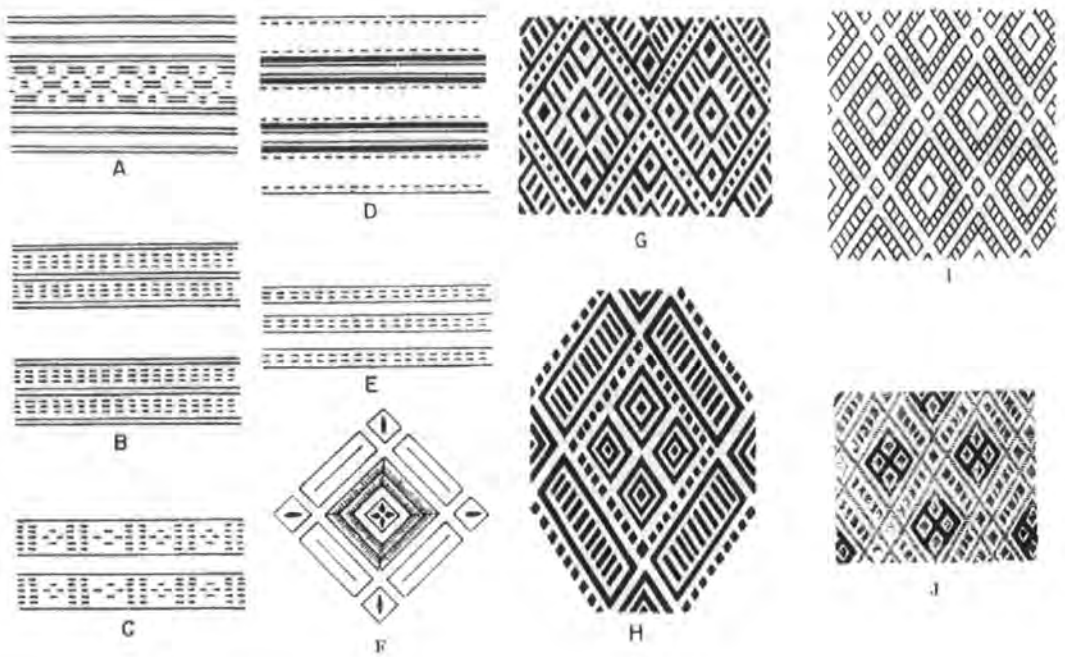


Fig.9: Traditional Taiyal textile designs. A, B and C are *bagil*. D and E are *buda-zitz*. F and G are *ho-ban*. H, I and J are *snulu* (also see Plate 1).

I have moreover been told by Yuma Dalu, a young Taiyal woman who is studying traditional Taiyal clothing, that the occurrence of designs seems to be differentiate by types of clothing. For example, a wave-shape pattern is often used in leggings

whereas a diamond design is seldom seen in this part. Nevertheless, because of insufficient evidence, Yuma suggests this question requires further study through more fieldwork and sample analyses, including information on the Taiyal women's concepts about classification of designs and local differences.

5.2.2 Symmetrical Analysis of Taiyal Textile Designs

Most style studies focus on object-specific features. Nevertheless, since styles are categories that ethnic groups often use to identify objects and peoples, a better understanding of the kinds of features that comprise these categories is essential. As Washburn and Crowe (1988:ix) note, "descriptions of symmetry in the arrangement of parts are superior to data-specific grammars because the units, symmetry motions, are universally present in all repeated designs from all cultural groups." The method of symmetrical analysis focuses on the manner in which the parts of the design are organized, not on the content of the units themselves. Thus, the method is particularly useful to analyze the Taiyal textile design by using objective and universal criteria such as symmetry motions, which are essential to determine the rules that weavers follow in organizing their woven compositions and to ascertain whether or not these principles are common to all their textile design structures.

An examination of the spatial organization of Taiyal textiles according to the motion classes defined above, seems to reveal that there are some complicated principles involved in determining the structures and elements of the textile designs. I am going to show, step by step, the typical ways found in Taiyal textiles to elicit the salient kinds of basic properties and to delineate how they are manipulated.

(1) Translation/one-dimensional pattern: A translation motion always moves every point the same distance in the same direction (Washburn and Crowe,1988:48). A translation motion often accompanies one-dimensional patterns and appears in band-shape fields. Translation/one-dimensional patterns have features that are translated parallel to a single line axis and these are typically found as bordering rows of repeated designs[i]. The Taiyal type of face-tattooing also belongs to this pattern. In the following example we can see the orientation of a rhomboid motif is preserved but their position is changed by translation along a single axis (Fig. 10, Plate 2).

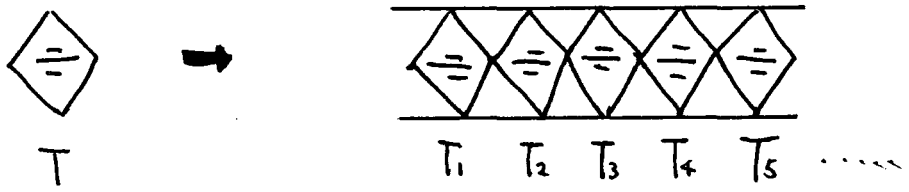


Fig.10: Translation/one-dimensional pattern.

(2) Bifold rotation/finite →translation/one-dimensional pattern: A rotation motion moves every point (except the centre of the rotation) and its position is changed by orientation at a given angle about some centre. Among Taiyal textile motifs this type is quite commonly seen, e.g. in Figure 9, designs F to J belong to this type. In the following example, we can figure out that the processes of symmetry of this pattern start from a rotation that has a central point axis and then structures a finite design around the centre of the rotation. The principles of spatial organization of the above-described pattern, the process of rotation/finite →translation/one-dimensional pattern, are basically alike in all cases except for slight differences on the surface. This twofold rotation/finite pattern has translations in one direction only along the length of the band and then forms a translation/one-dimensional pattern (Fig. 11, Plate 3).

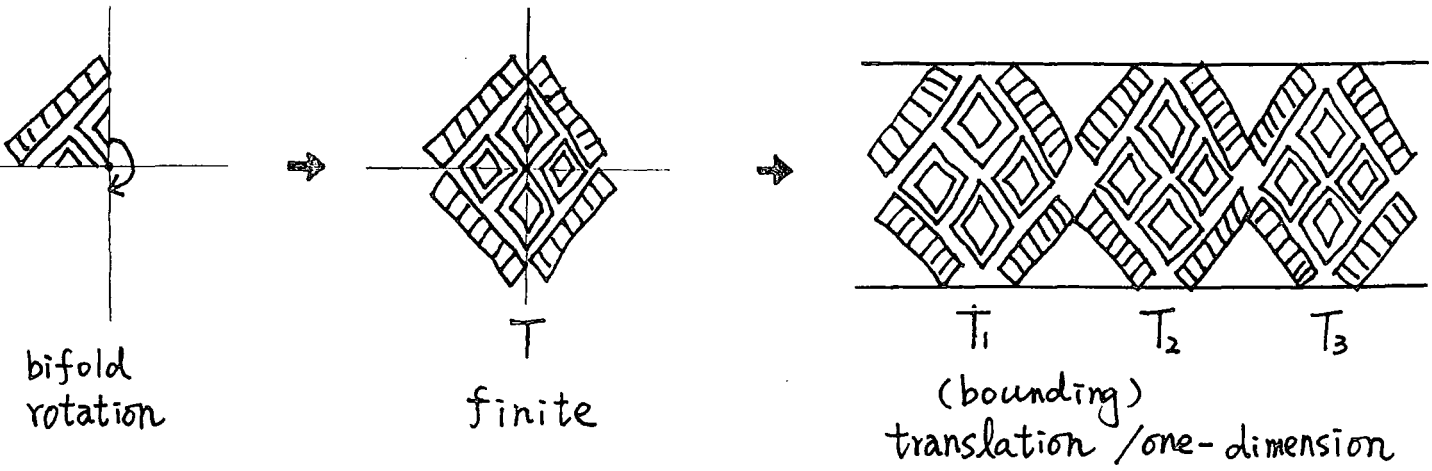


Fig.11: Bifold rotation/finite ➔ translation/one-dimensional pattern.

(3) Glide reflection/two-dimensional pattern: A glide reflection can be described as a translation (glide) followed by a reflection in a line parallel to the direction of translation (Washburn and Crowe,1988:50). A motion of glide (or slide) reflection is similar that of mirror reflection, both where features are reflected across a mirror plane and position and orientation are changed. However, the unit of a glide reflection is translated along the line axis but not reflected in the opposite position. These two reflections are easy to be observed in Figure 9: C and D. If a glide reflection motion has translations in more than one direction, that will form a two-dimensional configuration (Fig. 12, Plate 4).

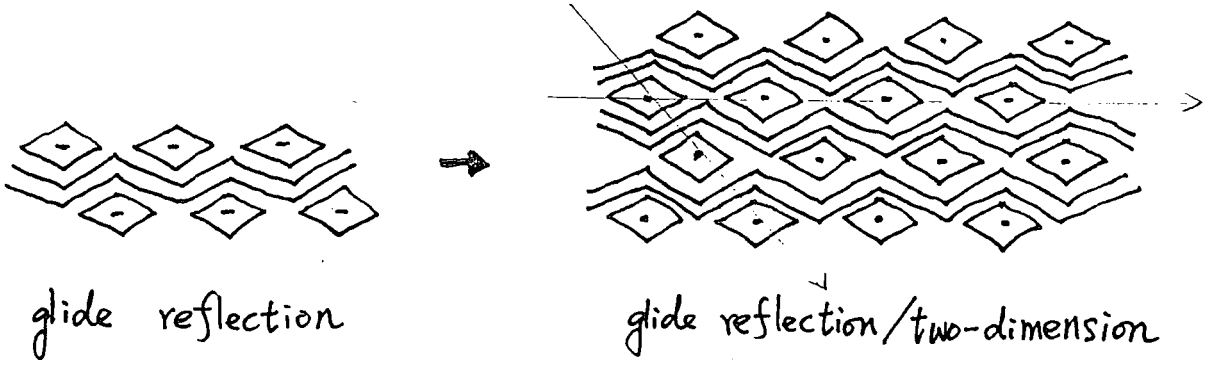


Fig.12: A process of glide reflection/two-dimensional pattern.

Among the shape and style of Taiyal clothing, the motion pattern of a glide reflection/ two-dimensional design occurs always in the larger plane surface of the design field, for example, it is not commonly used in the garment while commonly seen in the *tiju'* or *pala*. We do not know for certain whether this kind of presentation is related the Taiyal weavers' concepts of spatial organization and aesthetic preference, and it is worthy of further study.

(4) Bifold rotation/finite →glide reflection/two-dimensional pattern: As mentioned, the rotation/finite pattern is a salient type used by the Taiyal. In addition to translation/one-dimension, it is also presented by a pattern of glide reflection in two dimensions. In the following example, the rotation/finite designs are performed by a motion of glide reflection first, and then flattened along multiple line axes to form a two-dimensional composition (Fig. 13, Plate 5).

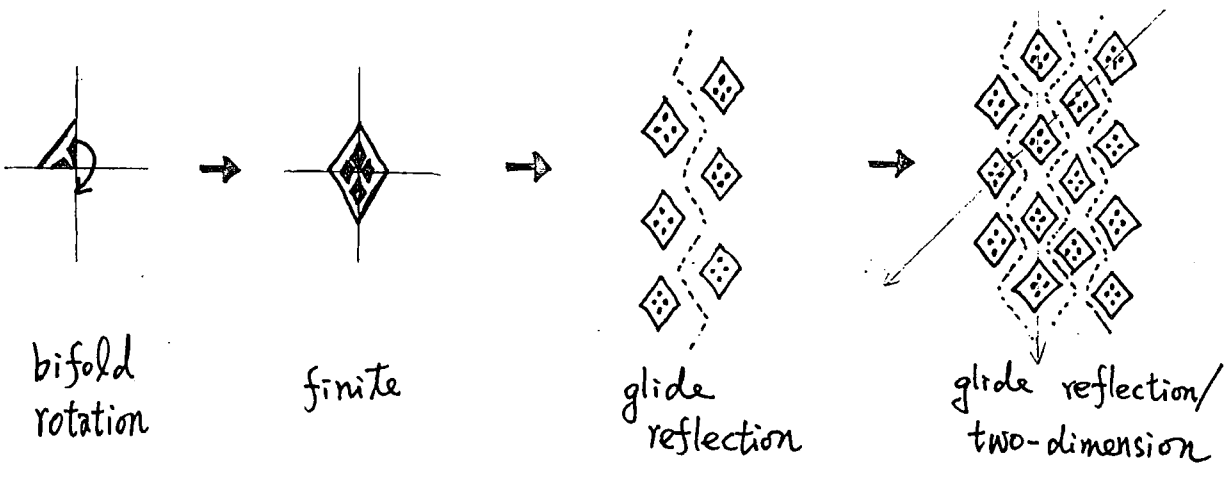


Fig.13: A rotation/finite → glide reflection/two-dimensional pattern.

(5) Mirror reflection/one-dimensional pattern: Another common design structure that can be applied consistently as an ordering principle is mirror reflection. A mirror reflection motion moves every point in a line or axis to the corresponding point on the other side of the line and finally flattened across a mirror plane (Washburn and

Crowe,1988:46). The designs that display this symmetry class in Taiyal weaving can be operated by biaxial mirror reflection[ii]. In the following operation this motion divides a certain design into two symmetrically opposed spaces: top/bottom and right/left (Fig. 14, Plate 6).

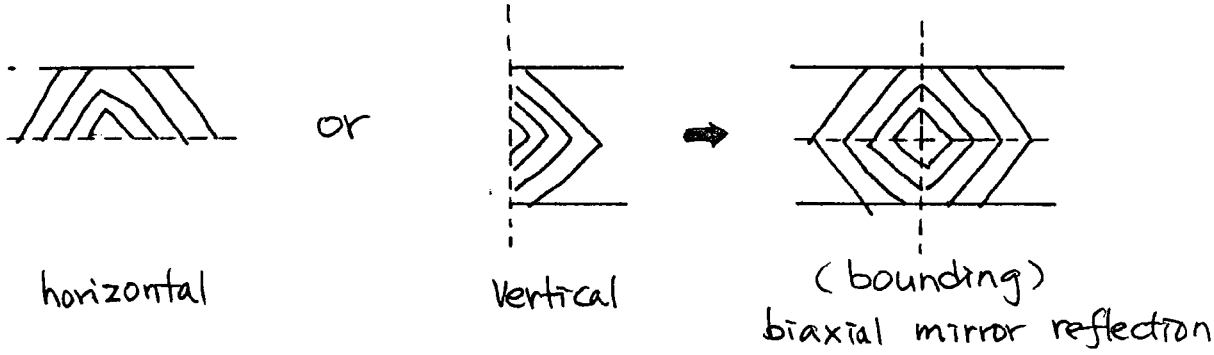


Fig.14: A biaxial mirror reflection motion along a horizontal or vertical line.

Although almost all design structures in a mirror reflection motion are biaxial, it is noteworthy that mirror reflection only along a horizontal axis has not been found in samples analyzed while that along a vertical axis alone (bilateral symmetry) exists some samples. In addition, these vertical reflection motions are generally performed by similar triangular forms.

In the case of Taiyal samples, mirror reflection always accompanies a one-dimensional pattern. This mirror reflection/one-dimensional pattern is often exhibited in a narrow band with an edge stripe and multi-stripe of decorative small diamond motif and its transformations or in the middle or upper and lower borders of the *lukus* or *ratang*, etc. Besides, a common phenomenon in Taiyal textile design is that two motif designs alternate in a band or border and they can be analyzed as biaxial mirror reflection/one-dimensional pattern.

However, this motion class could be called mirror reflection →translation/ one-dimensional pattern (Fig. 15). This situation sometimes leads to the dilemma of classification between mirror reflection/one-dimensional and translation/one-dimensional pattern. This is evidenced in some clothing such as *ratang* or the horizontal stripe fields of the *lukus* and sleeves (see **5.3.1**).

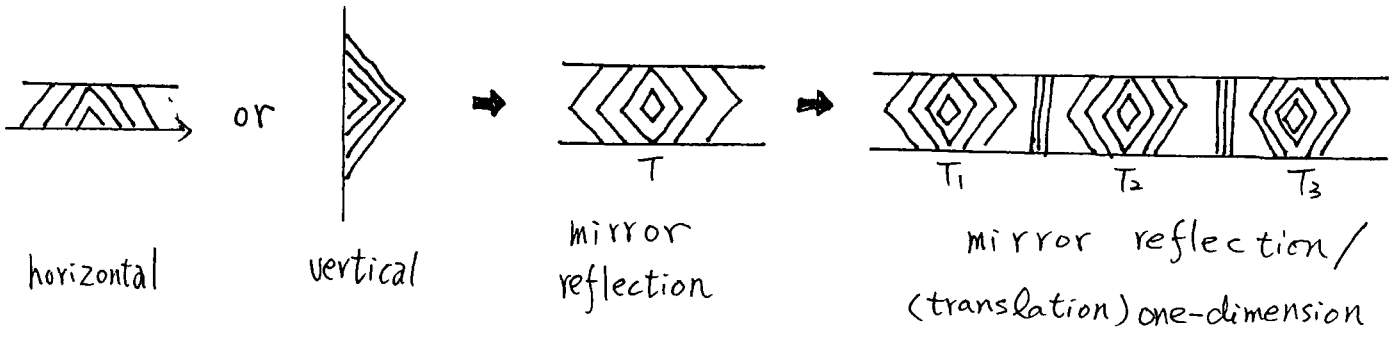


Fig.15: The process of mirror reflection (translation) /one-dimensional pattern.

I shall use the following histogram to show the use of these symmetry motion classes in Taiyal textile design arrangements (Fig. 16).

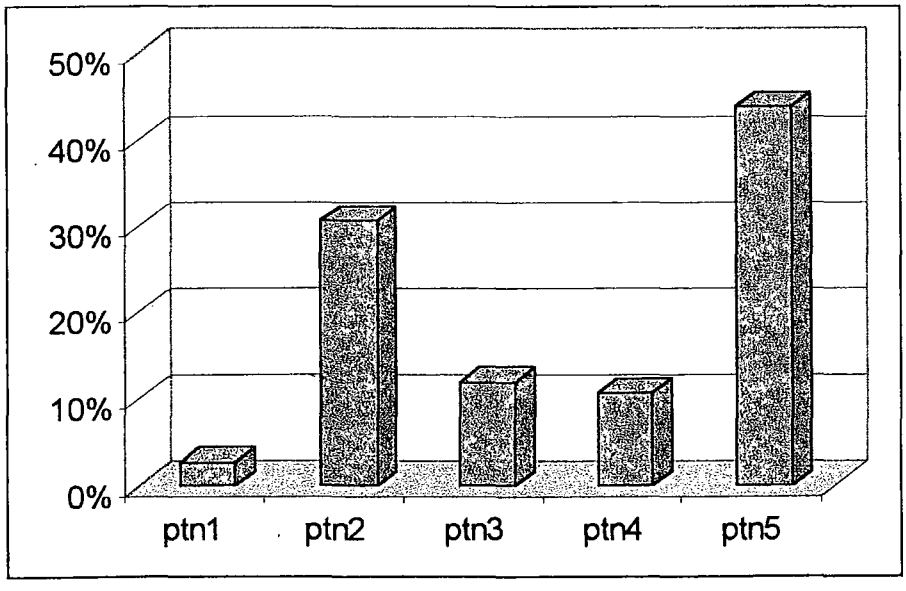


Fig.16: Histogram for symmetrical patterns in Taiyal textiles. Ptn (pattern)1 is translation/one-dimension; ptn2 is bifold rotation/finite → translation/one-dimension; ptn3 is glide reflection/two-dimension; ptn4 is bifold rotation/finite → glide reflection/two-dimension; ptn5 is mirror reflection/one-dimension.

This histogram reveals that the patterns of translation/one-dimension, rotation/finite →translation/one-dimension, glide reflection/two-dimension, rotation/finite →glide reflection/two-dimension and mirror reflection/one-dimension are applied as ordering principles that consistently determine the structure of the geometrical design elements in Taiyal textiles. Among all the patterns, Pattern 5 occupies the highest with nearly 40% whereas Pattern 2 is the second highest with around 28%. Pattern 3 and 4 are closely each other while Pattern 1 is the lowest level only with less than 5%.

Mirror reflection is used more frequently than rotation/finite. Further inspection in practice, notwithstanding, shows that the rotation/finite motion usually occuries an important place. The rotation/finite pattern, which is composed by rhomb and rectangle, seems to be the most marked design in Taiyal weaving and is consistently presented in the most obvious and important part of the splendid attire such as a *lukus lumoan* or a *tiju'* that was worn at grand rituals or ceremonies in traditional society and the wearer was always the 'hero' who had grand achievements. In addition, this symmetry motion accompanied with glide/two-dimensional type can be seen in most foundation of chest squares that were often worn by people who had notable achievements. As Washburn (1983a:4) notes, "the consistencies in art structure may be interpreted as the units carrying cognitive import"; even individual geometrical elements can be systematically arranged to achieve intelligible communication.

Among all the patterns, two-dimensional motion is not commonly used in Taiyal textiles except the motion class with glide reflection. In addition to the factor of technique, I believe that this situation might be in relation to the aesthetic expression of the Taiyal when we consider the composition as a whole. If we examine the

composition on clothing, we see the Taiyal often keep a larger empty space, and then put a distinctive design on the part that is most lively to attract attention, usually seen in most of ceremonial clothes. This kind of composition suggests that that it could be a means of communication for their user and viewer. And, the motion class of rotation/finite is suitable to serve as the distinctive symbol because of the complexity of technique that indicates great artistic maturity. Only the most experienced weavers would handle this technique. The form is like an information code to tell of the wearer's achievement. Hence, this composition that arranges the striking design pattern on the empty space can achieve the same as one effect that fills up the whole space with the special motif. As Langer argues (1974:93, cf. Milgram,1991:194), that "an artifact communicates as a presentational form", that is, "the relations determining a visual structure are grasped in one act of vision".

It shows that pattern 1 occupies the lowest among all the patterns. This situation may be caused by the problem of symmetry classification. We will talk about it in **5.3.1**.

5-3 Discussion

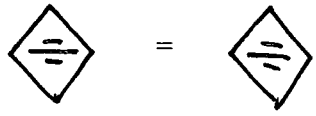
5.3.1 The Ambiguity in the Definition of the Grammar:

Symmetry analysis is purely formal, and such work appears not to involve risky leaps of faith: apparently no meaning is assigned and there is much scientific rigour. However, can it really be the case that formal analyses do not involve the imposition of meaning or interpretations? Ian Hodder has criticized Washburn's analysis as a little bit arbitrary (Hodder,1991[1986]:40-41). We can take a design pattern (Fig. 11) as an example to illustrate this ambiguity. If the diamond design is generated by placing a horizontal axis through the 'diamond' and seeing the upper part as a mirror

reflection of the bottom part:

The unit is  or  , and the symmetry motion can be characterized as biaxial (horizontal or vertical) mirror reflection.

An alternative analysis would be to take the units of design not as the individual slanting designs but as the complete diamond:



The unit is  , and in which case the symmetry motion would become translation/ one-dimension.

From the two examples, Hodder argues that identification of the axis along which symmetry is sought can be regarded as a set of interpretive decisions, not just a description of the data. Ambiguity arises from the differences between the messages conveyed by different levels, the form-meaning contradicting the icon, for example. As the case cited above shows, one form of analysis may hide other levels of symmetrical relationships. Hodder comments, thus, that such analyses may in a sense involve giving meaning to the content and involve trying to see the design as people in the past saw it (40).

Since translation is a motion inherent in every pattern, an element in a one-dimensional pattern described as having mirror reflection also can be seen to be translated along that axis (Washburn and Crowe,1988:20). For this reason, we, as noted, may see the dilemma that is a bit hard to decide to which motion class a composition belongs in practice. In this example we can see the ambiguous problem

of definition between the unit of rhomboid or triangle. In fact, the symmetry motions in Taiyal textile designs almost hide the mirror reflection. For example, the important rhomboid-and-rectangular designs with rotation/finite motions could have both rotational and reflection symmetry. Especially, almost translation/one-dimension could be first operated as mirror reflection and then have formed a translation/one-dimensional pattern, so that this type clearly has a coincidence with mirror reflection/ one-dimensional pattern. Therefore, in order to solve this dilemma, I decide to reclassify the translation/one-dimensional patterns hiding the mirror reflection into mirror reflection/one-dimensional patterns.

I suggest that an analyst should explain more clearly the grounds on which the minimal units of analysis have been identified and demonstrate which units s/he adopts. As Washburn states (1995:106), the geometric motion classes should not be thought of as rigidly limiting the kinds of patterns that an artisan can produce and realize. Rather, they just provide an analytic framework for studying how peoples express a particular style and the analysts who are not the members in this culture can read them as a text.

5.3.2 Comparisons of Typical Symmetry Classes in Textile Design Patterns of Taiyal, Southeast Asia and Africa

In addition to identifying the principles and rules of spatial organizations which regularly determines the position of the formal design elements within the composition, what are the implications of these symmetry motion classes in Taiyal textile design structure? In Chapter Four, we have examined the relationships of individual geometric designs in textiles between Taiyal, Southeast Asia and Africa.

Here, by utilizing similar textile samples, I would like to examine symmetry classification of geometrical design arrangements instead of single motifs, and explore the general principles of order that exhibit the position of geometrical design elements in textiles of these three areas. I wish to use the comparison to address the questions such as do the construction principles differ cross-culturally? Are certain symmetries applied by one cultural tradition while other symmetries are preferred by another cultural tradition?

The common symmetry patterns of spatial organization in the textile designs of Southeast Asia are as follows: (1) translation/one-dimension; (2) bifold rotation/finite →translation/one-dimension; (3) glide reflection/two-dimension; (4) bifold rotation/ finite →glide reflection/two-dimension; (5) mirror reflection/one-dimension; (6) mirror reflection/two-dimension (7) glide reflection/two-dimension (8) rotation/finite/ two-dimension.

The symmetry principles of order showed in African textile design patterns are as follows: (1) translation/ one-dimension; (2) bifold rotation/finite →translation/one-dimension; (3) glide reflection/two-dimension; (4) rotation/finite →glide reflection/ two-dimension; (5) mirror reflection/one-dimension; (6) mirror reflection/two-dimension; (7) glide reflection/two-dimension →translation/one-dimension; (8) rotation/finite/two-dimension; (9) rotation/finite →glide reflection/one-dimension.

In the histogram below (Fig. 17), I draw up the ways of arranging design element in the textiles of Taiyal, Southeast Asia and Africa.

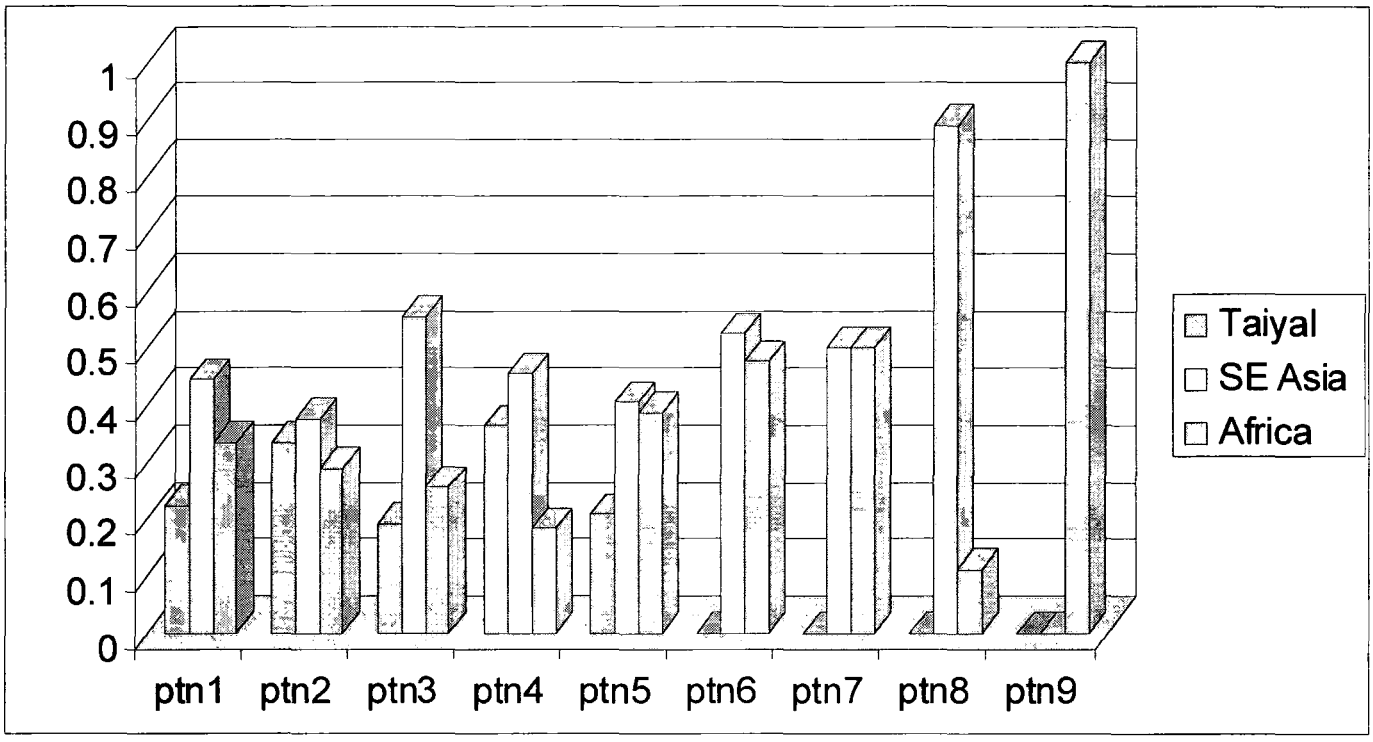


Fig.17: Histogram for the comparison of symmetry patterns in Taiyal, Southeast Asia and Africa. Ptn1 is translation/one-dimension; ptn2 is rotation/finite →translation/ one-dimension; ptn3 is glide reflection/two-dimension; ptn4 is rotation/finite →glide reflection/two-dimension; ptn5 is mirror reflection/one-dimension; ptn6 is mirror reflection/two-dimension; ptn7 is glide reflection/two-dimension →translation/one-dimension; ptn8 is rotation/finite/two-dimension; ptn9 is rotation/finite → glide reflection/one-dimension.

Following the analysis of symmetry undertaken above, we, surprisingly, find that peoples in Taiyal, Southeast Asian and African textiles seem to employ more similar methods of spatial organization, including translation/one-dimension, bifold rotation/finite →translation/one-dimension, glide reflection/two-dimension, rotation/ finite →glide reflection/two-dimension and mirror reflection/one-dimension, to structure their geometrical designs. In Taiyal weaving the use of two-dimensional composition is less used, as noted above. In addition, pattern 6, 7, 8 and 9 are not seen in Taiyal weaving. Pattern 9 are only applied in African textiles.

With respect to the rotation/finite motions that occupy a specific significance among symmetry performances, previous presentation reveals that a Taiyal style is commonly marked by the prevalence of diamond-and-rectangular design. The applications in Southeast Asian textiles are frequently used by a hook-and-rhomb design style, which is an pervasive ancient motif on bronze drums, whereas those in African textiles are often influenced by some Muslim design motifs, such as star-shape, cross-shape and flora-shape.

Another result of symmetry analysis shows that the geometrical design arrangements in textiles of these three areas are consistently predominated by mirror reflection, especially vertical bilateral symmetry. The common use of this symmetry operation in the textiles of these three areas may indicate this aspect of the geometrical design structure is one of the most accessible systems of order and hence, as an information code that is most easily understood by the viewer and reproduced by the weaver. By exploring the cognitive significance of symmetry in cultural contexts, the fact that Washburn and Crowe (1988:19) examine the perceptual process to determine which features of a form are salient in the processing of information shows mirror reflection should be an important symmetry feature in the shape perception process. In its most common and popular usage, symmetry may be thought synonymous with mirror reflection if assuming that mirror reflection is the prototypical symmetry (20). Individuals are accustomed to allocate a "top" and "bottom" and "sides" to assess identity of images in their environmental contexts (21). Vertical symmetry was the easiest to recognize, and it "alone would result in the correct identification of an object without a total analysis of the object " (22). Further research suggests that the redundant property of symmetry is often used to help peoples recall and reproduce

patterns (23). This may be exemplified in some schematized human or animal forms in Southeast Asian and African textiles.

Is the recurrence of a similar structured method therefore caused by a universal human perceptual process? The finding that the similar principles are commonly used to order the textile design elements in these areas may make us question why peoples in different cultural traditions prefer the same motion class to organize their world. The groups which have a common origin and share similar cultural practice or interact each other may produce designs based on a similar set of symmetry structures. However, as regards the Africa, a very remote tradition, are these similarities caused by chance? Since symmetry analysis shows that certain design structures are consistent within a given groups and design structures are nonrandom (Washburn and Crowe,1988:24,28), we are less convinced that the similarities are caused by chance. I try to find a clue from a structuralist discussion of the similarities between different cultural traditions.

5.3.3 The Aspect of Structuralism

The issue that structuralists are interested in is the existence of similarity between different cultural traditions. Moreover, they argue that this is by no mean occasional. On the surface, there is indeed a great difference between different cultural traditions. But, all the cultures are the products of human mind, and all the humans belong to the same species. Thus, they ask, is it possible that there exists a sort of similar property, namely, a cognitive universal, in the unconscious activity of human mind?

Comparing the designs found in the art of Yi-shang of ancient China, the Indians of North West Coast of America, the Caduveo of Brazil and the Maori of New Zealand, Levi-Strauss (1963:246-247) summarizes the eight fundamental and similar principles. He argues that, despite the possibility of some historical connections between the two sides of the Pacific, if art forms from different regions and periods exhibit obvious similarities it is less certain that they have a single point of origin and represent a continuous tradition (Levi-Srauss,1963:247). Furthermore, no matter how similar these styles, it is difficult to demonstrate that they are caused by cultural contacts or borrowings. Levi-Strauss thinks the diffusionists cannot explain these questions satisfactorily because they merely ask for help from history. History cannot explain why a cultural characteristic can be maintained in the long period of diffusion nor why the method of split representation is retained in different cultural traditions, which develop along different lines?

Rather than consider the similarities between the four art forms in small-scale societies that are remote in time and space as the consequence of diffusion or chance, Levi-Strauss would strive to explain them by means of a sort of 'internal' connection of structure (Levi-Strauss,1963:248). What is this "internal" correlation? It may be related to a human cognitive universal. For Levi-Strauss, the universal principles that he is primarily concerned with are the 'constant' relations among phenomena, which are "basic social and mental processes of which cultural institutions are the concrete external projections or manifestations" (1963, Translator's preface: ix).

Hence, Levi-Strauss would rather explain the analogous principles in decorative arts (split representation) in terms of their relationships to structurally similar forms of

social organizations (hierarchical societies)---i.e. the dualism between the plastic and graphic arts parallels that of the social phenomena (Levi-Strauss,1963:261). Specifically, split representation is a technique for depicting a solid, three-dimensional form on a flat surface. Where the face is rendered "social" by tattooing or painting, this social identity can most fully be reproduced through split representation. This 'structure', may explain the reason why the various technological and artistic principles displayed in different art traditions are almost entirely identical. The result that Levi-Strauss deduces indicates that the organisation and structure of mental process are the same even though there are a great deal of differences between those cultural traditions.

Levi-Strauss argues that there may be "common origin and the unquestionable existence of prehistoric relationships " between cultures which are regardless of the geographical distance and historical separation, if an unusual pattern is found in different parts of the world (Levi-Strauss,1963:245). While questioning diffusionism and keeping an advocatory position to Levi-Strauss's argument, Chang, the respected Chinese archaeologist, has tried to probe the existence of this correlation in human mind through an archaeologist's saptial and temporal view. With reference to the importance of sorcery (or shamanism) in ancient Chinese and Mesoamerican civilizations, Chang surmises that the similarities in ancient China and ancient Mesoamerica (Maya Civilization) may derive from a common ground in human cognition since the Paleolithic period, which he calls "the Mayan-Chinese continuum" (Chang,1995:275). In addition, depending on the archaeological evidence, Chang puts forward an suggestion that this ancient cultural complex may not just be the common ancestry of China and Maya civilizations but also be a world-wide

phenomenon, in other words, perhaps this continuum may be traced back to the Late Paleolithic period of the 'Old Continent', e.g. the cave art of Lascaux in France dated 15,000 years ago or the Malta of Irkutsk of Northeast Asia (279-280).

Comparative study of art is able to trace or establish the presence of structures in art on the basis of similarities in their systems. Chang thus perceives that this idea of a basal cultural cluster derived from the origins of modern humans ("the Mayan-Chinese continuum") may be an alternate way for archaeologists to explore why the similarities exist in different cultural traditions, and further provide a possible explanation for why change of social structures can be associated with continuity of cultural tradition (281). For this reason, it is not necessary to explain the existence of the similarities by means of cultural contacts or borrowings. It appears then, that what we should probe is perhaps the cause-and-effect relationships within the culture that contribute to continuity and change, not the provenance of the new elements, nor the distant origins of that culture.

The perceptual process can aid the understanding of cultural responses to a particular perceived world and universal cognitive process. Washburn and Crowe examine some of the research on the significance of symmetry in perception, and they conclude (quoted from Pick,1980:119), as follow:

> There are important similarities in cognitive functioning of diverse groups..... the similarities help identify aspects of cognition which are universal (Washburn and Crowe,1988:24).

> Different culturally recognized principles might produce an identical output or finished design. "Symmetry is a cognitive perceptual universal, basic to the processing of all shape information. A culture's symmetries are part of that culture's cognitive organization map, and the classification of symmetries is a meaningful measure of the way members of a particular culture perceive their world (Washburn and Crowe,1988:24).

Design structure is thought to be a more stable measure of cultural groupings. The deduction of universals in design structures may provide an alternate hypothesis to explain why there are recurrent features in different traditions instead of appealing to a possibly undemostrabled historical link.

Some scholars argue that Levi-Strauss takes on a synchronic view, so that the phenomenon of change seems not to be discussed too much in his analysis of structuralism. Even if cultural traditions might have a common origin, they will nonetheless change through time. Each individual subculture has been influenced by internal development and external contacts, and gradually developed into a local type. That is, we should take into consideration how universality in human mental structure might interaction with local conditions over time. On the other hand, Levi-Strauss argues that "stability is no less mysterious than change" (Levi-Strauss,1963:258). The geometric style characteristic is widely used in Taiyal art form through a long period. It indicates that this style seems to be a stable structure in Taiyal culture and in response to its egalitarian socio-cultural context.

Consistencies of behaviour are symbolic expressions of fundamental cultural values and principles of order. The art of split representation in those mask cultures that possess hierarchical rank such as ancient China, American Indians, Maori or Caduveo society is related to its social context for it functioned to interpret and validate the ranks in the hierarchical system (Levi-Strauss,1963:256). Furthermore, dualism is led to serve as the stable internal connection in hierarchical societies. What then is the stable mechanism of the universal cognition in an egalitarian society? Through exploring the relationships of art forms and social contexts via a kind of structural

analysis, Washburn (1983b:6) argues that art structures within a given culture are perceived as the aspects of the balance, harmony and order, which makes life comfortable as well as predictable for its members. Mankind lives in between the worlds and must strive to maintain a harmonious position between them. Since style, aesthetic conventions and social context can be structurally related, perhaps this point of view can explain why the specific motion, the rotation/ finite—translation/one-dimensional type, is consistently used and structured in Taiyal elegant clothing because the Taiyal weaver may identify it as "good", due to the excellent technique, and expressive of the honour due to an individual's achievement, either a man's bravery or a woman's skill.

5-4 Conclusion

Symmetrical analysis can provide a more elegant methodology to examine the rules that weavers follow as they make their products and prove more fruitful, in the Taiyal instance, on revealing its effectiveness in imparting information. As Washburn (1983b:138) suggested that "the analysis of design structure by the symmetries which generate the pattern is a more objective measurement and systematic comparison of describing the grammar of art systems through time and across broad areas". Washburn and Crowe have noted (1988:32) that "descriptions of symmetry in the arrangement of parts are superior to data-specific grammars because the units, symmetry motions, are universally present in all repeated designs from all cultural groups".

In this method, the design patterns that are consistently arranged according to specific principles of order can be figured out as the important features in a culture's stylistic

tradition and utilized to characterize a group's overall style. From this point of view, when we analysize the Taiyal textile designs that merely show geometrical forms and have no allusive meaning, this method reveals the specific design structures which are more important evidence for the cognitive process in a given culture than is the meaning of a single element.

On the other hand, if we can be confident of these universal properties, then we are on firmer ground when we argue that the differences between different cultures have arisen as the outcome of their diverging cultural traditions. Hagen (1986, cf. Washburn and Crowe,1988:267,268) describes the transformations and invariants present in geometries of representational art, and shows how all such art is based on geometric principles. She also points how human perception involves picking up specific information in representational art forms about persistent properties in the environments: size, shape, slant, colour, etc. As Hagen asserts, the consistencies in a given style structure within a culture can occur across great spans of time. Therefore these consistencies must have some communicative function for the culture's members. A peculiar representational style only found in certain cultures is created and evaluated within a specific context. Such forms may be regarded as evidence for a closer historical connection between the cultures in which they are found. Although we could not find similar representational forms through the relationships of individual motifs between Taiyal and Southeast Asia, nonetheless, from the symmetry analysis on the features of geometric design structures between the three different areas, we may figure out a possibility of universality in the human mind. If it is the case, the similarities between Taiyal, Paiwan and Southeast Asia design structures may reveal human universals which are the fundamental components of the

perceptual process rather than evidence for a historical connection. On the other hand, if certain design structures are unique to Taiwan and Southeast Asia, and not found in historically unrelated traditions, they may be considered particular realizations or expressions of symmetry developed within a common ancestral tradition. Similarities between historically unrelated art traditions such as those of the Taiyal and Africa are more likely to be explained as the result of human cognitive universals and can be studied without recourse to historical affinity.

Nonetheless, the impact from other factor such as techniques of manufacture is possible to reveal different consistencies and needs to be assessed as one proceeds with comparison such as the similar symmetry use of patterned cloths between different peoples. We will discuss this in the next chapter.

[Footnotes]

[i] One-dimensional design arrangements are often called strips, friezes or band pattern because they mostly frequently occur in narrow design fields (Washburn,1995:106), but, not all designs in a band belong to one-dimensional pattern. It depends, as Washburn and Crowe pose the problems in classification (1988:255), on the required number of directions. For example, the criterion for one-dimensionality is that there is a single translation while that for two-dimensionality is that there are translations in more than one direction. Thus, the design field which accommodates the pattern is not relevant to decide to which pattern this design belongs. For this reason it is possible to find a two-dimensional pattern in a band-shape field, and it may be compressed into this narrow area.

[ii] The horizontal or vertical orientation of the symmetry motion, mirror reflection, is assessed from the point of view of the weaver, and this is illustrated in the presentation format of the figure or plate. This orientation may change for the clothing which, such as skirt and leggings, are wrapped when in wearing.

CHAPTER SIX
STYLE AND TECHNIQUE

All arts involve craftsmanship. We must be concerned not only with the materials, processes and products of technology, but also with the effect of technology on form. Many similarities in woven textile designs across the different regions can be partly attributed to the immediate possibilities of the weaving apparatus with its continuous circulating warp. It is probable that the earliest woven ornamentation was plain or simply patterned warp stripes. One of the oldest design structures on loom-woven cloth in the organization of patterning in warp bands, as certain other decorative techniques, such as complementary and supplementary warp weaving, are simplest to achieve. As more elaborate techniques developed, more complex designs became possible.

Layton (1991[1981]:183) states that style may have a relationship with technique. A craft technique determines the procedures and ultimately contributes to the visual effects. If we further claim that technologies are totally integrated systems that present cultural choices and values, what is the nature of that manifestation and how can we 'read' it? In investigating technological style as a phenomenon, we are also asking what can technology tell us about other aspects of the culture? Does style emerge from the conventional rules which generate messages in a particular artistic tradition? Is it an adaptation to the limits on formal variation imposed by technique?

Besides, can it be hypothesized that similarities between different art traditions are caused by the same technology instead interpreting them as evidence for culture contact? In this chapter, through the examination of the technology and design

patterns on the Taiyal and comparison with those of Southeast Asia and, unrelated traditions of Africa, I would like to argue about the hypothesis that whether similarities in the form of designs found in the weaving traditions of different peoples might be the effect of technical constraints.

6-1 Technical Analysis

6.1.1 Loom and Its Setup:

The loom is the means of keeping the warp threads under tension in parallel order and the use of the loom, with its two sets of threads at right angles to each other, sets weaving apart from other methods of production. The essential of a weaving loom is having a device for lifting a whole row of strung threads (warp) at once, making a space (shed) through which cross threads (weft) can be thrust.

Simple looms may be divided into two main types: the vertical loom and the horizontal loom. On a vertical loom the warp is arranged vertically and weaving is started from the bottom; on a horizontal loom the warp is arranged horizontally and weaving is started from the end of the cloth-beam. Vertical looms are found in the North African coastal regions and also in the West Africa; the Northeastern Woodlands, and the Southwest of North America; and the Southern Andes of South America. By stretching the warps vertically in front of the weaver on posts or on a wedged frame, an upright structure is created. On the other hand, horizontal or backstrap looms, worked to produce rectangular cloth, are mainly distributed in the areas from the Sudan to Tanzania in East Africa; from Mexico to the Andes in the America; and from Central Asia to Southeast Asia. The Southeast Asian region (mainland and insular) has the densest distribution. Maxwell thinks that while the

simple, continuous warp, body-tension loom is capable of producing elaborately decorative textiles, the width of the fabric is limited by the equipment. Therefore, the minimum of cutting and the maximum use of selvage produces garments composed of jointed panels---rectangular cloths and cylindrical skirts (Maxwell,1990:76).

Besides, the warps may be tensioned by bodyweight as with the backstrap loom, or by the drag on the warps of a ground weight. On a fixed ground loom the warps are stretched between warp beams that are pegged into the earth. Alternatively, a wooden frame set vertically or at an oblique angle may be built and the warps stretched by means of ropes and pulleys or wedges. The uncomplicated nature of the relationship between warp and weft makes the interworking process easily adaptable to mechanization so long as the weaver counts the numbers of warps and wefts when s/he makes weaving.

Even though the types of looms are different the principles the weavers obey across the world are similar (Fig. 18).

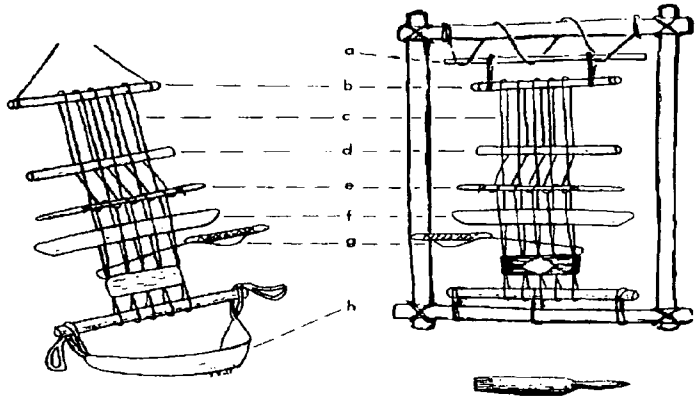


Fig.18: Backstrap and Upright looms. Schematic drawings to show basic elements; a. tension bar; b. warp bar; c. warp threads; d. shed rod; heddle; f. batten; g. weft thread; h. backstrap; i. weaver's comb (Source from Hatcher,1985:65).

Although the looms found among the various aboriginal tribes of Taiwan have some regional differences, they basically belong to the horizontal type with a strap which goes behind the weaver's back to straighten the warp. The loom traditionally used by the Taiyal is of the 'foot-braced' back-strap type which utilizes the weaver's feet to brace the warp beam and the length of the woven cloth is limited by the length of the weaver's legs (Fig. 19, Broudy,1979:91-92).

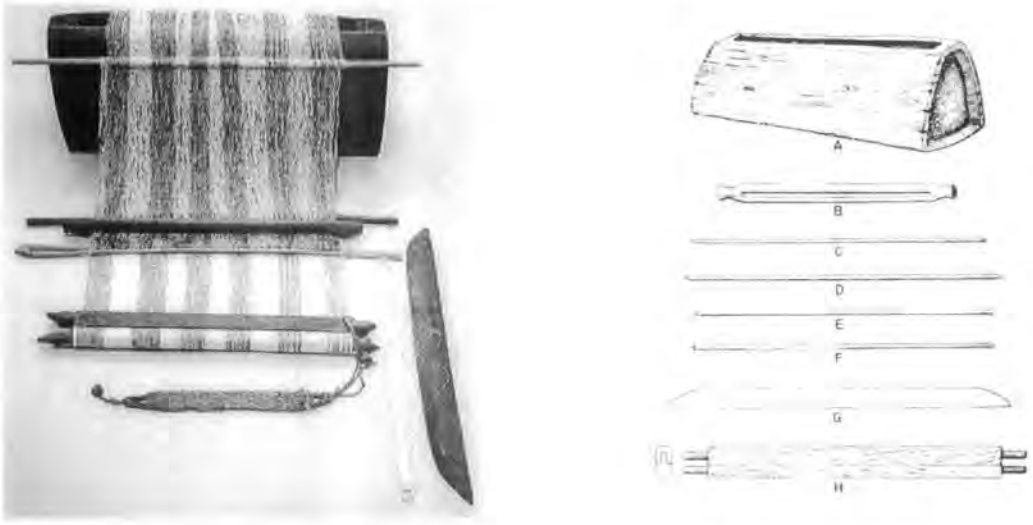


Fig.19: A set of Taiyal loom (from National Museum of History,1997:50). A. Main beam. B. Shed stick. C.E.F. Laze rods. D. Heald rod. G. Sword. H. Breast beam. (sketch drawing from Chen,1988[1968]:102)

Nettleship (1970b) conceives the Taiyal loom as a unique primitive weaving instrument due to three distinctive features: the hollow drum main beam, the two-bladed shed stick and the extra rod with folded long loop of continuous circulating warp. By the successful blending of these well-designed devices, the Taiyal loom is able to solve the problem such as tension control as well as how to loom long cloths in small and crowded dwellings; and, all function allow the Taiyal to use their loom as a most effective tool for the production of beautiful fabrics (699). Especially, the warp beam (main beam), which is a hollow drum, can not only help to control the warp but also significantly increase the length of cloth that can be woven. This

hollow-log beam sometimes served as an instrument that made the steady resonant boom and provided the rhythm for a weaving dance in which the girl demonstrated her skill at the loom (Nettleship,1978:176). Besides, as a backstrap loom, the components can be easily and conveniently stored together in a bundle when not in use. Vollmer (1994:79) regards this loom as a completely self-contained device which "can be easily transported from place to place and quickly made operative without the assistance of another person or supplementary equipment". For this reason, this device is suitable for the people who practice swidden agriculture, like the Taiyal.

Before starting to weave, the warp is looped onto the warping-bench. Warping is the arranging of yarn into long parallel strands which will run the length of the finished piece of cloth and which are made into cloth when bound together by the weft or fill threads which interweave with the warp at right angle. Warping is done by the Taiyal women on a warping frame, which is a rectangular piece of wood with several holes (four to seven) for holding the grid in the top to allow varying placement of the warp pegs according to the weave and length of cloth desired. This step is important in the weaving process for the weaver always conceives at this stage how to manage the design arrangement of the textile.

During this procedure, the relative number and spacing of warps might become the most influential factors on the appearance of the whole pattern. By pegging the grids into the holes in different ways and changing the threading, different kinds of weaves can be produced in the fabrics. There are differences of the type of warping bench between plain and twill weave. I was told by a Taiyal woman that sometimes the warping bench only has four pegs, which is enough for plain weave. The type with

five pegs is for jacquard or complicated twill weave (Fig. 20). The number of pegs can be six at most.

Fig.20: Warping bench of Taiyal. (left from Okamura,1968:34, right from Kojima et al,1996[1915]:118).

After it has been looped, the warp will be transferred onto the loom. As the loom is of the horizontal back-strap type, the free end of the warp is held in place by the cloth-beam and by a back-strap bound round the waist of the weaver, while the warp-beam which holds the other end is held in place by the feet of the weaver. Thus the cloth-beam and the warp-beam form the frame of the warp, and it can be fastened or loosed repeatedly by the straightening and bending of the weaver's feet.

6.1.2 Decorative Weaving Techniques and The Structural Basis of Design

Fabric structures made up of two or more sets of elements vary in a number of ways. The design possibilities of the weaving process depend upon the relationship between variations of texture or colour of the yarn employed, the diversity of structures which are created according to the different ways in which warp and weft elements can be interlaced with each other on a loom, and the methods of embellishment of a fabric after manufacture (Picton and Mack,1989[1979]:49). For these reasons, I summarize the arrangements of interlacement which are relevant to those aspects of textile designs in which are functions of the weaving process itself.

(1) Simple weaves have only one set each of warp and weft elements.

(a) The interlacing of individual weft and warp threads is over-one/under-one, and the structure which is no variation of alignment can produce plain weave (also known as 'tabby'). A plain weave is the oldest, simplest and most frequently used of all structures. The plain-weave cloth appears the same on both sides. The nature of a textile can be varied by using different-colour elements and by spacing the elements of one set further apart than the other (Picton and Mack,1989[1979]: 50). This method can have some subdivisions: balanced, warp-faced and weft-faced.

(b) A float weave is a method of patterning in which an element of either warp or weft does not pass under or over every adjacent weft or warp thread, it can only skip or 'float', under or over more than one in its path before being interwoven; and if a weft element passes (floats) over two or more adjacent warps on one face of a fabric those warps will be seen to float on the other face (Picton and Mack, 1989[1979]:51). Unlike a plain weave, the two fabric faces are not the same. The float weave is usually applied in compound weave, i.e. supplementary weft float weave.

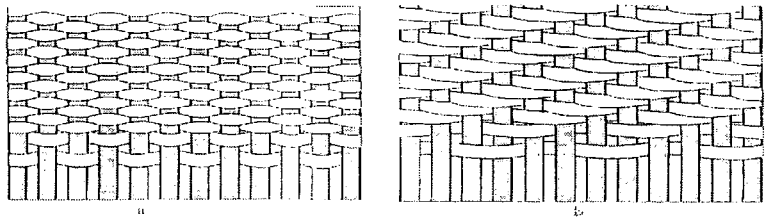


Fig.21: a. Simple plain weave: the interlacing of warp and weft is over one/under one.
b. Simple float weave: warp and weft interlace over two/under two in a diagonal arrangement known as twill.

One of the most basic kinds of float weaving is a type of twill, which can be recognized by strong diagonal lines. The weft passes over and under pairs of warp yarns. Each successive row of weft is staggered leaving zigzag patterns in the ground weave. Different twills can be made by varying the ratio and direction of the floated yarns (Fig. 22). When the warp and weft are different colours, the design appears as a kind of 'negative' on the reverse side of the cloth (Hitchcook,1991:103-104).

Fig.22: a. A balanced twill weave (2:2) that intersects over and under two threads at a time. b. A 3:1 twill weave. c. A diamond twill (adapted from Fraser-Lu,1988:57).

(2) Compound weaves have more than one set of either warps or wefts or both. The different types of compound weave are classified according to the relationship between the sets of elements. They may combine a simple ground weave (tabby) with an additional supplementary weft or warp as the decorative element in the textile.

(a) Supplementary (or extra) weft weave is that of laying extra weft threads of a material or colour different from that of the threads of the regular warp into the bottom weave by the a regular serious of sheds, but are allowed to float over selected warp threads. Each pattern rod lifts the sequence of warps required for one row of the pattern; this creates an extra shed through which the decorative weft is inserted, causing it to float on the surface to form distinctive patterns of contrasting colour and texture relative to the ground cloth. (Emery,1966:140-143). The simpler means of doing this may be merely with a stick whereas the more

complicated patterns may need a series of rods. A characteristic of a woven cloth in supplementary weft weave has a positive and a negative face. This is easy to understand that the extra weft is floating on the reverse. Supplementary weft patterning could be the simplest way to introduce decorative motifs into an otherwise plain cloth (Hecht,1989:36) and provide least restrictive means of adding on-loom patterning to a fabric (Milgram,1991:152).

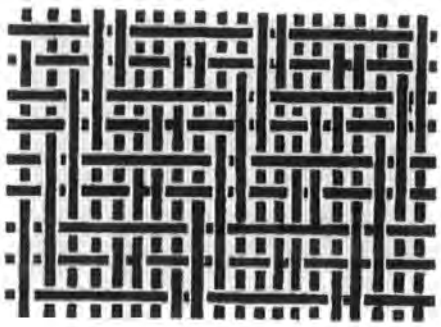


Fig.23: Supplementary weave in 6:2 twill on 2:2 twill ground weave (Seiler-Baldinger, 1995: 97).

(b) The supplementary-warp method is another form of float weave that extra warp threads contrasting in material and colour to the regular warp and weft float over and under the surface of the plain background cloth. To produce this woven pattern, the loom is set with two circular warps consisting of a basic warp of ordinary dark-coloured threads which form the ground weave, and the pattern yarn overlaps the regular warp in the area where the woven design will appear.

6-2 Weaving Techniques and Patterns

6.2.1 Techniques of the Taiyal Textile Patterns

Most of the clothes of the Formosan Aborigines are made by simply sewing together rectangular pieces of cloth. It is similar to the Southeast Asian type of clothing. In addition to plain weave, in-weaving, embroidery, appliqué and beadwork are rather

common weaving techniques among the aboriginal women of Taiwan[i]. In general, these two techniques, plain tabby weave and twill weave, are the most practiced in Taiyal weaving.

(1) Tabby Plain Weave:

Plain tabby fabric is technically the simplest cloth made. This may provide an explanation that the majority of the Taiyal textiles are woven in a plain weave. The textile can be woven with two lifting devices; the even warp threads are held up because they pass between the two blades of the shed stick; the odd ones pass below it and held down; the opening between the two halves is the counter shed. In this weave, the first weft passes alternately over and under each warp, the second passing over those warps under which the first passed, and under those over which the first passed in a continuous one up—one down progression across and then along the whole length of the piece; therefore one heddle is enough (Nettleship, 1971:270,276).

Among plain weave, some of the most effective designs are achieved with relatively simple processes such as striping (Fig. 24). In order to make stripes warp ends of different colours are laid out on the loom. The weft is usually one colour, unless bands are desired, and is woven in a plain tabby weave. The finished textile is often warp-faced so that the stripes are clearly visible. The horizontal (and vertical) warp-stripe format is the most common design in Taiyal weaving. It is created by changing the colour of the warp and weft threads. To change colours, new threads are simply twisted to the older ones. All major motifs of tabby weave are constructed by longitudinal lines extending the length of the cloth, and they are usually created by colour changes in the warp.

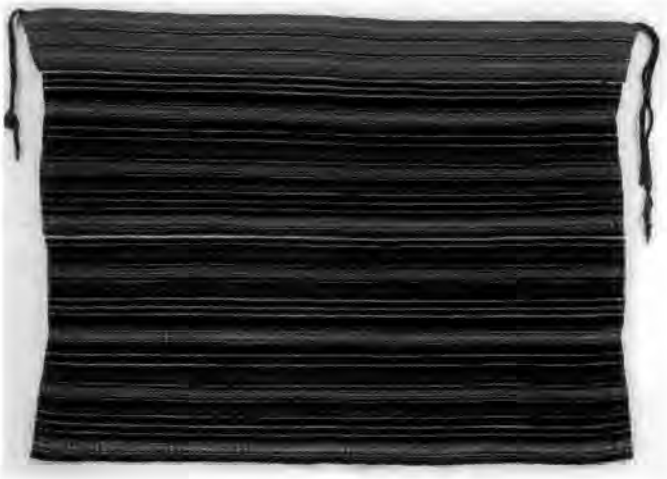


Fig.24: *Taoja* (shawl) of the Taiyal. (from National Museum of History, 1997: 44).

(2) Twill and Supplementary Weave:

Compared with plain weave, the in-woven decorative techniques are technically complex. In the in-woven type, i.e. twill, the different-colour weft may pass alternately over and under two or more warp during the weaving process, and then it can create a design pattern; thus, more than one heddle is necessary. Generally speaking, plain weave cloth is easily made whereas cloth with inwoven designs is more difficult and requires a great amount of time consuming and tedious labour to produce. For this reason, the Taiyal regarded the skills of twill and supplementary weft weave as an excellent weaver's certification.

Due to the structure of warp and weft, it is easy to make geometrical patterns. If the progression is moved constantly to one side then the twill displays diagonal strips in its surface texture. The progression may be altered in a number of ways producing a variety of textures. Two warp threads raised each time the weft thread goes down two forms the texture. By shifting the progression with each new weft thread the raised warp threads are in conjunction and form a diagonal line. The diagonals repeat one after another and form an overall bias texture. It is routine in weaving twills to use

two or more warp colours such a way that the slightly raised surface texture is emphasized by repeatedly bringing the same colour to the surface at the same interval (Nettleship,1971:282-283). And, the most common motifs in twill of Taiyal weaving are varieties of diamond and rectangular. There is a special and interesting example that is composed of several kinds of design patterns produced by sewing several pieces of cloth together. It particularly involves many variations of rhomboid/rectangular designs with symmetry motion of rotation/finite →translation/ one-dimensional patterns[ii] (Fig. 25, also see Plate 7).

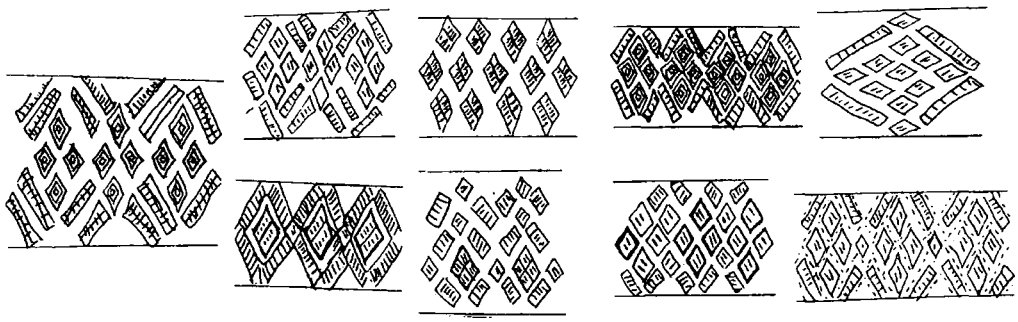


Fig.25: The rhomboid-and-rectangular patterns in a piece of Taiyal cloth (also see Plate 7).

Textiles woven in a twill weave are generally strong, durable and firm. They have better draping qualities than fabrics woven in a plain weave. However, this pattern indeed requires more time and yarn to weave.

(3) Embroidery:

The embroidery technique is scarcely seen in Taiyal weaving. There is only one sample seen (Fig. 26), and it probably had interaction with style of the Pazeh who are one of the Sinicised Aboriginal groups in the Plains.

Fig.26: Embroidery on the front part of a man's loincloth. (Tien-ri Taigagu, 1993: 78)

(4) Appliqué and beadwork:

Although appliqué designs are not found in Taiyal cloth there is a form of beadwork pattern produced. In the past, the Taiyal normally cut shells into thin discs which they polished into shape, then strung those shell beads together into chains and then sewed them onto the upper garment or skirt (Chang,1953:30;1959:55-59). The beadwork garments were worn as a kind of symbol of wealth or prestige by the brave men who had participated in head-hunting (Ho,1953:24; Chang,1959:61-62). Compared with Paiwan beadwork, the Taiyal style maintained the simple and plain character seen in other aspects in its art. Since the beads covered the entire surface of the clothes, they did not form any figurative designs but gave a strong feeling of texture.

Fig.27: Dance garment with bell and shell bead of the Taiyal.

6.2.2 Technique in Southeast Asian Textiles

Southeast Asian textiles are outstanding works of art: a diversity of materials including bark, plant fibres, cotton, silk, beads, shells, gold and silver, and a number

of design patterns including figured and abstract forms. The most common function for textiles is their use as articles of clothing; in addition, the spiritual and ritual importance that textiles play in ceremonies of state and religion is reflected in their great mystery and splendour. However, apart from their importance as everyday and ceremonial dress and religious hangings, textiles in Southeast Asia have numerous other functions including their use as royal insignia, theatrical backdrops, sacred talismans or secular currency, for they are intimately connected to systems of religion, political organization, marriage, social status and exchange (Maxwell,1990:9).

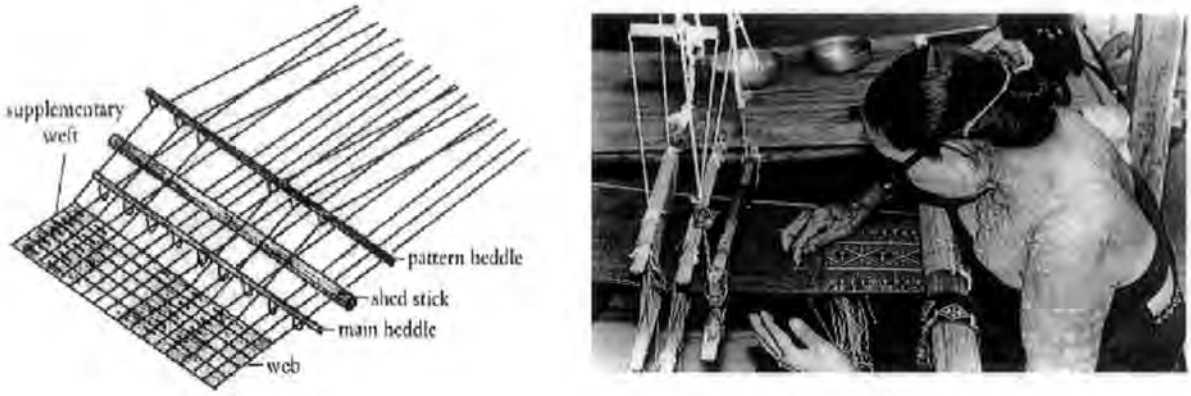
Furthermore, their elegant textile styles are formed by a rich variety of technical skills. Throughout Southeast Asia textiles are of great importance as elaborate symbols when worn as festive garments. Because of the rich and complex techniques, textiles create a number of the most powerful and exciting art forms. Among a profusion of patterns and motifs both representational and non-representational forms are found, including human figures, abstract geometric shapes, ships, arabesques, calligraphy, flowers, recognizable animals and imaginary monsters. Plain weaves in Southeast Asian textiles, especially the ubiquitous stripes and plaid sarongs are seen throughout this area (Fraser-Lu,1988:49). The stripes are made by setting up bands of various colours in the warp, and weaving them together using a single-coloured weft thread. Plaids sarongs are created by using bands of different-coloured threads for both warp and weft may be composed of two different strands of colour twisted together. When woven, this way can produce a wavy pattern in the cloth, and this type is very popular among the Shan Burmese and in Thailand (50).

Tapestry weaving is made by interlacing the weft threads back and forth across the warp, and it often produces mosaic-like designs created by discontinuous wefts in various colours. This pattern is referred to as *kelim*, known on the islands of Timor and Sumba. This technique is made different use of, to create a number of variations, by different ethnic groups throught Southeast Asia[iii].

One of the most common decorative weaving techniques used in Southeast Asia is supplementary weft weaving (or complementary to the plain ground weave). Every country in this area produces textiles which use this technique, and some items woven in this way are of considerable ritual importance, including the famous ship cloths of South Sumatra. This may indicate this technique has a long history in Southeast Asia (Fraser-Lu,1988:51; Maxwell,1990:75).

Textiles patterned in this technique include the famous ship cloths[iv] of South Sumatra, the ends of important Batak ceremonial cloths, the *kain songket* textiles of Malaysia and Indonesia, some ceremonial textiles of the southern Philippines and many ethnic groups of Thailand. Every local style has its own more or less distinctive pattern due to the variety possible in this technique. For example, the simplest means is to select and raise the proper warp threads with a stick, passing the supplementary weft threads through the shed created. The more complicated patterns require a series of bamboo rods to be inserted behind the two main heddles used to make the ground weave (Fraser-Lu,1988:53-54). To give greater flexibility, pattern sticks may be replaced by rods with string heddles (Fig. 28a). The warp threads are first selected with a stick according to the pattern. It is noteworthy that, by carefully counting the warp to work out the combinations of threads which need to be raised to form various pattern sheds,

the weaver may produce the patterns from memory, graph paper or a finished sample (Fig. 28b).



a b

Fig.28: a (left): Supplementary weft patterning with the use of an extra heddle.
b (right): A Lao Phuan woman is making a piece of cloth. Note that the weaver has a small sampler to her left resting on the cloth bar to which she may refer for a pattern. (adapted from Fraser-Lu,1988:53,54)

Supplementary warp techniques are used by a few groups in Southeast Asia, such as those of East Sumba, Bali and Philippines. Sumbanese women weave a ceremonial sarong, *lau pahudu* (formaly worn only by noblewomen), which is often decorated with neolithic-style animal and human figures. This technique is also used by Balinese weavers for *lamak*, the banner which is traditionally suspended from high poles or altars on special occasions (Fraser-Lu,1988:55). The weavers of northern Luzon embellish some textiles by using supplementary warp stripes.

Traditionally, float weaves had not been widely used in Southeast Asia until the weavers of Minahassa in North Sulawesi created the *kain pinatikan* with longitudinal stripes in a warp-faced weave in the late last century (Fraser-Lu,1988:56). Bands of simple repetitive geometric patterns, such as zig-zags, lozenges, honeycomb and cross designs, are labouriously created by this way, i.e. 'floating' warp threads over a number of weft picks in various combinations.

Float weaves are probably made by adding extra heddles to the loom. A skilled weaver in Thailand and Burma can successfully manipulate up to eight heddles on a floor loom. Besides, a diagonal float weave (or twill) is known to the groups who use the body-tension loom. The Shan of mainland Southeast Asia has traditionally woven weft *ikat* using a twill weave.

Another method widely used in Southeast Asia is twining, which is referred to the process where pairs of adjacent elements of one set are twisted around each other in their passage. Batak, Sumba and some Timor textiles are noted twined borders which feature geometric diamond and hook patterns.

6.2.3 Textile Designs of Africa

African decorations are limited to warp-striping of colours, warp-float and weft-float patterning of figurative motifs. As mentioned, both vertical and horizontal looms are in general use in Africa. The occurrence of one or the other may sometimes be explained by the purpose for which the cloth is produced. For example, among the Yoruba peoples of Nigeria there is traditionally a vertical-mounted single-heddle loom generally used by women for their own domestic needs while the men as professional weavers use a horizontal double-heddle loom for commercial goods (Picton and Mack,1989[1979]:67).

Generally speaking, the decorative techniques of African textiles include simple and complicated weaves, embroidery, appliqué, quilting, openwork, stencilled, drawing, etc. The design motifs contain representational or geometric shapes, and they may vary from one cultural tradition to another. Several sorts of geometrical forms may be

put together on a piece of cloth. The techniques of printing or stencilling allow the production of these forms, even the concentric circles or curvilinear lines. Naturalistic forms such as snake or other animal shapes are usually produced in these ways. Where the pattern is created by the weaving technique itself, it has to be built line by line, element by element, in the fabric itself.

People in the traditional tribal societies of West Africa have long been weaving textiles for ceremonial and utilitarian purposes. The finest textiles are objects denoting rank and wealth, and their use is restricted by edict, custom and high cost. The different coloured stripes, along the length of the cloth, in the cotton and silk cloths of West Africa provide many examples created by using the technique of warp-faced plain weave, due to that the numbers of warps are more than weft threads (Picton and Mack,1989[1979]:50). The weaving of Berber in North Africa and some of the peoples in West Africa can be made in weft-faced plain weave method. The Asante of Ghana manage to alternate both warp-faced and weft-faced fabrics in one length of cloth (ibid.).

A variation of plain-weave structure is made by weaving weft only part of the way across the cloth and then reversing it one or more times before working it right across again. This produces a gap in the fabric structure, and a series of these gaps is called openwork, which is an embellishment sometimes used by Hausa and Yoruba weavers in Nigeria (op. cit..:51).

As mentioned, it is noteworthy that there is a tradition of weaving cloth in narrow strips (Fig. 29) found in the countries of West Africa[v]. The narrow strip looms with

extended warps are stretched away from the weaver at work. The feet of the weaver manipulate the peddles that raise and lower the alternate or more complicated combinations of warps, leaving the hands free to throw the shuttle from side to side across the narrow strip of work. The long warps are held in tension by a weight on a sled that is drawn to the weaver as the cloth is woven and wound onto the breast beam. Broader pieces of cloth are made by sewing strips three to ten inches wide together to make up toga-like men's clothing (Picton and Mack,1989[1979]:96; Barnard,1995[1989]:41). No one knows for sure why weaving in a narrow strip evolved in this area. It has been suggested that a narrow web only requires a narrow lightweight loom and that this would have suited early itinerant weavers travelling from one village to another (Hecht,1989:81). However, this form is of higher legendary quality and individual character, and of complex compositional variety in Asante and Ewe work.

Fig.29: A piece of Ewe cloth. (Picton, 1995:103)

The Kuba people are famous for their raffia textiles, which are the medium for the expression of geometric and rectilinear forms. In the raffia cloths of Zaire plain weave, in which the elements of both warp and weft are equally visible, is often used (Picton and Mack,1989[1979]:50). Some of the raffia cloths are also made by the use of supplementary weft float weave. In a warp-faced textile structure, pattern is always created by this technique. It is often found in the weaving of the Yoruba, Hausa and other peoples in Nigeria (52). Supplementary wefts may also be used to form patterns

of floats on both faces of a fabric in Asante and Ewe weaving in Ghana, and has reached a well-developed sophistication (Hetch,1989:82).

It is interesting to note that textile production is the most diversified and regionally distinct in the material culture of Madagascar. The commonest decorative effect to be seen on Malagasy textiles is warp striping (Mack,1989:33-34). Woven with a plain-coloured weft, these will appear as parallel coloured stripes. The technique of *ikat* may be seen as an association with textile production in Indonesia. These patterns are often geometric and figurative. In the case of supplementary float patterns in Malagasy textiles, the techniques use one or more supplementary heddles arranged in series across the breadth of the warp (Mack,1989:35). Supplementary float patterns are all geometric in form, and may derive from Austronesian colonisations.

6-3 Discussion on Technical Constrains: Similarities and Differences

6.3.1 Kent's Analysis

If the skill is just a mechanical process, nevertheless, why are the design forms so diverse between Africa, Southeast Asia and Taiwanese aborigines? In other word, at what stage in the production of an art object should we consider the intervention of artistic skills? We can explore the distinction between design and technique in the weaving process via the article in which Kent analyzed the textiles of prehistoric American Southwest.

Kent (1983:120) argues that geometric designs can be approached through the two attributes of structure and composition, "interrelated but conceptually distinguishable characteristics". Structure refers to the way in which the field has been subdivided for

decoration, and the type of symmetry this creates. Composition describes the interaction between human mental schemata and the technical restrictions of the medium, revealed in the composition of the pattern, encompassing the nature of the element, units or motifs employed to fill subdivisions of the field (their shapes, relative colour values, spacing), and the symmetry processes by which they have been combined. Kent groups textile designs into two classes (119). The first, self-patterns, automatically occur in the construction process. This includes simple strips, plaids, checks and various patterns created by twill weaves. The second class consists of complex designs built from small geometric elements. These forms occur through the processes of plain and twill weave tapestry, float pattern weave, openwork and twining. Such designs do not take place automatically from the weaving process. As Kent suggests, although the geometrical forms derive from the qualities of warp-weft relationships, the patterns also result from the conscious selections of the weaver.

Suppose, for example, as Kent noted, that the loom is strung for rhomboid twill. The weaver can then produce a self-pattern of all-over concentric diamonds simply by carrying each weft pick from selvage to selvage and maintaining a regular heddle order. The growth of the pattern is a mechanical procedure. That is to say, the structure will be identical no matter where or by whom the piece is woven, while the character of the final product will not, since the choice of weft materials and colours may affect the overall appearance (119).

On the other hand, using the same weaving tools in a different technique, the weaver can make each diamond or sets of diamonds a different colour, and thus build a complex pattern from small colour blocks. The process is by no means automatic.

This may be the reason why geometric patterns from peoples of different cultural traditions are quite varied in forms even if woven in the same technique, because different choices have been made (120).

A certain correlation exists between weaving technique and the form of element positioning. Kent cites another example to further explain this point (120). Suppose the weaver wishes to produce a pattern of triangles along an oblique line. If a plain tapestry weave is used, the line will have a terraced or stepped appearance. If the weaver would like to create triangles in diamond twill, the line will be smooth. If the weaver chooses to weave a terraced triangle in diamond twill, the element will be placed obliquely to the warp-weft axis (Fig. 30).

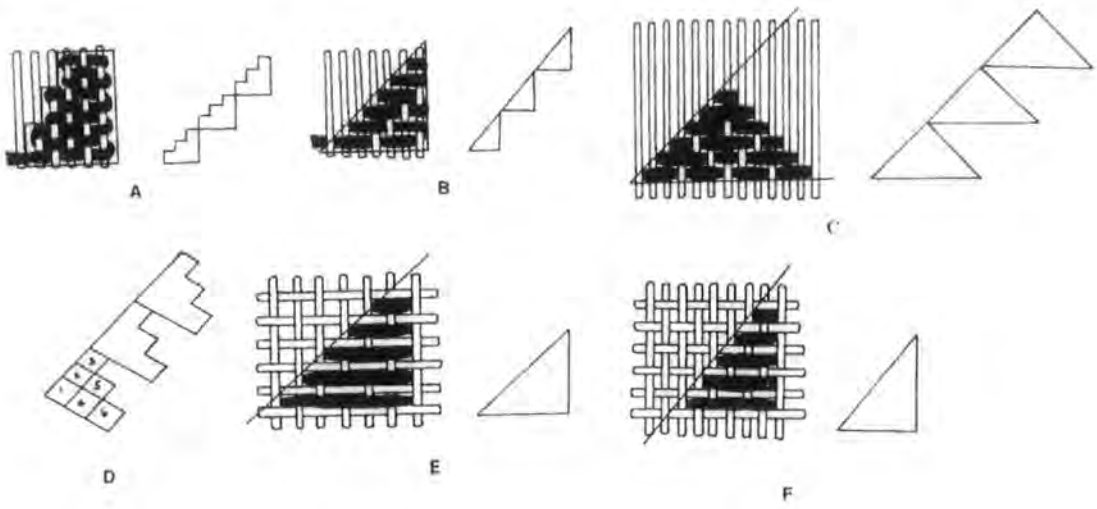
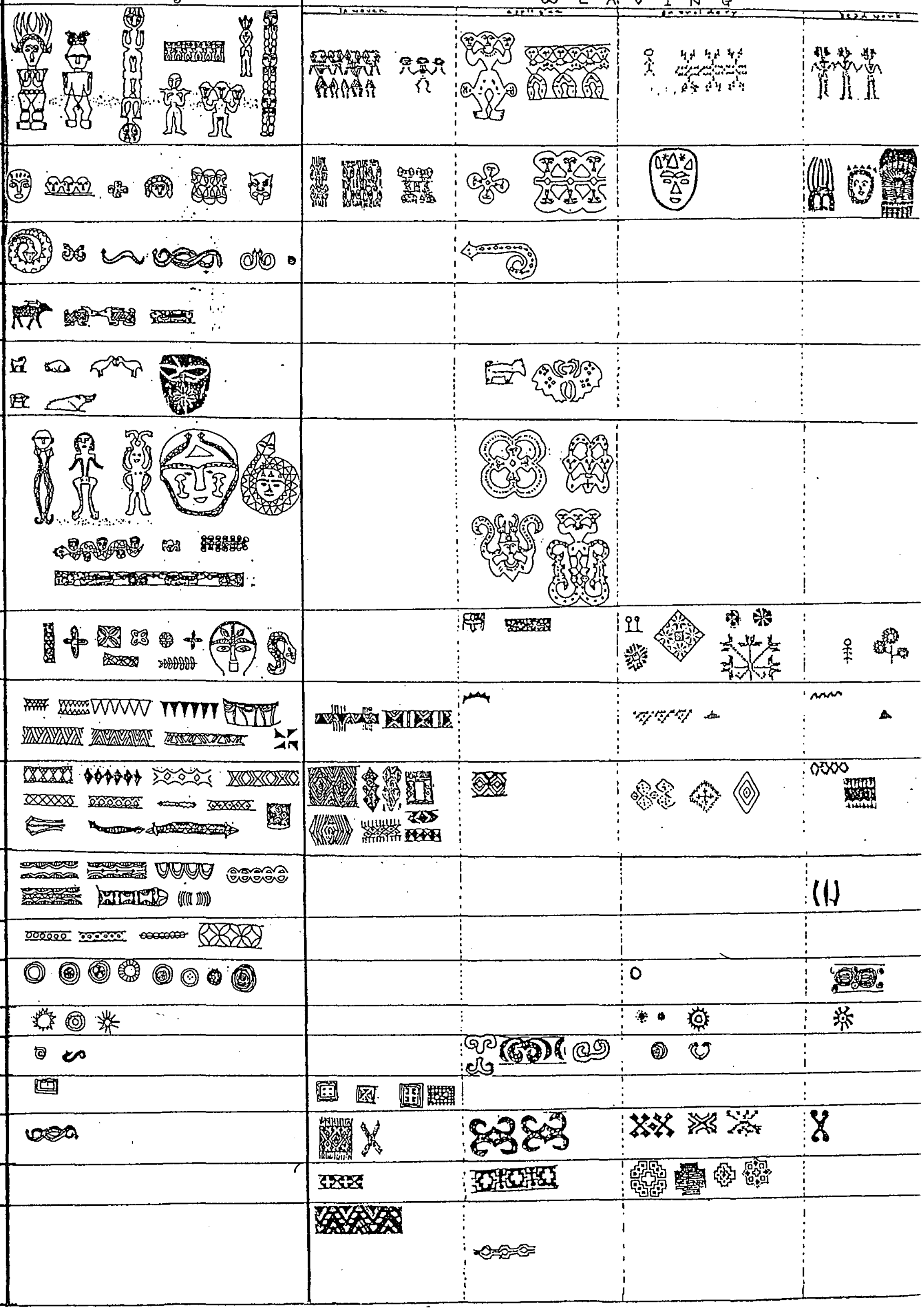


Fig.30: Variations in the triangle element resulting from different weaving techniques. A. Terraced triangle woven in plain weave. In this technique the lines of the figure will parallel the warp and weft axes. B. Triangle woven in irregular twill weave. C. triangle woven in irregular twill or diamond twill weave. D. terraced triangle woven in diamond twill. Each triangle is composed of six small diamonds. E. Triangle woven with widely spaced warps. F. triangle woven with warps close together (adapted from Kent,1983:121).

The weaver cannot produce the main structural lines in physical form as a first step in creating the pattern. Instead s/he has to choose a construction technique which may allow him/her to weave elements of such a shape, so that s/he can create the desired structure. The planned organization on which it is based lies only in the abstract in the weaver's mind. From this point of view, there are indeed some decisions taken, which correspond with the design arrangements which a weaver constructs in his/her cognition during the weaving process. Individual 'creativity' may enter in during the selective process. But the process is operated by the weaver.

Milgram (1991:194) argues that what a weaver thinks of the textile not as a single motif or part construction; instead, she should have "a mental image of the overall finished product which conforms to a design precedent" when she begins to weave a piece of cloth. Boas (1955:156) also states that "the work is laid out in the mind of the maker before he begins and is a direct realization of the mental image". Thus, when a weaver precepts the textile composition as a whole, she adapts the technology to maintain her desired design structure, from the first stage of setting up the warp yarns to all the segments being joined to form a whole; throught the perception process, she has to make decisions of how to achieve her final product. It seems that design forms are still decided by the mental schema to a degree. That is, there might be some decisions made and controlled by artist's cognitive process hidden within the mind in making art in any culture. Thus, it seems that the art need of a certain group may not rely on the casual relationship between techniques but, conversely, it may be connected with the psychological and aesthetic dispositions of the community. They have independent status as stylistic techniques, and the individual choice and selection become an important aspect of creativity in art.

Table 2: Design motifs used in Paiwan woodcarving and weaving.



CLASS		IDENTITY	Woodcarving	WEAVING			
				in woven	appliqué	embroidery	bead work
HUMAN FIGURES		human figures					
		human heads					
ANIMAL FIGURES		hundred-pace snakes					
		deers					
		other animals					
COMPOSITE	HUMAN AND ANIMAL FIGURES	human-and-snake					
		human-snake-deer					
PLANT FIGURES		Flower and leaf shapes					
GEOMETRICAL DESIGNS		Triangle					
		rhomboid					
		arc					
		round					
		concentric circle					
		sun					
		spiral, s-shape					
		square					
		cross-pie					
		cross-shape					
		wavy					

6.3.2 The Paiwan Case

In the case of the Paiwan we frequently find ideas and symbols repeated in myth and visual metaphors, and this enables us to explore the effect of technique and medium upon the artistic tradition. The principal motifs used in Paiwan woodcarving are, as mentioned in chapter three, the human figure, human head, "Hundred-Pace" Snake and deer. It is particularly noteworthy that, in addition to realistic forms, some representations of the snake motif evolve into many kinds of geometrical metamorphosis: zigzag lines, saw-tooth patterns, hatch triangular series, rhomboid series, bamboo-joint patterns, 'joint-cup' combination patterns, spiral patterns, concentric circles, sun-ray patterns, flower patterns, comb, etc. (Table 2). These forms can be seen in the decorations of their ceramic pots, which constitute one of the so-called the "three precious heirlooms" of the Paiwan people (Jen,1960:164)[vi].

The designs found in Paiwan textiles are almost the same as those used in woodcarving. The in-woven patterns are the human figure (including single human head, human head with headdress, continuous human figures by hand-in-hand or holding human, continuous human heads, etc.), animal figure (including snake, deer, dog and leopard), composite human-and-animal figure (including human-and-snake, human-snake-deer shape), floral design with pedals and geometrical designs. The forms created by embroidery are the common flower shape and geometrical designs. Most of the designs in beadwork are human figures. The patterns created in appliqué are mainly the human head, human and animal figure. These might be a consequence of the techniques. As far as the dominant in-woven designs are concerned, they are mostly geometrical because the arrangement of warp and weft imposes a rectilinear structure. The concentric design is usually found in woodcarving and stone sculpture,

especially on the shields, but it is seldom seen in textiles; while the enclosed designs are commonly used in woven textiles but hardly appear in woodcarving. That may well be due to the fact that curved lines are easier to incise on wooden material whereas the square form is most simply made in clothing by the arrangement of warp and weft.

Furthermore, in the skills of embroidery, the designs of satin-stitch are mainly rhomboid, stepped, triangle and floral designs organised by winding and piling up strata by strata while most of cross-stitch and lining-stitch have square outlines due to the material limitation of the bottom cloth. The designs with appliqué and beadwork, which are not restricted by the warp-weft nature of textiles, are more freely expressive and varied. Therefore, they usually have arc or spiral lines, thus supporting the hypothesis that technique limits variability of form in design.

Layton (1991[1981]:183) notes that the quality of the materials and the tools used to work style and technique will favour certain formal patterns. Through the assessment of the decorative motifs of the Paiwan, we can see the effect of technical constraints to a degree upon different medium and the consequence of visual expression in which motifs and patterns are executed. In the case of woven fabrics the patterns have to be built line by line, element by element in forms.

Beyond the influence of techniques, however, each design has its own specific symbolic meaning in Paiwan decorative art, and it is related to the social context, the hierarchical system, as showed in preceding chapter. In addition, the Paiwan motifs in woodcarving have greatest affinity with those in weaving, so this indicates that they

derive from a common system of cultural symbolism. From this point of view, the art forms of a culture may be possibly created by many techniques, but the fundamental components are almost identical. Does this reflect some consistent and fix concepts under the structure of human's subconscieceness? From the following two figures (Fig. 31), we can observe how the art forms of everything around their environments are bound to their socio-cultural tradition.

Fig.31: A Paiwan carving work. It seems that the Paiwan can link any form to the prevalent snake motif (the wheel of motorbike) possibly by using their rich creativity. (adapted from Chen,1996 [1961]:58)

6.3.3 Maxwell's Arguments

Maxwell (1990:66) argues that some of the patterns found on many Southeast Asian textiles are not randomly assembled. Similarities evident in the layout and structure of cloths from many different parts of Southeast Asia woven from quite different fibres suggest the sustained use of these structures over a long period. He cites some examples. The reptilian motifs in Timorese cloths are produced by many decorative techniques including supplementary warp weaving and supplementary weft wrapping. In some of the Iban textiles, the extra weft threads are wrapped around the warp

threads between the throws of the basic weft. However, by choosing from a repertoire of designs and motifs also found on other types of weaving techniques such as warp *ikat* and supplementary warp patterning, the weaver, by using the weft-wrapping method, produces cloths that look very similar to the other textiles of that culture (75-76).

Through technical analysis on the forms in the groups of Highland Luzon, Milgram (1991:165) also found that the techniques might be interchangeable among the ethnic groups while the design motifs remain constant. In these cases technique is subordinated to a kind of consistency that might stem from the mental templates in a given cultural tradition. Hence, Maxwell suggests that the underlying similarities of deep-rooted cultural background (such as custom and belief) in many Southeast Asian cultures help to explain "the similarities evident in designs on cloth from quite different parts of the region" (80).

6.3.4 The Result of Ethnic Interactions (the Favourable Geographical Factor?)

From the systematic analyses of structural arrangements of the African, Southeast Asian and the Taiyal textile designs, the similarities and differences are identified. I propose the hypothesis that design elements found in all regions are the product of technique, whereas those particular to a single region are expressive of common cultural traditions. If this is the case, the most similar traditions should be those which are most closely related, according to archaeological evidence. For example, there are many neighbouring groups around the district region of the Taiyal such as Saisiat, Pazeh, Taokus, Bunun. The consequence of interactions between these ethnic groups can appear on the textile designs, especially those of the Saisiat who share

many similarities of cultural traits with the Taiyal , including head-hunting, facial tattoo, no development of pottery and even have similar weaving tools.

Liu I-chang (1994:13) states that in the past the Taiyal usually shifted from place to place with a rigorously organised hunting band as well as a dispersed settlement underlying the structure of *gaga*. During the processes of expending outward, their social strategies not only contained traditional elements based on their living style but also new components derived from the patterns encountered within different populations on contact (132-133).

Liu hypothesizes the possible shifting process of the Taiyal. Moving toward the north, the Taiyal had an encounter with the Saisiat. They regarded the Saisiat as an indicative group which helped them adapt the new environment, at the same time, they also stabilized their traditional living style by means of establishing a buffer region with the Saisiat. They followed the Saisiat track and pursued their seasonal activities around this region as they consolidated their occupation. According to the archaeological evidence, there were historically territorial overlaps between the Taiyal and the Saisiat. These two ethnic groups almost shared the same fields and ecological resources. Nevertheless, the Taiyal gradually invaded the shared domain by making use of a set of scheme of " multi-spatial " utilization, and ultimately took over the new land which originally belonged to the Saisiat (Liu,1994:39).

Although there were regional differences in patterns of movement due to inter-groups interaction, the Taiyal retained their traditional living types which was the base of the social institution. What I found interesting is that if we examine the design

arrangements of Taiyal clothing, we will discover the Taiyal designs are geometrical even though they had frequent contact with other ethnic groups. Thus, does there exist some certain durable, conventional rules of form?

6.3.5 Continuity

The similarities in the form of designs may be caused by technical constraints. Layton (1991[1981]:183) thinks that "it may be difficult to determine whether particular aspects of formal variation are the result of technical constraints or have other causes, relating to the purpose the art was intended to serve". Similarities in design form may be explained as adaptations to the nature of the medium. On the other hand, is it possible that the similarities might result from a common cultural origin? In other words, is it possible that the ideas for design are in case of the historical links between cultural traditions?

Perhaps the Malagasy textiles may be an interesting example and can be taken as an illustration. In spite of the logic of geography, the Malagasy language is related to those spoken on the other side of the Indian Ocean, an Austronesian language spoken in Central Borneo. That is the consequence of historical contacts and settlements with the sailors from the Indonesian archipelago who crossed the Indian Ocean in pursuit of trade and adventure. As a result, the textile arts reflect the traits of insular Southeast Asia.

The type of backstrap loom and *ikat*-dyed patterns may be taken as the major Southeast Asian characteristics evidence in Madagascar textile traditions. Some Madagascar banded warp *ikat* patterns which include stylized human figures perhaps

provide additional evidence for the antiquity of complex warp *ikat* in the Southeast Asian regions (Maxwell,1990:55,57). In her paper, Gillian Feeley-Harnik (1989:73-116) has notes the relations between ancestors and their descendants and the role of cloth from a Malagasy perspective. Although the fibre is obtained from the leaves of the Raffia palm, the main function of these cloths as shrouds may also reflect their Southeast Asian ancestry (Picton and Mack,1989[1979]:142). From this, we may somewhat observe the persistence of continuity of cultural tradition even the geographic distance is so far.

6-4 Conclusion

Weaving involves the orderly interlacing the warp and weft, and the parts of the structured loom are designed to facilitate this process. However, even the simplest technique of plain weave may present different results of variations. Thus, what we would like to probe is to the extent the cultural factor under the mechanical surface.

The technology used in cloth construction sets its own limitations and possibilities, which should be considered when interpreting the significance of the resulting fabric. Weavers create patterns, carrying the design in their heads. The technological activities themselves which produce the artifacts are embedded in context, and these contexts reflect the attitudes and choices of artisans (Milgram and Van Esterik,1994: 7). Layton (1991[1981]:150) argues that techniques may have influence on the art form, but "the phenomena of stylistic variation require more subtle explanation than technological limitations provide." In light of the discussion above, technique might be a constraint of design style. Perhaps there are many decision points where choice is usually limited by the technique or fabric materials. However, different means in

technical processes may only offer a partial explanation for differences in regional forms and for temporal changes in style. Therefore, it seems that indeed technique has an effect on the design style but it does not completely determine form.

In conclusion, we may get a glimpse of the temporal and spatial shifts in textile design by the symmetrical analyses of structure and composition (pattern and technique), and the selective decision mainly, as a kind of creativity of the weaver, should be considered an essential component in weaving process. Surely the human will is indispensably involved, whether an artist is influenced by his/her cultural value or not, when s/he makes a decision? It is inevitable that the human will is usually affected by his/her value judgment. The techniques and schemes used by craftsmen in producing their arts involve them with their social contexts in a number of ways. The values of the culture affect many facets of the art. Thus, the universal occurrence and significance of textiles may present a unique concentration of potential aesthetic experience which gives fabric a special importance.

[Footnotes]

[i] There are four main types of weaving techniques among Taiwan Aborigines. They are as described below: (1) In-weaving: coloured threads are introduced during the weaving process to create a pattern. This technique, which is called supplementary weft in terminology, is especially popular among all aborigines. (2) Appliqué: This skill, which is most often encountered among the Paiwan group, involves cutting pieces of folded cloth into any desired shape and sewing them on to the clothing for decoration. For this reason, the designs made by it are symmetrical. And, the design

patterns are usually represented by human head, human figure, snake or other animal motifs. (3) Beadwork: This type is most wide-spread among the Paiwan, Rukai and Taiyal. Paiwan groups prefer different coloured glass beads, which they sew on their clothing in the same types of patterns as used in applied decoration whereas the Taiyal used shell-beads for the materials of this type. (4) Embroidery: This technique is found among the Paiwan group, Bunun, Tsao and the Sinicised Plain Aborigines. The pattern which the Paiwan group use includes simple cross-stitch, straight-stitch, satin-stitch and chain-stitch.

[ii] Because of the clear but not well-jointed seams, I suggest that this cloth may be sewn by combining the remains of each piece of cloths with diamond design pattern. Furthermore, a piece of hand-woven cloth, with identical design, needs to waste lots of time and labour, especially that with rhomboid/rectangular design which is regarded as a more difficult skill and time-consuming work.

[iii] The details can be referred to in Fraser-Lu,1988:50.

[iv] Gittinger (1972) has made an elaborate study on ship cloths.

[v] This narrow-strip weaving tradition lies south of the Sahara, bounded by the Atlantic coastline to the west and south and as far inland to the east as Lake Chad (Hecht,1989:80).

[vi] The three precious heirlooms of the Paiwan people are ceramic pottery, glass beads and bronze knives.

CHAPTER SEVEN
CONTEMPORARY CHANGE

When discussing change, we have to consider how we define "tradition". Because it may be quite an ambiguous term because many "traditions" have probably involved a lot of outsider influences or borrowings in the current of time. In a real sense, the description of a specific group of people in a given society is like a snapshot at one particular time (Ferrao,1992:302). However, nothing is as constant as change. Real societies do not exist a fixed environment but an alternate one in time and space (Leach,1977[1964]:5). Thus, the study of any cultural practice must always recognize its changing historical circumstances.

Taiyal society has been changing accompanied with the shift of political power of Taiwan, and the material items have also showed the most apparent signs of influences of one culture upon another culture. The direct effects of imposed Japanese and Chinese cultural elements and Western religion are described in the following paragraphs.

7-1 Change in the Wider Environment

7.1.1 The Period of Chinese Domination

The aboriginal peoples of Taiwan had been living within their own cultural systems for thousands of years. They lived in the mountains and counted on the local environment to feed themselves. In sporadic interactions with outsider, they only exchanged commodities such as animal skins, tobacco, firearms, salt, cloth and other decorative materials. There were also significant interchanges between aboriginal groups. Prior to the seventeenth century, in general, these indigenous inhabitants (including plain

and mountain dwellers) presumably had very little interaction with other ethnic groups, so that they still maintained the indigenous qualities of their cultures. After 1875, there were more frequent contacts when the massive Han Chinese influx from Mainland China began, as people entered the Island seeking economic opportunities. Therefore, interethnic conflicts gradually also developed. However, they mostly occurred between Han Chinese and aborigines in the plain tribes. The mountain peoples remained relatively undisturbed in comparison with the overwhelming sinicization of the aborigines in the plains.

In the seventeenth century, in addition to exchange of daily necessaries, there were some interactions between Taiyal and Chinese through the trade of camphor. Taiwan was an excellent source for export markets at that time. Camphor trees always grow in the hill lands that were largely occupied by the Taiyal. The aborigines considered it necessary to protect their homelands; as a result, many bloody battles were inevitably fought over them.

7.1.2 The Period under Japanese Colonization

After the Sino-Japanese War of 1894, the Ching government ceded Taiwan to Japan in the 1895 Treaty of Shimonoseki. The Japanese became rulers of Taiwan for fifty years (1895-1945) until the end of the Second World War.

When the Japanese first came to Taiwan, the aboriginal people were not yet under their control, so they followed the segregation policy left by the Ching Dynasty, building an island-wide guardline against rebellions by the aborigines, especially by mountain groups such as the Taiyal and Bunun. Though the guardline enclosed an unpacified

area very much larger than the peaceful area under Japanese control, it is always referred to as 'outside' the line while the controlled area is 'inside'. This picture is vividly depicted in Yubas Naogih's novel (1995:61-111) "*Tien-go-bu-luo-zhi-ko*" (The Song of Tien-go Tribe), which is a fictional account adapted from historical events that befell the Bai-zhi Taiyal. After 1909, Japanese rulers initiated a series of repressive policies for governing the aborigines, known as the "Five-Year Policy for Managing Savages". As an efficient colonial government, Japanese rulers, whose policies were mainly enacted by the Taiwan Sotoku-fu (Taiwan Governor's Office), aimed at developing the economy, by means of occupying land and taking control of resources. Their greatest interest lay in issues such as how to fully dominate the resources of the entire mountain region to support their ambition. They also sought to expropriate control of land from the indigenous people to create a secure environment for Japanese occupation. Some of the means the Japanese resorted to, in order to control aborigines, were the following:

(1) From the deep mountains to the foothills:

Before the Japanese came to Taiwan, the Taiyal ethnic group consisted of numerous small, mutually hostile territorial groups or tribes. Later on, in order to have easy control over the aborigines, the Japanese relocated them from the deep mountains to foothill areas with easy access, reassigned their farming lands and set up an administrative office. The Japanese intentionally located several mutually hostile groups together in order to control them more easily by setting each group of Taiyal to keep watch over the others.

(2) From swidden agriculture to wet rice cultivation:

In the early days, as mentioned, most of the hill people traditionally survived by means of slash-and-burn agriculture with crop rotation, mainly growing millet in the fields. The Japanese rulers forced the aborigines to move around the foothill areas and taught them farming skills for wet rice cultivation. It was another form of Japanese disciplinary action intended to obliterate the fierce and rebellious character of the aboriginal peoples. The Japanese gradually tried to break down the territorial system of aborigines, appropriate and nationalize their lands.

(3) From 'savage' to 'civilized':

Under the colonial government, the rulers dominated and implemented the policies of managing the hill people by using the armed force of the police. They placed a police station at the centre of each village. Those policemen not only took charge of maintaining social order and enforcement of administrative measures but also were responsible for affairs related to 're-education'. In order to weaken the chief's power in these small-scale societies, the Japanese set up community committees, appointing chiefs as members of the committees. The police replaced the chiefs' power in the long run. Consequently, the collective rights and firm sense of aboriginal people began to be destroyed.

Furthermore, the Japanese rulers pushed Nipponification, that is, transformation of the Taiwanese people into "pure" and "cultured" Japanese. They established schools for tribal peoples, gave them Japanese names, and generally pursued a policy of subjugation if not forced assimilation. Eventually, Japanese became the common language, old style houses was replaced by Japanese style houses which were of the

small, wooden framed and slate-roofed type with tatami rooms. People's dress was changed into Japanese Ho-fu, and so on. Even today one can still see the Japanese influence in many Taiyal ways of life; people who are over fifty years of age can speak Japanese fluently.

The Taiyal had been regarded as the most intractable and aggressive aboriginal group by Japanese colonizers. But, through the process of assimilation and cultural erosion by means of active acceptance of education and agricultural technology, the aborigines, as well as other ethnic populations of Taiwan, completely submitted themselves to the Japanese in identity and replaced their original traditions with the Japanese way of life. In the end, the aboriginal people hastened to lose their land and their culture.

7.1.3 The Period of Restoration

After the Second World War, Taiwan was taken over by Chinese rulers, the ROC government. They adopted many Japanese management policies such as moving the aborigines around the foothills. This move was part of a larger policy to establish reservations for mountain dwellers. The mountain tribes lived on protected reserves. They were still isolated from urban life in the plains as in the period of Japanese control. The government policy called for the areas to be set aside in order to assure the livelihood of the residents and to protect them from the cultural encroachment and economic exploitation of the Han population.

Since hunting was already impracticable, many hillpeoples tried to find some other means of livelihood based on more valuable cash crops. For example, tea growing, an advanced agricultural technique, has replaced slash-and-burn methods in many tribal

areas. New roads facilitate the transportation of agricultural products such as vegetables, tea and fruit to the plain. Some sections within the areas have been significantly influenced by economic developments. For example, the mountain communities located along the Central Cross-Island Highway, such as those near Taroko Gorge, are also prospering from the tourist trade. The natives of Lishan are now substantially better off economically than those of more remote locations, thanks not only to tourism, but also to the introduction of modern farming techniques for growing pears, water-honey peaches and apples.

In addition to the transformation of economic life, the face of culture was also beginning to be changed little by little. A plan to improve the living conditions of indigenous people was promulgated in 1951. Its objectives were "to change the improper lifestyle of the mountain dwellers, reform their bad habits and promote their material standard of living". For instance, the aboriginal people were discouraged from wearing traditional costume. Due to an inadequate understanding, the indigenous traditions were at that time not regarded as a valuable heritage that ought to be preserved. Walis Nogan (1992:67), a Taiyal writer and teacher in primary school, thinks that the plan was gradually to eliminate traditional culture to make way for assimilation to the dominant social system.

Change in other aspects of society and culture also affected the tribal societies. Animistic belief or ancestor worship was the traditional religion. But these had been suppressed during the Japanese occupation. The Japanese forbade the Taiyal from hunting human heads, confiscating their hunting guns, banning them for weaving and tattooing and shortened their festivals, and then forcibly converted them to Shintoism,

that is, revering the Japanese emperor as the real god. Hence, the basis of traditional religion was destroyed.

Since restoration, most aboriginal people have been converted to Protestant Christianity or Catholicism. Missionary activities were discouraged by the Japanese, but the present government welcomed churches in spreading religious teachings. Since the indigenous religion was destroyed, Christianity served initially more to fill a gap than as a new alternative. Besides, the aborigines themselves also welcomed spiritual and material assistance from the Christians, so they sometimes call Christianity 'the Plain Flour Belief'. Christian churches are everywhere among the aboriginal villages. The proportion of Christians in minority societies is substantially higher than that found in the Han Chinese population. Indeed, this has been especially successful among aboriginal groups. Even nowadays people are actively involved with church activities. The women formed work groups to prepare for church activities. The work groups that used to be cooperative groups have been transformed to work for their churches but not for households.

With regard to the effect upon traditional cultures in small-scale societies, it is still an open question as to whether Christianity is right and wrong. Christianity is always denounced due to its objection to the traditional aboriginal customs. Nevertheless, one time I visited a Taiyal student's home when the grandmother was teaching the child. She exhorted her: "Do not lie. People who tell a lie will not be accepted by Christ to enter into Heaven after death." At that moment, I felt that in traditional Taiyal society they might be often taught to be honest and dignified in personality and then could be welcomed by the ancestors to a better life in Heaven. The difference is that the

function of the *gaga* and respect for the ancestor has been taken over by the church and the God.

Another factor that causes change in aboriginal social structure is modern school education. School education has been continued under the Chinese government. School buildings are integrated into village life. Their central location and space make them attractive places for celebrating national holidays and holding meetings. The playground is the centre of activities for villagers. The success of schools in introducing new cultures has been considerable. The Japanese accomplishments were made against great resistance, but the KMT government has experienced very little opposition to Chinese education today. The Taiyal are expected to adapt themselves to Chinese culture and see their children become part of it.

Even though the small-scale societies of Taiwan seemed to a changing and their culture fading, until the 1960s the changes were minor and gradual. There seems little substantial change of social organization in the small-scale societies before 1961. Their basic structure remained the same, although trading through the island's market economy took place to some extent (Huang,1975:85). This situation has however changed considerably since Taiwan has moved firmly within the orbit of world capitalism.

7.1.4 Recent Change under Modernization

Taiwan's economic structure switched from agriculture to industry in the 1970s. After these decades of rapid economic development, she is recognized as one of four "Asian Dragons" owing to her affluent society. It has been widely realized that this shift has

brought the improvements in education, nutrition and sanitation and so on. However, societies may make economic progress while encountering problems in other aspects of life. Indeed, traditional cultures, particularly those of the minorities, are changing rapidly and dramatically under this "economic miracle".

The Western market economy and socio-cultural style enters into Taiwan, and, as they become entrenched there, they influence the aboriginal societies. One phenomenon particularly illustrates this. Traditional Taiyal society was, as described in preceding chapters, an egalitarian community based on reciprocity. Work groups used to be the most important Taiyal social forms because almost every materially productive activity, such as hunting, weaving or ritual, was performed in such groups. According to Nettleship's investigation in Jin Ai Hsiang (1971:223), the group work was still of outstanding importance for the activities in Taiyal society; but change was already apparent since money was being charged for some aid and cooperation. This fact indicates the view of value has been changing toward 'modern (i.e. Capitalist) society'.

In recent years the modernization taking place in Taiwan has reached into the most secluded of mountain villages. Many indigenous communities have faced radical changes in lifestyle, often resulting in a loss of their culture. For example, increasing numbers of the young aborigines are moving into urban areas in search of better jobs. The villages are thus becoming locales for the old and children, hardly an ideal environment for transmitting traditional culture. Hsu and Li (1989:193) have pointed out the phenomena of serious social and cultural disintegration in contemporary aboriginal societies. The exodus of the indigenous people has weakened their cultural and social fabric, which entices many productive members away from traditional

subsistence activities. They appear to be caught in a dilemma under these circumstances.

Unfortunately, adapting to mainstream societies is not so easy for most minorities. The majority of these estimated 80,000 indigenous people now living in the cities suffer from maladjustment to urban life. Because of the poor training in education and technology, most indigenous people bear a lower level of educational and technological attainment, poorly preparing them to compete with the majority in cities who have been equipped with better knowledge to adapt to the change. Thus, they end up doing manual labour such as construction work, mining and crewing. These men are often exploited by employers and discriminated against by the Han Chinese.

Recognizing these problems, the government wishes to seek solutions which can to a certain extent help the development of tribal communities. With regards to upholding educational development, for example, the government has been supplementing every provincial primary and junior high school budget to improve the environment of schools, such as upgrading the facilities, providing better pay to teachers and promoting adult education in tribal areas, which are considered as prerequisites for raising educational standards among indigenous people. For example, the primary school in Ts-yu Village, in which the author has worked, is reconstructed into the 'normal' Taiyal primary school. Many of the traditional cultural traits are preserved in a new form---using them to decorate modern concrete building. The poles of the new school building are gorgeously decorated with the bright-coloured horizontal lines seen in the plain weave. There is a striking mural depicted a Taiyal woman weaving. With respect to the classroom practice, the students are taught their mother language, dances,

bamboo knitting and weaving are taught by experienced elders in extracurricular activities every morning. The villagers celebrated the completion of the new school with traditional Taiyal dances because they consider it as a revitalization of Taiyal spirit.

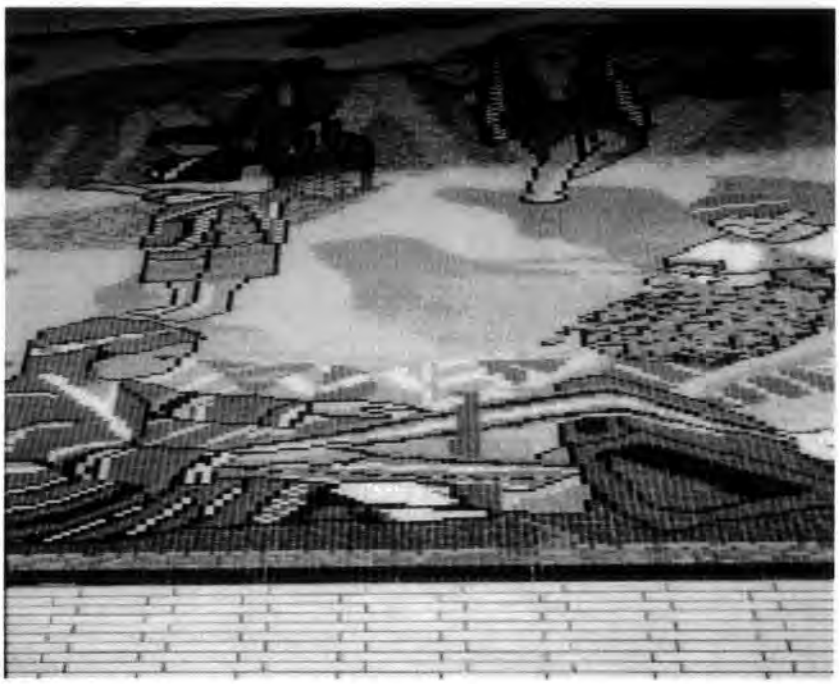


Fig.32: The mosaic wall painting of Ts-yu primary school. (photoed by the author)

Many customs and culture of the indigenous people have been subjected to study. For example, in 1989, the Ministry of the Interior drew up a plan for collecting and collating materials and documents about tribal ceremonies. In addition, the Chinese Folk Art Association was asked to study the material culture and traditional handicrafts covering sculpture, weaving, ceramic and productive techniques. A number of activities and contests in traditional craftsmanship are held. The churches also begin teaching villagers the mother languages by using Roman Alphabetic System. This substantial initiative should be continued more actively.

7.2 Change in Taiyal Weaving

7.2.1 The Change of Taiyal Clothing

The decay of aboriginal traditions seems to be a worldwide trend, especially among the communities of the 'Fourth World'. The Taiwanese Aborigines are also swept along on this big wave. Since the Second World War, many cultural relics in small-scale societies have been purchased by scholars, connoisseurs of antiques and amateur collectors, as the aborigines have sold their traditional crafts for cash. It is evident that the tribal culture is vanishing. Hsu critically points out that the process of collection of aboriginal art works can be seen as one aspect of social change in contemporary small-scale societies (Hsu,1994:150). As Dr. Chen sincerely says, "Forty years ago we could still see genuine items, but most of these are now gone." (Chen,1992:95)

Changes in dress can mirror change in the larger environment. Changes have occurred in many aspects of clothing such as the adoption of the use of new raw materials, dyes, styles, design patterns, techniques or instruments.

(1) Material:

Traditionally, Taiyal women used the fibre of ramie for making cloth. Later, they gained cotton, woolen yarns and decorative items, such as coins and shells, through barter with the Han Chinese or Japanese. Ramie are no longer grown, due to environmental change. Under the pressure of modernity and the marketing economy, many time-consuming materials such as handspun cotton and natural dyestuffs are usually avoided.

Recently, thanks to the revival of traditional crafts supported by the provincial governments, attempts have been made to grow ramie again for making the traditional cloth in some villages (Ts-yu Village is one of them). However, it has not yet been too successful or widespread enough to supply the market; weavers therefore still rely on artificial fibres or imports from other countries.

The colours the Taiyal used were mainly white, red and black, but there are many differences between different districts. Traditionally, the dyes came from the local environment. Black was obtained by mixing up the brown colour from the roots of a tree and burying yarn in a mixture of mud and charcoal. Red was made from the skin of dye-yams boiled with yarn. A limited range of green-blues and yellows was obtained from other plant sources such as myrtle and cassava. Recently, traditional dyes have been seen less commonly than before; instead, chemical dyes from Taiwanese companies have been adopted.

(2) Looming and weaving methods:

It is true that, as Nettleship states (1971:293), there have been few changes in the actual techniques of making fabric: Taiyal looms seem not to have changed at all for centuries. However, as well as those genuine traditional textiles still being made, and the handloom and some traditional decorative textile techniques still being using, there is now a large output (production) of another kind. In addition to traditional backstrap loom, the Taiyal also use an elaborately ameliorated loom (Fig.34a), which can relieve some back and legs aches. Another kind of heavily modified loom is designed for making the smaller and thinner plain tabby cloths (Fig.34b). It is not just easier to manipulate (even the children can make a simple piece of cloth), but it is also able to

increase the output.

a b

Fig.33: The revised loom. (photoed by the author)

(3) Design patterns:

Some of the new design patterns that are appearing may be mutually influenced by other aboriginal weave designs or by Chinese cloth. I would like to use the term of 'mutually' here rather than 'borrowed' because some of the formal elements in Taiyal cloth can also be found in other neighboring ethnic groups (Tien-ri Tai-gagu,1993:62, 63). On the other hand, the outside elements adopted may vary to a certain extent according to geographical district, for the Taiyal are scattered over a wide area and there are different neighbouring ethnic groups around them. The patterns of Bai-zhi Taiyal clothing are apparently similar to those of the Saisiat and Pazeh, an aboriginal-group-of-the-plain while those of the Taiyal in the Jin Ai Hsiang area and the Bunun have more or less mutually-influenced each other. The subgroups living in the Hualian are quite effected by the Ami.

No matter how great the outside influences were the Taiyal seemed on the other hand to be still more conservative and to cling to their styles, the geometrical forms, particularly those tribes where were farther from the outside world. Some of the

traditional design styles such as plain-and-striped and diamond have not evolved too much until today. The main variations possible with them may be in colour, balance and the rhythm of the elements. Bright colours make costumes look more illustrative.

Quite recently, modern motifs such as tartans and Roman cross stripes, an understandable religious reference to Christianity, have been borrowed from commercial machine-made fabrics. The invention of realistically figured pieces also appear in contemporary Taiyal weaving, such as the Human Figure, Animal, Plant or Human Artifacts, even some thematic pictures showing the Taiyal people in dancing, hunting or millet pounding. This is the most striking development in their created art forms because, as stated repeatedly in the preceding chapters, traditional Taiyal design patterns in textiles are characterized by geometrical formal elements, not one of which an obviously allusive meaning. Furthermore the Taiyal, as noted in chapter four, seem to name or categorize individual patterns but those Figured Pieces, or rather representational motifs are not categorized or named other than descriptively by the Taiyal. The figured forms are caused by, for one thing, in the pursuit of aesthetics (Nettleship,1971:316-317; 1978:180) and by, for another, the effect of tourism. We will discuss the latter factor later.

(4) Change of style in historical context:

At first, outside influences came from Han Chinese, especially the Hakka people who inhabited the mountain frontier areas (Chen,1988[1968]:182). In addition to the design of dress, the style and some details such as selvage can be inferred to derive from the Chinese influences. For example, a few silhouette-like outlines along the wristband or cuff are quite finely detailed and may result from Chinese influences. Besides, it can

also be clearly observed that some of the Taiyal women once wore upper garments of Chinese type which often tended to be fastened down in slanting fashion.

The Chinese-influenced type was probably usual around the sixteenth or seventeenth century, the Han Chinese reaching to Taiwan in a considerable number at that time. Before that, the style of the Taiyal dressing, as well as that of other indigenous groups, may be hypothesized as follow: the upper part of the body was naked or covered up with a sleeveless jacket made of bark or animal skin, belonging to a system of rectangular cloth. Sato Bunichi has postulated that the prototype of the lower part of Taiwanese aborigines' dressing may be evolved through three stages: naked or a covering of leaves and bark → loincloth → skirt (Sato,1988[1942]:134,147). The first type can no more be seen, only rarely has bark cloth been left behind as evidence; whereas the type in the third stage is used by every aboriginal group at present sometimes, with the addition of underwear. As far as the second type is concerned, it used to be commonly worn until the recent past, particularly among the Northern Aborigines such as the Taiyal and Siasiat (Li,1993:154). The loincloth was often bound around the waist to cover their private parts.

Change may by and large have been minor and slight during the Han period. Graburn remarks (1976:5), quoting from May (1974:1-6), that the arts in changing nonliterate societies can be called "contact-influenced traditional arts" if the changes are not so serious as to interfere with the transmission of their symbolic function. Basically, the changes of Taiyal clothing during the Ching Dynasty were not too radical in spite of the mingling of aboriginal and Chinese styles.

Large-scale change did not occur until the coming of a more formidable armed force. The Japanese invasion marked the onset of the collapse of the tribal social structure. The Japanese attempted to stamp out tribal customs and traditions. In spite of fighting against the Japanese, many elements of Japanese culture were nevertheless accepted and remain in use by most Taiyal households. Due to the activity of Nipponification, the majority of Taiyal were encouraged to change their traditional dressing into Japanese style clothing, i.e. the Ho-fu, especially those among so-called 'model' tribes. The stronger their allegiance the more the Japanized they were. Ts-yu Village used to be one of the "normal" tribes[i]; consequently, the Japanese influences can be seen almost everywhere. During the time after restoration of Chinese rule, the 'combined' style of clothing can be seen: traditional, Chinese, Japanese and Western style. Japanese style dance and music are also popular among the tribes. Even during many occasions or performances and contests of 'traditional' dance, Japanese and newly created 'pan-aboriginal' clothing supplement traditional forms.

From the post-War period to the late twentieth century, Taiwan has been changing fast, and the aboriginal culture cannot of course keep off this current. Taiwan is on a course toward Western-style culture. A number of modernizing factors have threatened the survival of handmade textiles among small-scale societies. The process of weaving in small-scale circumstances, from unprepared yarn to a completed textile, is immensely labour-intensive and time-consuming; handloomed textiles as garments could not compete in price or style with the increasingly popular imported Western-style clothing. The aborigines who work in the cities bring fashionable things back to their tribes. Western-style clothing, such as jeans, is welcomed. Children have to put on a neat uniform and then go to school. In addition, most Protestant and Catholic

denominations do not approve of and discourage their members from the old customs and traditional costumes.

Besides, the view of value is also changing little by little under the monetary economy, as mentioned above. For example, as mentioned in chapter three, in the past gifts from the bride consisted of hand-woven cloth. According Nettleship's survey (1971:67), although the store-bought furniture was already included in the new couple's household nearly thirty years ago, cloth and clothing were still a major portion of what the bride brought to the marriage, whatever they came from long-held hoards of her mother's stock or were newly woven by the remaining weavers. Money gifts had not yet become a completely acceptable substitute for cloth. This no longer seems the case. Cash has been the most necessary and practical supplement since outside transactions involving the Taiyal in the Taiwanese money economy began. Many household needs must be bought with it, and it has even affected the value of weaving.

Given the change of ecological and socio-economic environments mentioned above, not only is the material hard to obtain but making cloth by a traditional way wastes too much time and is found too uncomfortable due to the seated position adopted when weaving; on the other hand the vast amount of ready-to-wear clothing in the market is by comparison easy to get and serves people's need more. Consideration of time and economy have caused people to abandon traditional clothing for Western-style dress and, as a consequence, traditional textiles are gradually no longer required or considered as useful as before.

We would not like to expect that if change continues in the same direction as in mainstream society most traditional types of art objects will eventually be lost and replaced by introduced objects. In very recent years, the self-consciousness of indigenous people all over the world has reawakened. 1993 was the "Year of International Aborigines". Many of the younger aboriginal generation are actively involved in the study and the resurgence of their own culture as well. This is a good sign. More and more native people are showing an interest in their own history, language and material culture. For instance, Temi Nawi, a Taiyal teacher and social worker who has devoted herself to preserving the cultural tradition and teaching her people to write the mother language in her own tribe. Yuma devotes herself to rallying the Taiyal weaving and developing it into modern design. After all, the continuity of the aboriginal cultures still has to rely on the spontaneity of aborigines themselves.

7.2.2 The Problems of Tourism

Taiwan is justly proud of its many tourist resources: rugged mountain and seashore scenery, fascinating folk arts and customs and so on. Among these, there is also one vital tourism attraction unique to Taiwan, that is, the rich aboriginal cultures. Some scenic spots such as the Village of Wulai and at Hualien on the Island's East Coast, have been developed by the tourist industry, and most, if not all, villagers depend on tourism to earn a living (Hsieh,1994:44).

The Taiyal village of Wulai, a well-known tourist spot located in the foothills on the outskirts of Taipei City, has staged the performances of aboriginal dance and music for groups of tourists, which are adapted to the perceived tastes of tourists who are seen to be more interested in spectacle than tribal cultures. These adulterated tribal dances and

songs, by combining features of different tribes together also add some modern (even Japanese and Western) pop songs to performance programs. Nevertheless, it does attract swarms of tourists each year, enabling tribal members to make handsome profits from the tourism industry.

Accompanied by the generalized 'pan-aboriginal' dance and music, the dancers wearing newly created and bright-coloured 'pan-aboriginal' dressing danced all they could to catch tourists' eyes and cheer. This picture seems to become the typical representation of the 'aboriginal stereotype' in mass culture. Many examples similar to what has described above can be seen in many aboriginal tribes or at famous sights. Even many ceremonies guided by the official bureau undergo this kind of transmogrification. In 1996, my family and I visited a famous tourist spot---The Sun Moon Lake--- where a 'harvest' ceremony was being held. Many teams of dancers from various settlements were invited for the performances. A team consisted of Bunun women wore Ami costume and danced accompanied with a Taiyal song, and the master of the ceremony allegedly said this was the 'traditional' Bunun dance and music.

From a more positive position, it is undeniable that tourism may be a good source of profits for developing the local economy among tribal communities. Even the elders wearing their traditional apparel eke out a living under the pressure of the money economy by being photographed with tourists. Besides, it can also do much to help preserve traditional culture and keep it alive. This may be exemplified by "The Formosan Aboriginal Culture Village", located near the popular Sun Moon Lake in Nan-tou. Here there are actual tribespeople hired to perform their traditional lifestyles

such as weaving, basket-making, carving or working at other traditional crafts (Fig. 35). Every displayed item or type of traditional building is elaborately designed by reference to ethnographic documents. Much of the active preservation work that has taken place in very recent years, such as the holding of traditional ritual, has been guided by government. Recently, many tourist hotels even supply the funding and place for displaying and selling the handicrafts in corporation with local residents.

Fig.34: Factory-made aboriginal clothing in The Formosan Aboriginal Culture Village

Though there are advantages from tourism, it also brings a lot of social problems into the pristine aboriginal communities. From a view of tourism anthropology, the members of 'civilized societies' visit the aboriginal tribes with a feeling of curiosity about 'cultural exoticism'. Nonetheless, their behaviour usually results in cultural change in the place they visit. The greatest changes in small-scale societies often occur in response to external causes (Nettleship,1970a:83). Contacts with the outside world are bound to have a detrimental effect. After all, the market itself is the most powerful source of formal and aesthetic innovation, often leading to changes in size, simplification, standardization (Graburn,1976:15). Although Graburn (1976:16) takes some examples, such as the Ainu couple carving of Japan (cites from Low,1976:211-225), to argues that the souvenirs employing large-scale and factory-production-methods do not just ease and speed up operation but may not lead to a lowering of

standards, the tourist situations in Taiwan are, unfortunately, toward the opposite trend, the over-simplified grotesqueness. This can be exemplified on the clothing which will most probably be reflected in a lowering of the quality of 'aboriginal dress', especially the items in the curio shops at the tourist spots, such as showy "pan-aboriginal" clothing, a few decorations and other artifacts. There is nothing native or finely woven, only roughly-made items mass-produced in factories. This 'aboriginal' costume is of little artistic merit and designed just for the taste determined to some degree by the alien purchaser's values.

Furthermore, the driving forces at work in many aboriginal communities are commercialized, tourist-oriented, and the textiles are intended purely as objects for sale to outsiders. As Graburn points out (1976:14), the buyer does not have to understand the symbolic meaning of the commercial artwork; instead, he only collects according to his visually aesthetic taste. For this reason, there seems just a thin line between promoting and exploiting culture. It is doubtful if the impact of tourism will lead to more positive developments in the field of weaving tradition.

Tourism has other curious effects. For instance, the young Taroko Taiyal girls in Hualian are frank in their negative evaluation of their own traditional clothing---they think their traditional clothing is too dark and less beautiful than the Ami type, so they take off their own traditional clothing and instead wear the more gorgeous Ami dressing in order to attract more tourists. Another phenomenon is commonly seen in many small-scale societies in the world. To attract tourists, who appreciate ethnic and tourist art for the story behind it, objects are often offered an ambiguous gloss. Sally and Richard Price (1980:15,17) have cited some interesting examples of the

generallizable symbolic explanations that are often misunderstood by outsider visitors in Maroon art. As some Maroons are attracted by the growing opportunities of tourism, they usually produce the sort of art the tourists like. They capitalize on the customers' desire for symbolic motif and refer directly to the book written by F. H. J. Muntslag who served as an interpreter of Maroon art for the explanations of what tourists are buying. Returning to the Taiyal case, the simplicity of geometrical art form in traditional Taiyal weaving is concerned may be embroidered with some of the figurative meanings, e.g. the diamond design is said to have evolved from the snake shape. Some aboriginal people, particularly the urban ones, recognize their own culture through these fabricated stories. They even abandon the geometrical designs and adopt figured forms.

Craft production in the tourist industry can be a good way to provide an alternative and richer contribution to the household economy and income than the usual manual labour. As an economically practical pursuit 'Tradition', under the circumstances of tourism, is often recreated, revised and reinterpreted (Hsieh,1994:3). Although the arts they produce are still made for sale to another culture, they can nonetheless still function to maintain identity within their own encapsulated communities. As Hsu suggests (1991:157), the members' consciousness plays a crucial role because only they themselves understand their art the most and know which kind of art form is suitable to satisfy the community's need as well as represent their spirit. Beyond that, the comprehension and respect shown by dominant society are also important. It is merely a question, that is, of how the traditions of aboriginal cultures can avoid becoming ultimately reduced to just shoddy tourist trinkets or commercial products?

Fig.35: The Taiyal women are performing their traditional weaving and jaw's harp in "The Formosan Aboriginal Culture Village" in Nan-tou in the middle of Taiwan.

7.2.3 Prospects

Traditional weaving has had no special place in Taiyal culture for some time. Nettleship had designed a 'Atayal-Taroko Weaving Renaissance Project', from 1965 to1968, in Jin Ai Hsiang, Nantou Hsien (Nettleship,1969b:123-125). This Project tried to provide a large new outside market for Taiyal handicraft so that additional cash could be earned. It aimed at helping the Taiyal succeed in their adjustments to the modern mainstream society. Nettleship hoped that by not only doing his own academic research but also participating as the agent of this Project, the growing world market for handicraft should ideally be sufficient to allow aboriginal weaving to contribute to Taiwan's export efforts. This could be considered a good means to carry forward the traditional culture and to increase income at the time. Nevertheless, the Chinese government was not especially appreciative of the kind of weaving done by the aborigines, so that this Project was not carried on after Nettleship left Taiwan.

In recent years, the government has become aware of the importance of preserving traditional culture, therefore, a number of initiatives aimed at the resurgence of

Aboriginal cultures are encouraged and put into effect, e.g. many contests and exhibitions of traditional handicrafts are held. More funding became available for the promotion of native culture. One of the focuses is to develop the marketing of traditional handicraft. Vocational training programs were made available for tribal entrepreneurs. With the support of local government funding and the assistance of specialists in technology, some aborigines are given guidance in the study and training in their own traditional handicrafts: cloth and bamboo weaving. When they return their villages, they organize workshops to teach these traditional skills; and then, they sell these handmade products to gain a substantial profit. In this way, workshops are set up in many Taiyal villages, and weaving becomes an economically profitable activity that can supplement the family incomes. Consequently, the survival of weaving is vigorously revived in some Taiyal villages. In Ts-yu Village's case, almost all the women in village engage in learning weaving, even the non-Taiyal women. Even the school children learn the rudiments of traditional weaving.

The revival of a traditional craft in contemporary conditions can take place in several ways. It could perhaps be along traditional lines or slightly different forms. The change may come voluntarily, from the free will of the weavers themselves. The members of workshops take efforts to not only study their traditional weaving but also try to develop it further. Most traditional textiles were just used in clothing, but this was limited (Liu,1990:50-51). Preserving the characteristics of traditional geometrical forms, they incorporate their traditional elements into new-style products, to extend their use and function producing items for the space of modern life, such as purses, name-card wallets, tablecloths, pencil-cases, carrying-bags, neckties, and so on (Plate 9). But besides the designs and products developing, as Liu Chiu-sue suggests

(1992:34), there are still need some other works to be continued and forwarded such as manufacturing, market investigation and establishing marketing channels. In such a condition it is necessary to have cooperation between the experts of different fields, including the anthropologists, modern designers and trained technicians, to accomplish these works. From this point of view, it can thus be seen that the Taiyal do not have to give up many elements of their own aesthetic to try what the new ones have to offer. On the contrary, it may be expected to stimulate renewed Taiyal interest in their own art form. It should be as much for the qualities of appreciation of aesthetics as for the learning of the skill itself.

7-3 Conclusion

Becoming detached from the former symbolic function in ritual under the circumstances of great social change, a weaving tradition may be transferred from ritual use and practical function to 'pure art' to be aesthetically appreciated or academically studied. Beyond its art form, however, it can still serve as a spiritual indication of cultural identity.

With the occupation of Taiwan by outsiders, the aborigines have been forced to learn from cultures with completely different value systems, creating problems of cultural adaptation. But, cultural contacts and the changes that follow experienced by aborigines may stimulate them to reconsider the value of their traditional cultures in a positive way. As Graburn comments, cultural contact between dominant and minority peoples often leads to fertile new ideas, and then returns to be applied in new ways to the needs of the small-scale peoples creating a "new integrated synthesis" (1976:6-7). Layton also notes (1994[1992]:156) that prejudice from the dominant society 'has

always militated against integration of aboriginal people into the dominant community, and this has increasing had the effect of turning Aboriginal people back upon the resources of their own culture as the foundation for their pride and self-identity'.

[Footnotes]

[i] In the period of colonization, in order to hasten the Taiyal to assimilate with the rulers, the Japanese worked out a conciliatory strategy that gave a great benefit to the most tribes showing the most cooperative and loyal attitude, such as the assistance of agriculture technology. Those tribes were called 'Mo-fan-tzuen (normal village)', that is, they could be taken as the best model for the unpacified tribes. The 'normal' villages were nonetheless those that lost their traditional culture the most.

CONCLUSION

Handweaving is a diminishing skill in present-day Taiyal society. In this thesis I have probed some aspects of this skill to understand more clearly the outlines of Taiyal weaving art. Though earlier studies are fundamental and important as primary data for the study of Taiyal textiles, previous scholarship of this art form is still scant or discussed in scattered articles and that which exists is mostly descriptive. The trend toward detailed description of Taiyal weaving is evident whether one consults the work of Japanese scholars or Chinese scholars as reviewed above.

In the brief introduction of the Taiyal people, this thesis has noted the social practices in which textiles participate provide a distinct context within which to begin to assess the significance of the Taiyal weaving. Traditionally, the rules and demands in the way of Taiyal life were bound to the relationships with ancestral spirits. Besides, the traditional Taiyal culture recognised various degrees of individual achievement as a gradation in social status instead of status being determined by birth. Successful hunters, brave headhunters and skilled weavers were entitled to a rather elaborate system of graded insignia. The custom of facial tattooing was part of this system.

In this thesis I has argued for an examination of the role of cloth as a means of communication through its participation in specific socio-cultural contexts. Through the inspection of the Taiyal socio-cultural traditions, this thesis has identified and discussed some characteristics of traditional Taiyal society and its value. The weaving was intrinsically tied up with the total social structure. A woman's social position was judged by her weaving skill. Besides, fabric was of ceremonial

importance in most social and ritual activities. Specific clothing, such as *lukus kaha* (the garment with shell beads), was regarded as precious treasure and symbol of dignified status and wealth in such an egalitarian society. Besides, through a comparison of the two different societies, egalitarian Taiyal and hierarchical Paiwan, I suggest that there is no universal principle which can predict the form art will take in egalitarian, rather than hierarchical societies. The 'artists' (or craftsmen) produce their arts involved them with their social contexts in a number ways.

If the hypothesis is that a given society's art style almost always stylistically reflects its past heritage (Anderson,1989[1979]:190), the similarities found in different cultures may point to diffusion or a historical connection. Through specific features of split representational art form, the great affinity between the Paiwan and peoples of the Pacific regions may be used as evidence of a historical connection. Although a relationship between prehistoric southern China, Southeast Asia and Taiwanese Aborigines has been drawn out more or less, however, the linguistic hypothesis, archaeological evidence and cultural anthropological deduction so far cannot give a clear explanation why the two peoples, the Taiyal and Paiwan, who belong to the same Austronesian family, should make different use of a common tradition of forms.

This thesis has focused on discovering and understanding the structure of the design arrangements in Taiyal textiles. The examination of geometric symmetry in Taiyal textile designs reveals the methods that weavers employ in cloth production and consciously implement a preferred style in their woven compositions. The bifold rotation/finite motion occupies an important role. Together with striped cloth it may characterize the main styles of Taiyal textile compositions. I maintain that to

understand and interpret more fully the significance of artifacts one should take into consideration their cultural context as well as examine the physical qualities of the object. This approach may open a gateway to discover how Taiyal textiles constitute a distinct indigenous art form through which cloth relays information to members of the community. In addition to its distinctive aspects, this thesis has also recognized the universal features of the geometric characteristic of Taiyal weaving. By comparing with the related, Southeast Asia, and unrelated, Africa, weaving traditions, I has tried to explore the extent to which the similarities of visual art forms in different cultures may be caused by human universals of perception.

Weaving of cloth may be by its nature a very repetitive process, but it indeed requires a considerable amount of technical knowledge and skill. By analyzing the cloth's technology, we can see there are characteristic methods of varying the repetitive elements in different areas. Through the cross-cultural comparisons, I have demonstrated similarity of form is not necessarily due to borrowing. It may result from the technical constraints. Besides, I believe that although the art forms of a people may be considered as technical forms, they should also be regarded as symbolic statements and aesthetic sensibilities for artistic ends in actual use. The artist's skills are usually more mental than manual. The artists' degree of freedom and their conservatism may be the most important factors that influence a characteristic art form of a people.

The cultures in the small-scale societies are not static but undergo processes of changes caused by internal stimuli and external contacts, especially the latter bringing the great and rapid influences. As the world's other ethnic minorities are confronted

with acute challenges in the process of acculturation, so the Taiyal have also encountered the onslaught. They have jumped quickly from tribal to modern ways of living under the domination of different political powers, and the process of their integration has been accompanied by dissolution of their social structure, loss of traditional culture and confusion over identity. Changes in traditional crafts such as weaving are all evidence of change. More recently, however, many struggles for the renaissance of tribal traditions are awakening. Traditional fabric production, combined with new ideas, has been encouraged, and can become economically as well as socially more significant.

The Taiyal had been misunderstood as a people without talent in art. I think this statement is unfair. As Maxwell suggests (1990:9), some unpretentious striped or plain-dyed cloths have great ritual potency in Southeast Asia textiles. Layton (1991: 198) points that "it is difficult to know to what extent people dismiss the art of a certain culture as 'monotonous' and lacking variation simply through lack of acquaintance with the culture". Within Taiyal culture, the embellished decorations, the spatial organisations of patterns on textiles may express a scheme of life, and render their life more understandable. This study has caught a glimpse of levels of significance in the geometric characteristics in Taiyal textiles and somewhat augmented the understanding of both artefact and action in their socio-cultural contexts. It wishes to demonstrate that a degree of stylistic uniformity, even in the sober geometric art form, can serve as a means for communication, enabling the members of the culture to construct a worldview in balance and in order.

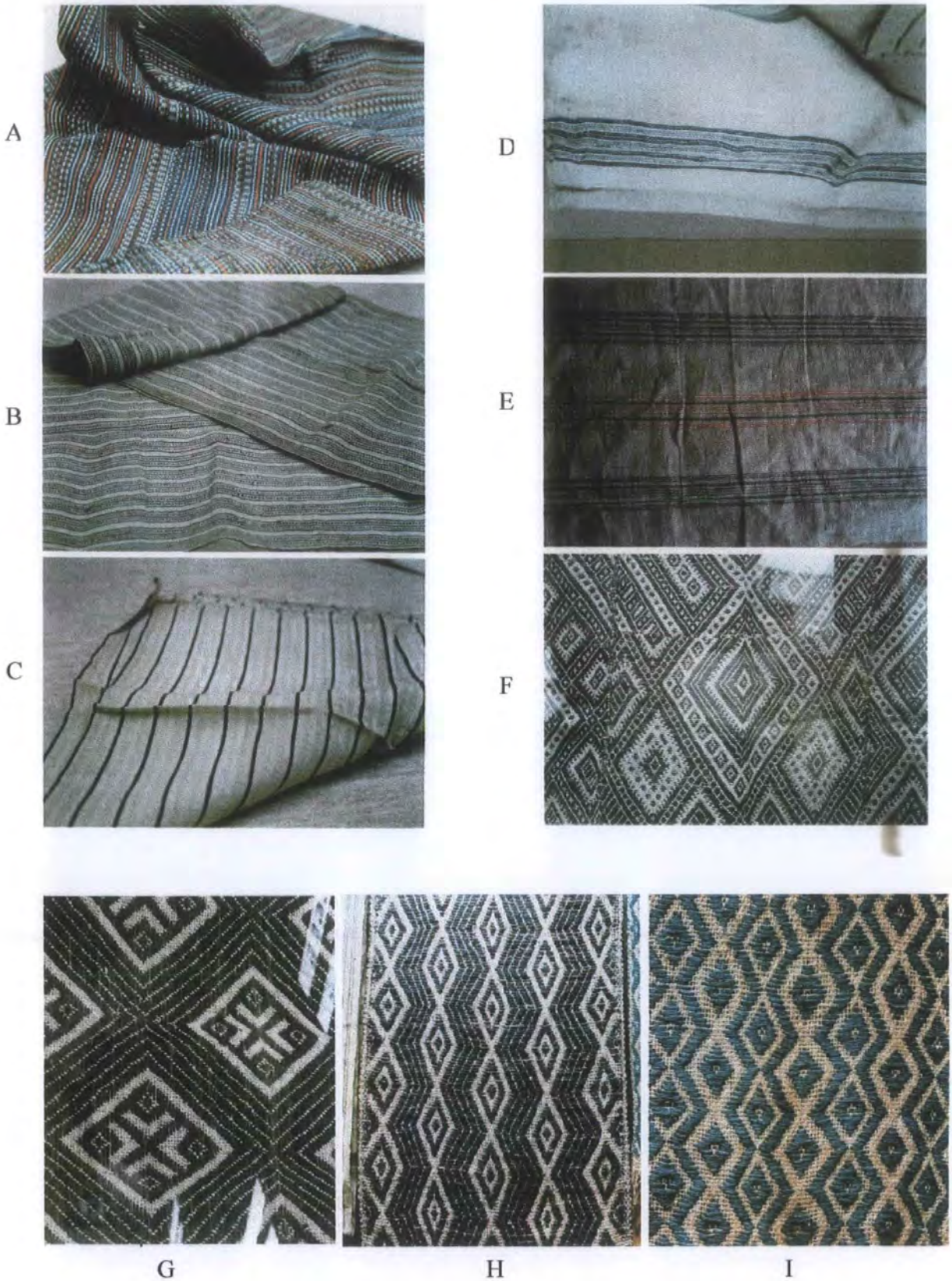


Plate 1: The Taiyal cloth (also see Fig. 9). A and B are *bagil*. C, D and E are *buda-zitz*. F is *ho-ban*. G, H and I are *snulu*. (source from Hsin-tsu Hsien Government et al, 1993:32-34)

Plate 2: The *lukus-lumoan* (gown) with translation/one-dimensional pattern. (source from Tien-ri Taigagu, 1993:69)

Plate 3: The *lukus* (garment) with bifold rotation/finite ™ translation/one-dimensional pattern.
(source from Segawa, 1983:21)

Plate 4: The *bala* with glide reflection/two-dimensional pattern. (source from Hsin-tsu Hsien Government et al, 1993:34)

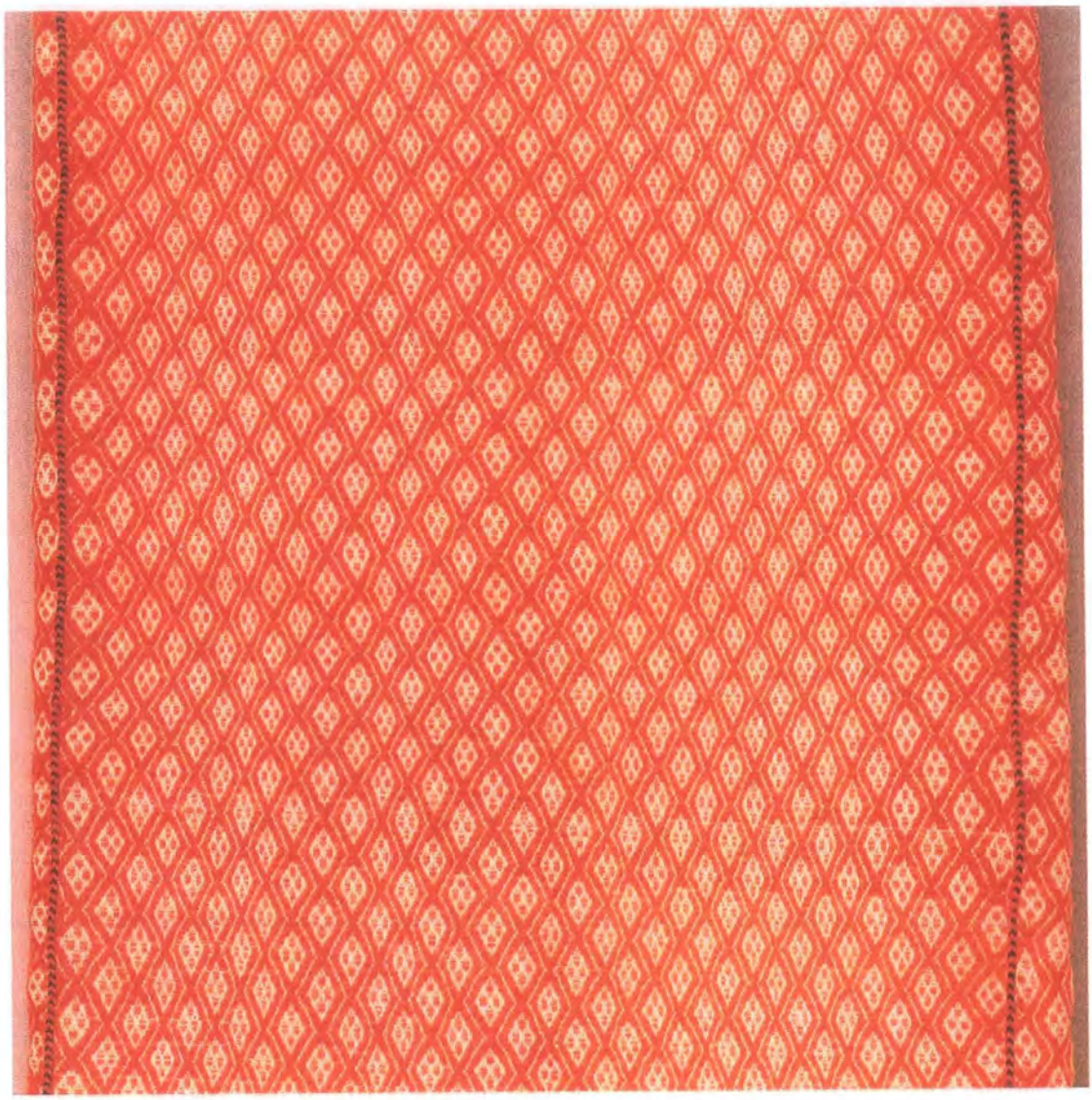


Plate 5: The *tiju'*, *tz'yu* or *taoja* (cape or shawl) with rotation/finite ™ glide reflection/two-dimensional pattern. (source from Segawa, 1983:25)

Plate 6: The *ratang* (short jacket) with mirror reflection/ (™ translation) one-dimensional pattern. (source from National Museum of History, 1997:32)

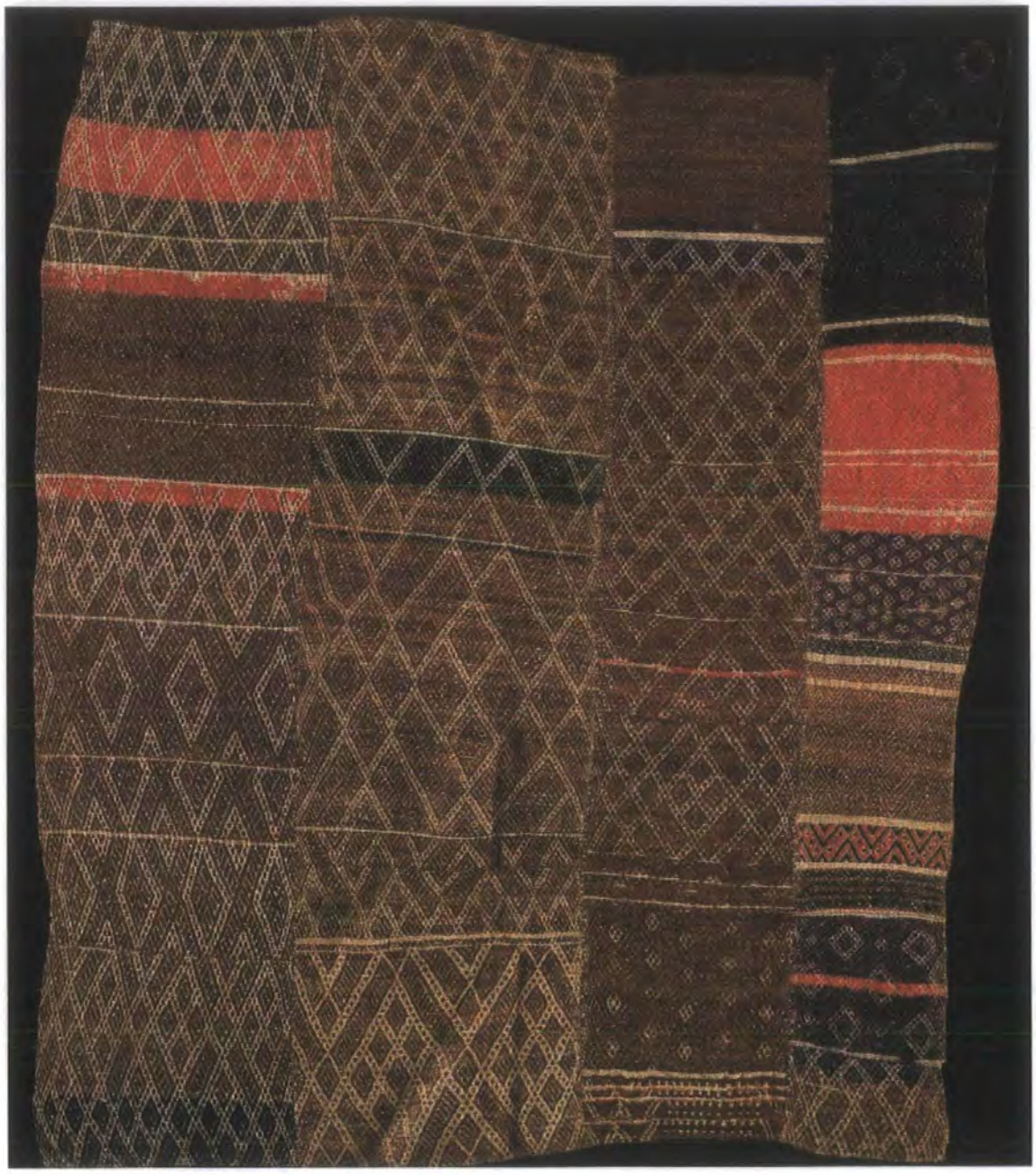


Plate 7: A piece of Taiyal cloth with the rhomboid-and-rectangular designs. (from Tien-ri Taigagu, 1993:83)

Shown in the picture is the Seqoleg group of the Taiyal. They are wearing the *taoja* which can be seen as representative of the Taiyal clothing.

Shown is a Taiyal family picture. The clothes of the girls at the right appear Chinese influence, except the shawls.

Shown in the picture are the Taiyal of Mai-fu Tribe (Ts-yu Village today) in the period of Japanese occupation. From this, it can be observed that Nipponification is so successful that traditional clothing has been substituted for Japanese-style dressing.

During the period of restoration, the situation of clothing appears the mixture of Japanese-style (the elders) and Western-style (the younger generation) clothing.

There is an interesting contrast between a fashionable girl (front) who receives education in the city and an old-style Taiyal house (behind).

Plate 8:Clothing in historical changes.
(Cultural Centre of Taichung Hsien, 1995))

Plate 9: Revival of traditional Taiyal weaving in the space of modern life.

Plate 10: Students wearing traditional clothing are performing dance at the joint athletic meeting of Aboriginal primary schools along Ta-an River.

Appendix: Sources for Samples Used in Symmetry Analysis

A. Pattern 1: Translation/one-dimension

[Taiyal]

1. *Lukus lumoan* (garment), Tenri-taigagu,1993:69, Plate 47.
2. *Sihalian* (gown), Tenri-taigagu,1993:70, Plate 48.

[Southeast Asia]

1. *Baju sungkit* (man's jacket), Tebidah Dayak, Sintang, west Kalimantan, Indonesia. Maxwell, 1990:36, Plate.35.
2. *Pio uki'* (loincloth; banner), Kalumpang or Sa'dan Toraja, central Sulawesi, Indonesia. Maxwell, 1990:38, Plate.41.
3. *Tanda sirat*; *klapong sirat* (man's loincloth), Iban people, Sarawak, Malaysia. Maxwell, 1990:39, Plate 44.
4. *Homnon* (woman's skirt), Kisar, south Maluku, Indonesia. Maxwell, 1990: 57. Plate 73.

[Africa]

1. .....(woollen tunic), Mzab, Algeria. Picton and Mack,1989[1979]:66.
2. .....(rug or saddle blanket), Morocco. Spring and Hudson, 1995:54.

B. Pattern 2: Rotation/finite—Translation/one-dimension

[Taiyal]

1. *Lukus* (garment), Segawa, 1983:21, Plate28.
2. *Taoja* or *tiju'* (cape), Segawa, 1983:59, Plate40.
3. *Sragiy* (leggings), Segawa,1983:61, Plate47.
4. ..... (belt), Chen,1988[1968]:174, Colour Plate.6.
5. *Sihalian* (gown), Tenri-taigagu, 1993:70, Plate.48.
6. *Taoja* or *tiju'* (cape), Tenri-taigagu, 1993:154, Plate.135.
7. *Lukus* (garment), Okamura, 1968:13, A. C.
8. *Taoja* or *tiju'* (cape), Okamura,1968:15, A. B.
9. *Ratang* (short jacket), National Museum of History, 1997:33, Plate.9.
10. *Lukus* (garment), National Museum of History, 1997:35, Plate.11.
11. *Sragiy* (leggings), National Museum of History,1997:50, Plate.27.
12. *Sihalian* (gown). Chen,1980:7, Plate 48.

[Southeast Asia]

1. *Kandit* (waist-sash; hanging), Tausug, Sulu, Philippines.Maxwell,1990:12-3, Plate.7.
2. *Pha biang* (shawl), Tai Nuea, Sam Nuea, Laos. Maxwell, 1990:15, Plate.10.
3. *Tali banang* (sword-belt), Buginese, Sulawesi, Indonesia. Maxwell, 1990:20, Plate.17.
4. *Tengkuluak; kain sandang* (woman's headcloth; shouldercloth), Minangkabau, west Sumatra, Indonesia. Maxwell, 1990:21, Plate.18.
5. *Baju sungkit* (man's jacket), Tebidah Dayak, Sintang, west Kalimantan, Indonesia. Maxwell, 1990:36, Plate.35.
6. *Pio uki'* (loincloth; banner), Kalumpang or Sa'dan Toraja, central Sulawesi, Indonesia. Maxwell, 1990:38, Plate.41.
7. *Hita*; *hitilirrati* (man's loincloth or girdle), Oirata, Kisar south Maluku, Indonesia. Maxwell, 1990:39, Plate.43.
8. *Tanda sirat*; *klapong sirat* (man's loincloth), Iban, Sarawak, Malaysia. Maxwell, 1990:39, Plate.44.
9. *Kelambi pilih* (jacket), Iban, Sarawak, Malaysia. Maxwell, 1990:43, Plate.51.
10. *Homnon* (woman's skirt), Kisar, south Maluku, Indonesia. Maxwell, 1990:56-7, Plate.73.
11. ..... (skirt; hanging), Toraja, Rongkong, central Sulawesi, Indonesia. Maxwell, 1990:80-1, Plate.111.
12. *Pua sungkit* (ceremonial cloth), Iban, Sarawak, Malaysia. Maxwell, 1990:102, Plate. 142.
13. *Tengkuluak*; *kain sandang* (woman's headcloth; shouldercloth), Minangkabau, Batu Sangkar, west Sumatra, Indonesia. Maxwell, 1990:123, Plate.178.
14. *Pha sin* (woman's skirt), Tai Mui, Muong Muoy, Thailand. Maxwell, 1990:161, Plate. 223.
15. *Geringsing petang desa cecempakan* (breastcloth), Balinese, Tenganan, Bali, Indonesia. Maxwell, 1990:232, Plate.334.
16. *Pua sungkit* (ceremonial cloth), Iban, Sarawak, Malaysia. Maxwell, 1990:233, Plate. 338.

17. *Pio puang*; *cawat cindako*; *topu bate* (banner; headcloth), Toraja, central Sulawesi, Indonesia. Maxwell, 1990:242-3, Plate.345.
18. *Seputangan* (headcloth), Yakan, Basilan, Philippines. Maxwell, 1990:291, Plate. 410.
19. *Lon-gyi*, Shan, Thailand. Fraser-Lu,1988. Colour Plate 5.
20. *Pha beang* (shawl), Lao Neua, Laos. Fraser-Lu,1988:127. Fig. 160.

[Africa]
1. *Njaye* (cloth), Mende, Sierra Leone. Picton and Mack,1989[1979]:97.
2. .....(woollen cloth), Tillaberi, Niger. Picton and Mack,1989[1979]:101-103.
3. *Lamba* (silk textile), Merina, Madagascar. Picton and Mack,1989[1979]:137-39.
4. .....(silk textile), Merina, Madagascar. Picton and Mack,1989[1979]:142-43.
5. .....(cloth), Fes, Morocco. Spring and Hudson,1995:18.
6. *Kerka* (tent divider), Tillaberi, Niger. Spring and Hudson,1995:22.
7. .....(jacket), Ayt Ouaouzguit, Morocco. Spring and Hudson,1995:45.
8. .....(rug or saddle blanket), central Morocco. Spring and Hudson,1995:54).
9. .....(shawl), Ghoumerassene, southern Tunisia. Spring and Hudson,1995:62-3.
10. *'ajar* (veil), Testour, Tunisia. Spring and Hudson,1995:94-5.

C. Pattern 3: Glide reflection/ two-dimension
[Taiyal]
1. Belt of the *taoja* (cape), Segawa,1983:58, Plate 39.
2. *Sihalian* (gown), Tenri-taigagu,1993, Plate 49.
3. *Taoja* or *tiju'* (cape), Tenri-taigagu,1993:83, Plate 58.
4. *Bala* (cloth), Hsin-tsu Hsien Government et al,1993:34, Plate 50.
5. *Bala* (cloth), Hsin-tsu Hsien Government et al,1993:34, Plate 51.
6. *Sihalian* (gown), Yuan,1994[1990]:474.

[Southeast Asia]
1. *Kamben cerek* (breastcloth), Balinese, east Bali, Indonesia. Maxwell, 1990:12-3, Plate.6.
2. *Kandit* (waist-sash; hanging), Tausug, Sulu, Philippines. Maxwell, 1990:12-3, Plate.7.
3. *Patlou*; *sinde* (ritual object), Gujarat, Indonesia. Maxwell, 1990:25, Plate.23.
4. *Pua kumbu* (ceremonial cloth), Iban, Sarawak, Malaysia. Maxwell, 1990:44, Plate.52.
5. ....(hanging, skirt), Toraja, central Sulawesi, Indonesia. Maxwell, 1990:56, Plate.71.
6. *Kumo* (hanging), T'Boli, Mindanao, Philippines. Maxwell, 1990:99, Plate.137.
7. *Pua kumbu* (ceremonial cloth), Kajut anak Ubu, Kapit, Sarawak, Malaysia. Maxwell, 1990:120, Plate.172.
8. *Pua kumbu* (ceremonial cloth), Iban, Sarawak, Malaysia. Maxwell, 1990:120, Plate 173.
9. *Kain bidak* (shouldercloth; skirtcloth), Pasemah, Sumatra, Indonesia. Maxwell, 1990:122, Plate 176.
10. *Sekomandi* (hanging; shroud), Toraja, Rongkong, central Sulawesi, Indonesia. Maxwell, 1990: 130-1, Plate 189.
11. *Pha yok Muang Nakhon* (skirtcloth), Thai, Nakhon Si Thammartat, Thailand. Maxwell,1990:177, Plate 248.
12. *Kain lemar songket bertabur* (skirtcloth), Malay, Terengganu, Malaysia. Maxwell, 1990: 180. Plate 255.
13. *Pha sin* (woman's skirt), Lao Khrang, Thailand. Maxwell, 1990: 216, Plate 309.
14. *Kewatek mean* (woman's skirt), Lembata, Indonesia. Maxell, 1990: 221. Plate 317.
15. *Lawo redu* (woman's skirt), Flores, Indonesia. Maxwell, 1990: 224. Plate 319.
16. *Chong kaben* (skirtcloth), Khmer, north-east Thailand. Maxwell, 1990: 227. Plate 325.
17. *Kain songket* (skirtcloth), Malay, Teregganu, Malaysia. Maxwell, 1990: 346. Plate 498.
18. *Chong kaben* (skirtcloth), Song Khram, Chonnabot, north-east Thailand. Maxwell, 1990: 403. Plate 576.
19. *Poom som* (cloth), Chon-nabot, Thailand. Fraser-Lu,1988. Colour Plate 13.

[Africa]
1. .....(woollen textile), Kabyle, Algeria. Picton and Mack,1989[1979]:62-3.
2. .....(gown), Liberia. Picton and Mack,1989[1979]:100.
3. .....(woollen textile), Tillaberi, Niger. Picton and Mack,1989[1979]:102-3.

4. .....(cotton textile), Djerma, Burkina Faso. Picton and Mack,1989[1979]:107.
5. .....(Liar's cloth), Ghana. Picton and Mack,1989[1979]:121.
6. .....(cotton and silk textile), Ewe, Ghana. Picton and Mack,1989[1979]:122-3.
7. .....(cotton textile), Ewe, Ghana. Picton and Mack,1989[1979]:124.
8. .....(cotton textile), Ewe, Ghana. Picton and Mack,1989[1979]:125.
9. *Kereka* (blanket), Fulani, Mopti, Mali. The Newark Museum,1994:1.
10. .....(skirt), Dyula, Kong Village, Ivory Coast. The Newark Museum,1994:14.

D. Pattern 4: Rotation/finite –Glide reflection/ two-dimension
[Taiyal]
1. *Taoja* or *tiju'* (cape), Segawa,1983:25, Plate 41.
2. *Tojah* (chest covering), Segawa,1983:27, Plate 50.
3. *Lukus* (garment), Chen,1988[1968]:173, colour Plate 5.
4. .....(belt), Chen,1988[1968]:174,colour Plate 6.
5. *Bala* (cloth), Tenri-taigagu,1993:83, Plate 58.
6. *Bala* (cloth), Hsintsu Hien Government et al,1993:34, Plate 49.
7. *Sihalian* (gown), Chen,1980:7, Plate 48.

[Southeast Asia]
1. ..... (skirt), Toraja, central Sulawesi, Indonesia. Maxwell, 1990: 56. Plate 71.
2. ..... (skirt), Toraja, central Sulawesi, Indonesia. Maxwell, 1990: 80. Plate 111.
3. *Petak haren* (woman's skirt), south Lembata, Indonesia. Maxwell, 1990: 88. Plate 124.
4. *Pha biang* (ceremonial cloth), Phutai, Laos. Maxwell, 1990:117. Plate 169.
5. *Tengkuluak* (headcloth), Minangkabau, west Sumatra, Indonesia. Maxwell, 1990: 123. Plate 178.
6. *Pha ho khamphi* (wrapper), Tai Lao people, northern Thailand. Maxwell, 1990: 151. Plate 209.
7. *Pha toi* (ceremonial skirtcloth), Tai Lao people, Laos. Maxwell, 1990: 220. Plate 313.
8. *Semba* (man's shawl), Flores, Indonesia. Maxwell, 1990: 228. Plate 327.
9. *Hote* (cloth), Sangihe-Talaud Islands, Indonesia. Maxwell, 1990: 275. Plate 389.
10. *Pha hom* (ceremonial blanket; shroud), Tai Nuea, Luang Prabang, Laos. Maxwell,1990:276, Plate 391.
11. *Seputangan* (headcloth), Yakan, Basilan, Philippines. Maxwell,1990:291, Plate 410.
12. *Mau* (man's cloth), Ibu Puai-Selan, besi Pae, Soe, west Timor, Indonesia. Maxwell,1990:402, Plate 575.

[Africa]
1. .....(woollen textile), Kabyle, Algeria. Picton and Mack,1989[1979]:62-3.
2. .....(shawl), Siwa Oasis, Egypt. Spring and Hudson,1995:47.

E. Pattern 5: Mirror reflection (--Translation)/one-dimension
[Taiyal]
1. *Lukus* (garment), Segawa,1983:21, Plate 28.
2. *Ratang* (short jacket), Segawa,1983:24, Plate 34.
3. *Lukus* (garment), Segawa,1983:54, Plate 25.
4. *Sihalian* (gown), Segawa,1983:55, Plate 29.
5. *Sragiy* (leggings), Segawa,1983:61, Plate 46.
6. *Lukus lumoan* (garment), Tenri-taigagu,1993:69, Plate 47.
7. *Sihalian* (gown), Tenri-taigaku,1993:70, Plate 48.
8. *Qujit* (sleeves), Tenri-taigagu,1993:73, Plate 50.
9. Belt of the *taoja* (cape), Tenri-taigagu,1993:75, Plate 52.
10. .....(trouser), Tenri-taigagu,1993:76, Plate 53.
11. *Habuk* (headcloth), Tenri-taigagu,1993:80, Plate 55.
12. *Sragiy* (leggings), Tenri-taigagu,1993:81, Plate 56.
13. *Ratang* (short jacket), National Museum of History,1997:32, Plate 7 (above).
14. *Ratang* (short jacket), National Museum of History,1997:32, Plate 7 (below).
15. *Ratang* (short jacket), National Museum of History,1997:33, Plate 9.
16. *Lukus* (garment), National Museum of History,1997:34, Plate 10.
17. *Lukus* (garment), National Museum of History,1997:35, Plate 11.
18. *Lukus* (garment), National Museum of History,1997:37, Plate 13.

19. *Lukus* (garment), National Museum of History,1997:38, Plate 14.
20. *Habuk* (headcloth), National Museum of History,1997:42, Plate 18.
21. *Sragiy* (leggings), National Museum of History,1997:50, Plate 28.
22. .....(belt), hen,1988[1968]:174, colour Plate 6.
23. *Sihalian* (gown), Chen,1980:4, Plate 28.
24. *Sihalian* (gown), Chen,1980:7, Plate 48.
25. *Bala* (cloth), Okamura,1968:6, A.
26. *Lukus* (garment), Okamura,1968:13, C.
27. *Lukus* (garment), Okamura,1968:15, A. C.
28. *Sihalian* (gown), Yuan,1994[1990]:474.

[Southeast Asia]
1. *Hubi Ae*, Indonesia. Maxwell, 1990: 11, Plate 3.
2. *Luka semba* (shawl), Flores, Indonesia. Maxwell, 1990: 25. Plate 23.
3. *Pio uki* (loincloth), central Sulawesi, Indonesia. Maxwell, 1990: 38. Plate 41.
4. *Tanda sirat*, Sarawak, Malaysia. Maxwell, 1990: 39. Plate 44.
5. *Kelambi pilih* (jacket), Iban, Sarawak, Malaysia. Maxwell,1990:43, Plate 51.
6. *Pua sungkit* (ceremonial cloth), Sarawak, Malaysia. Maxwell, 1990: 44. Plate 53.
7. *Pua kambu* (ceremonial cloth), Sarawak, Indonesia. Maxwell, 1990: 44. Plate 54.
8. *Hote*; *tepike* (room-divider; hanging), Sangihe-Talaud Island, Indonesia. Maxwell,1990:52, Plate 65.
9. *Kumo* (ceremonial cloth), Mindanao, Philippines. Maxwell, 1990: 54. Plate 68.
10. *Homnon* (woman's skirt), Kisar, south Maluku, Indonesia. Maxwell, 1990: 57. Plate 73.
11. ..... (woman's jacket), Akha people, north Thailand. Maxwell, 1990: 59. Plate 76.
12. *Pha biang* (ceremonial shawl), Tai Daeng people, Laos. Maxwell, 1990: 79. Plate 109.
13. *Pori lonjong* (ceremonial hanging), Toraja people, central Sulawesi, Indonesia. Maxwell, 1990: 81. Plate 113.
14. *Tengkuluak* (woman's headcloth), west Sumatra, Indonesia. Maxwell, 1990: 123. Plate 178.
15. *Pha sin* (woman's skirt), Tai Mui, Muong Muoy, Thailand. Maxwell, 1990: 161. Plate 223.
16. ..... (heirloom cloth), Gujarat, India. Maxwell, 1990: 212. Plate 304.
17. *Pha sin* (woman's ceremonial skirt), Tai Nuea people, Laos. Maxwell, 1990: 216. Plate 308.
18. *Pua sungkit* (ceremonial cloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 223. Plate 337.
19. *Pha hom* (ceremonial blanket), Tai Nuea people, Luang Prabang, Laos. Maxwell, 1990: 276. Plate 391.
20. *Lipa songke jok* (skirt), Flores, Indonesia. Maxwell, 1990: 293. Plate 413.
21. *Patadjung* (skirt), Tausug people, Sulu archipelago, Philippines. Maxwell, 1990: 307. Plate 430.
22. *Mau* (man's cloth), Ibu Puai-Selan, Besi paem west Timor, Indonesia. Maxwell, 1990: 402. Plate 575.

[Africa]
1. .....(tunic), Mzab, Algeria. Picton and Mack,1989[1979]:66.
2. .....(cotton cloth), Akwete, Igbo, Negeria. Picton and Mack,1989[1979]:75.
3. .....(woollen cloth), Tillaberi, Niger. Picton and Mack,1989[1979]:101-103.
4. .....(woollen blanket), Fulani, Mali. Picton and Mack,1989[1979]:104.
5. .....(cotton textile), Djerma, Burkina Faso. Picton and ack,1989[1979]:107.
6. *Kerka* (tent divider), Tillaberi, Niger. Spring and Hudson,1995:22.
7. *Kaasa* (blanket), Malian, Mali. Spring and Hudson,1995:23.
8. *Bakhnuq* (shawl), Gabes, Tunisia. Spring and Hudson,1995:48.
9. .....(rug or saddle blanket), central Morocco. Spring and Hudson,1995:54.
10. *Gandura* (tunic), Mzab, Algeria. Spring and Hudson,1995:87.
11. *'ajar* (veil), Testour, Tunisia. Spring and Hudson,1995:94.
12. *Tibeb, shamma* (border, shawl), Ethiopian, Ethiopia. Spring and Hudson,1995:118-9.
13. *Kereka* (blanket), Fulani, Mopti, Mali. The Newark Museum,1994:1.
14. *Lamba* (cloth), Madagascar. The Newark Museum,1994:4.
15. .....(blanket), Laghouat, Algeria. The Newark Museum,1994:5.

**Vertical mirror reflection (–Translation)/one-dimensional Patterns (treated as the transformation of Pattern 5)

[Southeast Asia]
1. *Kandit* (ceremonial hanging), Tausug people, Sulu archipelago, Philippines. Maxwell, 1990: 13.

Plate 7.
2. *Pha biang* (ceremonial shawl), Tai Nuea people, Laos. Maxwell, 1990: 15. Plate 10.
3. *Pua kumbu* (ceremonial cloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 16. Plate 12.
4. *Baju sungkit* (man's jacket), Tebidah Dayak people, west Kalimantan, Indonesia. Maxwell, 1990: 36. Plate 35.
5. *Pio uki'* (loincloth; banner), Kalumpang or Sa'dan Toraja, central Sulawesi, Indonesia. Maxwell,1990:38, Plate 41.
6. *Tanda sirat; klapong sirat* (man's loincloth), Iban, Sarawak, Malaysia. Maxwell,1990:39, Plate 44.
7. *Kelambi pilih* (jacket), Iban people, Sarawak, Malaysia. Maxwell. 1990: 43. Plate 51.
8. *Pua kumbu* (ceremonial cloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 44. Plate 52.
9. *Pua sungkit* (ceremonial cloth), Iban, Sarawak, Indonesia. Maxwell,1990:44, Plate 53.
10. ..... (skirt, ceremonial hanging), Toraja people, central Sulawesi, Indonesia. Maxwell, 1990: 80. Plate 111.
11. *Pori lonjong* (ceremonial hanging), Toraja people, central Sulawesi, Indonesia. Maxwell, 1990: 81. Plate 113.
12. *Petak haren* (woman's skirt), Lamaholot people, south Lembata, Indonesia. Maxwell, 1990: 88. Plate 124.
13. *Pua sungkit* (ceremonial cloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 102. Plate 142.
14. *Pha sin* (woman's skirt), Tai Mui, Muong Muoy, Thailand. Maxwell, 1990: 161. Plate 223.
15. *Pha sin* (woman's ceremonial skirt), Tai Nuea people, Sam Nuea, Laos. Maxwell, 1990: 216. Plate 308.
16. *Pua sungkit* (ceremonial cloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 233. Plate 337.
17. *Pha sin* (woman's skirt), Tai Daeng people, Laos. Maxwell, 1990: 274. Plate 387.

[Africa]
1. .....(woollen textile), Kabyle, Algeria. Picton and Mack,1989[1979]:62-3.
2. .....(cloak), Chleuh Berber, western High Atlas, Morocco. Picton and Mack,1989[1979]:65.
3. .....(tunic), Mzab, Algeria. Picton and Mack,1989[1979]:66.
4. *Njaye* (cotton cloth), Mende, Sierra Leone. Picton and Mack,1989[1979]:97.
5. Lamba (silk textile), Merina, Madagascar. Picton and Mack,1989[1979]:138-9.
6. .....(silk textile), Merina, Madagascar. Picton and Mack,1989[1979]:142-3.
7. .....(cloth), Fes, Morocco. Spring and Hudson,1995:18.
8. .....(shawl), Ghoumerassene, southern Tunisia. Spring and Hudson,1995:62.
9. *Gandura* (tunic), Mzab, Algeria. Spring and Hudson,1995:87.
10. *'ajar* (veil), Testour, Tunisia. Spring and Hudson,1995:94.
11. .....(cloth), Yoruba, Nigeria. The Newark Museum,1994:13.

F. Pattern 6: Mirror reflection (–Glide reflection)/ two-dimension
[Southeast Asia]
1. *Tanda sirat* (man's loincloth), Iban people, Sarawak, Malaysia. Maxwell, 1990: 39. Plate 44.
2. *Pha biang* (ceremonial shawl), Tai Phuan people, Xieng Khouang, Laos. Maxwell, 1990: 43. Plate 50.
3. *Hote* (room-divider), Sangihe-Talaud islands, Indonesia. Maxwell, 1990: 52. Plate 65.
4. *Tawit'ng doyo* (ceremonial textile), Benuaq people, east Kalimantan, Indonesia. Maxwell, 1990: 53. Plate 66.
5. *Kumo* (ceremonial cloth, T'boli people, Mindanao, Philippines. Maxwell, 1990: 54. Plate 68.
6. *Kumo* (ceremonial cloth, T'boli people, Mindanao, Philippines. Maxwell, 1990: 83. Plate 115.
7. *Pua sungkit* (ceremonial cloth), Iban, Sarawak, Malaysia. Maxwell,1990:233.

[Africa]
1. .....(woollen textile), Kabyle, Algeria. Picton and Mack,1989[1979]:62-3.
2. .....(shroud), Bunnu-Yoruba, Nigeria. Picton and Mack,1989[1979]:114.
3. .....(rug or saddle blanket), Morocco. Spring and Hudson,1995:54.
4. *Tibeb, shamma* (border, shawl), Ethiopian, Ethiopia. Spring and Hudson,1995:118-9.

G. Pattern 7: Glide reflection/two-dimension—Translation/one-dimension
[Southeast Asia]
1. *Tais* (woman's skirt), Tetum people, south Belu region, Timor, Indonesia. Maxwell, 1990:247, Plate 350.

2. *Sin sarong*, Lao Neua. Fraser-Lu, 1988, Colour Plate 17.
3. *Sawal* (trouser), Yakan, Philippines. Hitchcock, 1991:154.

[Africa]
1. .....(woollen textile), Tillaberi, Niger. Picton and Mack,1989[1979]:102-3.
2. *Kerka* (woollen and goat hair textile), Tillaberi, Niger. Spring and Hudson, 1995:22.
3. ..... (rug or saddle blanket), Morocco. Spring and Hudson,1995:54.
4. .....(blanket), Laghouat, Algeria. The Newark Museum, 1994:5.

H. Pattern 8: Rotation/finite/two-dimension
[Southeast Asia]
1. *Baju sungkit* (man's jacket), Tebidah Dayak, Sintang, west Kalimantan, Indonesia. Maxwell,1990: 36, Plate 35.
2. *Patolu* (heirloom cloth), south Sumatra, Indonesia. Maxwell,1990:212, Plate 303.
3. .....(heirloom cloth), Balinese, Bali, Indonesia. Maxwell,1990:212, Plate 304.
4. *Pesujutan*, (sacred cloth), Sasak, Lombok, Indonesia. Maxwell,1990:302, Plate 422.

[Africa]
1. .....(cloth), Cape Verde Island or Manjaka, Guinea-Bissau. Picton and Mack,1989[1979]:128.
2. .....(belt), Fez, Morocco. The Newark Museum,1994:2.

I. Rotation/finite—Glide reflection/one-dimension
[Southeast Asia]
1. *Homnon* (woman's skirt), Kisar, south Maluku, Indonesia. Maxwell,1990:56, Plate 73.

[Africa]
1. .....(shroud), Bunnu-Yoruba, Nigeria. Picton and Mack,1989[1979]:114.

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[Abbreviations]

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ACKNOWLEDGEMENTS

With the completion of this thesis, I would like to express my sincerest thanks to some people for their help and kindness.

Many thanks especially to Professor Bob Layton for guiding me to the method that set the path of the analysis of the Taiyal geometric weaving designs. It was actually my pleasure to accept his supervision. As well, I am grateful to the examiners, Dr. Paul Sant Cassia and Mr. John Picton, for their appreciation to this thesis.

The warmest thanks are given to my dear colleagues and students in Taiwan for accompanying me to have an unforgettable time at Ts-yu Primary School.

The ground acknowledgements must be given to my dear husband Chia-yang for providing not only the greatest assistance on computer technology but also the continual encouragement and faith in me to finish this thesis.

Finally, I wish to share this honour with all dear Taiyal friends. Without them, this thesis does not exist.