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**ASPECTS OF IMPROVISATION
IN THAI CLASSICAL DRUMMING**

WITH SPECIAL REFERENCE TO THE TAPHON

By

ANANT NARKONG

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University of London

School of Oriental and African Studies

Centre of Music Studies

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Abstract

This research is intended to clarify ideas about Thai music by looking at the relationship of the basic *nathap* (drumming pattern) and the *sai*-making ('improvisation' for Thai drumming) in the context of actual performance.

The *taphon*, the double-headed barrel drum used in the different types of ensembles in Thai classical music, is chosen to be the focus of the study.

The thesis is divided into two parts. In part I, three main issues are proposed to be studied:

a) a general description of the drum. This chapter includes the general description of the *taphon*; the myths and history of the *taphon* which link it with other Asian musical cultures, other drums of the *taphon*-type, and the place of the *taphon* in music ensembles;

b) the traditional process of music transmission in *taphon* lessons. Here the initiation ceremony, *yok kru*, and the teacher homage ceremony, *wai kru*, are examined, the *taphon* tuning, the basic techniques of playing the *taphon*, the basic strokes, the *taphon* exercises and the early lessons of *nathap* and *sai* are discussed; and

c) the drum pattern, *nathap*, including the definition, the history and development of *nathap*, the relationship of *nathap* to other aspects of the rhythmic structure of Thai music, and finally the classification of *nathap*.

Part II is an analysis of *nathap* and *sai*-making by investigating the micro and macro structure of the performed *nathap songmai* in two selected pieces, *phleng si nuan chan song* and *phleng khaek borrahet thao*.

The attention is paid to the process of analysis by applying the concepts of statistical, structural and graphical study to examine the features of *nathap* and *sai*.

The data for this research are based upon source readings, the transcriptions which are transcribed from the video recordings made by the Centre of Music Studies, S.O.A.S. in 1990, and the author's knowledge as a drum student and drumming experience in Thailand.

PREFACE

The aim of this thesis is to establish a general methodology of studying and analysing the *taphon*, the double headed drum used in the different types of ensembles in Thai classical music. The *taphon* drum has been deliberately selected from the various Thai drums to be the main subject of the research which can also be used as a model for further studies on the other drums and the other non-melodic percussion instruments. Generally speaking, the major function of the drums used in Thai music is to provide the rhythmic accompaniment part to the music, and the drummer is the accompanist who has the great responsibility of making the rhythmic patterns and some degree of embellishment to the music. In performance, the drummer will use the learned basic drum pattern, *nathap*, to mark the repeated rhythmic cycle of the composition and will also develop it into the more complex degree called *sai*. It is thought that the *sai* can be drawn from the past experiences of the drummer and his simultaneous *nathap* variations, and the combination of traditionally learned *sai* and constant improvisation is the typical fashion of the Thai drummer. When tradition and innovation are uniquely merged in the context of actual performance, it is interesting to investigate the relationship of these two cases which may lead the reader to more knowledge of this subject and to make an appreciation of Thai music to some certain extent.

Due to time constraints, in order to understand the *taphon* and its relation to Thai music in the most possible ways, the author will take the following aspects of study as the main road to reach the target:

- a) a general description of the drum
- b) the traditional process of music transmission in *taphon* lessons
- c) the *nathap*
- d) the analysis of *nathap* and *sai* -making

The thesis will be divided into two parts. Part I will deal with the first three subject matters in general whereas part II will focus intensively on the aspects of rhythm in Thai music and the analysis of the *nathap* and the *sai* -making. The process of research is based on direct drumming experiences and the reading of the relevant works previously done by other Thai music scholars. To understand the characteristics of *nathap* and *sai* -making, the author will also use the scientific approach suggested here by his friend and collaborator, Mr. Um Mongkol who assisted the author with technical aspects of the structural analysis in part II. This analytical approach is based on the concepts of statistical, structural and graphical study to examine the features of *nathap* and *sai*.

The main material in the analysis part came from the *taphon* performance and transcriptions on the video recordings produced by the author for the Centre of Music Studies, S.O.A.S. in March 1990.

Since there is no equivalent or suitable definition of some Thai musical vocabulary in English, the author will therefore use the Thai terms and will explain the meaning of these as they arise throughout this thesis. Also, It was found that, due to the lack of terminology and musical theory both in Thai and Western languages, it was thus required to introduce some musical terms relating to various divisions and positions in the *nathap*. Some traditional Thai terms have been re-defined or re-named and some new words have also been coined. The glossary of Thai music terms with their original Thai scripts can be found in Appendix E with brief explanations .

The system of transliteration of Thai into Roman letters is adopted and adapted from the Royal Institution of Thai Literature and the Library of Congress to be conveniently typed on the normal computer keyboards. However, it should be noted also that in this simplified English version (typed in italic form), despite the fact that the sound of the speech-tones is not marked, the reader is required to understand the tonal system in Thai language. There are 5 different tones used in written and spoken language: medium tone; low tone; high tone; rising tone; and falling tone. When these tones are applied to a specific word, the meaning of that word will be changed accordingly. Another important remark is that there is no plural in Thai grammar, therefore, subjects will always retain their singular form even when the meaning is plural.

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PART I

**GENERAL DESCRIPTION OF THE TAPHON,
THE TAPHON LESSONS AND NATHAP**

Chapter 1

INTRODUCTION

In the first part of this thesis, the author will principally examine the characteristic features of the *taphon* and its relation to the other factors in Thai traditional music. The study will be dedicated to detailing the nature of the drum itself and the drummer who devotes his musical life to the drum from the first step to mastering the drum, and the last point, the general concept of rhythm in Thai music and the basic drum pattern, the *nathap*, which is the rhythmic pattern used in drumming practice. The author will attempt to explain the significance of Thai music via the *taphon* and the *nathap* by using the personal experiences of the traditionally trained drummer as well as the relevant information collected from the previous Thai music scholars and the other musicians to whom he refers throughout the discussion.

To deal with the aims of study of this part, the body of the work will therefore be divided into three chapters, each regarding the significance of the drum, the traditional process of music transmission and the *nathap*. The close relationship of various issues in these three aspects may overlap throughout the discussion. Therefore, it may be useful here to explain the construction in a bit more detail:

In chapter 2, in order to give the general background of the drums used in Thai music, the classification and the name of the drum and the other rhythmic percussions will be given. The author will then study the general description of the *taphon* which is the main drum among those drums found in Thai music. The physical study of the drum with the necessary names referring to various parts of the body will be detailed. Since the drum is believed to have a strong connection with the spirits of music and the gods, the myths of *taphon* thus need to be investigated. The history of the *taphon* in relation to old Thai (Siamese) literature and its origin; and its similarity to drums found in India and other drums in South East Asia music cultures in particular Cambodia will be examined to understand the *taphon* in broader scale. Also, it can be seen clearly that the structure and tuning method of the *taphon* are similar to the other drums which belong to the same *taphon* family. Therefore, it is useful to point out the other drums used in Thai classical music: *taphon mon*, *perng mang kuuk*, *klong song na* and *klong taphon* to enlarge the general view of study. The last observation in this chapter will be the study of the formal place of the *taphon* when located on the stage with the other instruments in particular the *pi phat* performance.

The next chapter, chapter 3, will deal with aspects of the study of the *taphon* in relation to the traditional music transmission. Generally speaking, Thai musicians live in the world of oral tradition in which the relationship between *kru* (teacher) and *sir* (student) plays the most important role. The study will touch upon the process of the initiation

ceremony, *yok kru*, and the teacher homage ceremony, *wai kru*, which is regarded as most significant and deserving of high respect. The aspects of early transmitting knowledge will also include: the tuning system of the *taphon*; the basic techniques of playing the *taphon*; and the basic *taphon* exercises. When the teacher feels satisfied with his student's early drumming skill, he will then fix the drum pattern, the *nathap*, to the student to practice and also introduce the possibilities of making the drum variation called *sai* along with the drum lessons. In the last part of this chapter, the study of *sai* in relation to *nathap* and the traditional methods to learn *sai*-making will be given in brief.

The last chapter of part I, chapter 4, concerns the study of the drum pattern, *nathap*. The general discussions deal with the definition of the *nathap*; the history and development of the *nathap*; the relationship of the *nathap* to other aspects of rhythmic structure in Thai music; the meaning and the usage of *changwa* ('universal' rhythm) and *chan* (the metric level) of the *nathap*; the structure of *changwa nathap*; and the last point, the classification of *nathap* in Thai music.

Chapter 2

THE TAPHON

2.1 Introduction

Broadly speaking, the rhythmic percussions used in Thai music are mainly non-melodic percussion instruments (although some of them might be able to produce a few melodies, but not the main one). The functions of these percussion instruments are firstly, to provide the rhythmic patterns, and secondly, to keep the rhythm for the ensembles which they accompany throughout the performances. They are also used for decorating the textures and enhancing the moods of the compositions, thus making the music more beautiful and richer in character. According to the basic materials used for making the instruments, the rhythmic percussions can be divided into three categories:

- (a) 'Skin' percussions (drums),
- (b) Metal percussions (e.g. *ching*, *chab*, *mong*) and,
- (c) Wooden percussions (e.g. *krab*, *kror*, *krong*)

However, in this chapter, attention is paid to the drums used in Thai classical music only.

2.2 General description of drums in Thai Classical music

Generally, Thai musicians use the term *klong* to refer to all kind of drums found in Thai music ensembles. It includes all the drum types which have a skin membrane covering one and two ends of the bodies as well as the bronze drum¹. There is also the term *kruang nang* (literally : skin instrument), which may have more adequate meaning for describing these instruments due to the fact that the main sounding part of the instrument is the skin. There are two kinds of drums, i.e. single and double faced. The sounds of the drums may be created by some part of the hand, the single hand or the combination of the hands, the other parts of body (e.g. knees, elbows and head) and by using the beaters. The names of Thai drums referring here only to the drums mainly found in Thai classical music and the musical culture which is mostly performed in the central part of Thailand, will be given in the following lists according to the number of drumheads. The detail of these drums will be explained later in Appendix E. However, it must be pointed out that there are other drums, apart from the following account, which can be found in other parts of the country and need to be treated as drums of Thailand as well.

Single headed drums:

thon mahori

thon chartri (or *thab*)

rammana mahori

rammana lamtud

klong yao

Double headed drums:

taphon

taphon mon

klong song na

perng mang

perng mang kauk

klong khaek

klong malayu

klong chana

klong jeen

klong tuk

klong ting

klong thad

klong taphon

bandor

Indeed, it can be seen that the drums used in Thai music are numerous. Therefore, in order to understand them in every possible details, one might have to make studies for life (and somehow never get the complete answer!). So, the author has decided that only the *taphon* will be used as the subject of this study.

There are several written articles, published in Thai and English, noting the descriptions of this drum in general. Among the published works, there are some original works by three music scholars: Phra Chen Duriyanga, David Morton and Uthis Nagasawadi, which provide very useful sources of study. Phra Chen Duriyanga, a German-Thai music professor who was the former head of the Fine Art Department of Thailand, *Krom Silpakorn*² in the 1940's, published his commentary on the *taphon* in 1948 under the title of 'Siamese music'. In the English version of the article, Duriyanga gives general details of the *taphon* and the variety of drum strokes as well as the special drum notation which was invented by him for the purpose of writing Thai music in the Western notation. His article has been quoted and re-edited many times by later Thai music scholars of the Fine Arts Department and other Thai musicians e.g. Khun Samniengchanchoeng (1952), Dhanit Yupho (1960, 1987), Montri Tramote (1964) and Sa-ngad Phookhaothong (1989). One interesting edition which stands out from the others is published with some notably personal remarks and valuable pictures by the American ethnomusicologist, David Morton. Morton touched the study of *taphon* for the purpose of his Ph.D. thesis entitled "The Traditional Music of Thailand" in 1964, and published another book with the same title in 1976. In his

book, Morton collected the remarks that once belonged to Duriyanga and the other contributions of Yupho and Tramote and also asserted his viewpoints on the significance of the *taphon*. He reviewed the usage of this drum in different music ensembles and the aspects of rhythm and composition, some of which concerned the drum that can be found in his analysis. The last author, Dr. Uthis Nagasawadi, professor in Agricultural Science and Economics but better known to Thai musicians as a music scholar and professional musician, wrote the Thai article under the heading "*taphon Thai*" in 1981. In short, his discussion is intended to give an account of the *nathap*, the drum pattern used by the *taphon* and the other related drums in *pi phat* ensemble. Nagasawadi also gives some useful thoughts about the traditional *taphon* practice.

In the following paragraphs, the author, as a traditionally trained drummer and a reader on this subject, will summarize those works done by previous scholars and the additional information, given by drum teachers, other drummers and also personal remarks in order to contribute to the study of the *taphon* some more details.

2.3 General description of the *taphon*

The double-headed barrel drum, *taphon*, is the main drum used in the *mahori*³ and the *pi phat*⁴ ensembles. It is employed as an accompanying instrument for a variety of *mahori* and *pi phat* repertoire, vocal styles, and dance drama. Traditionally, the *taphon* is used in the *mahori* ensemble for entertainment music (concert music) and in the *pi phat* ensemble for entertainment music (concert and theatre music) and ceremonial music.

The shell of the *taphon*, which is known as *hoon* - literally 'model' or 'mould' - is made from a single block of teakwood or jack fruit tree, which is hollowed out and shaped into a bulging drum. It measures about 48 cm in length, the bulge being about 106 cm. in circumference. The drum has two heads of unequal size, the bigger head called *na theng* which is about 24 cm in diameter and the smaller one called *na mud*, about 22 cm. The right end is covered with parchment made from prepared ox or wild goat skin, and the left end from prepared calf skin. The leather thongs, *nang ried* (lit: 'thong'), are tied closely together through the loop of twisted cane, *sai laman* (lit: the intestine), on each head and cover the entire body of the drum so that the wood is invisible and the drum heads are tightened. Around the central bulge of the body, more thongs are interwoven at right angles to the thongs running lengthwise, making the decorative pattern about 7 cm. wide which varies from drum to drum. The cross-lacing of the drum is called *rat ok* - literally, 'to bind the chest'. The functions of *rat ok* are stretching the *nang ried* thongs lie close together and protects the *nang ried*, *na theng* and *na mud* from loosening. On the top, across the pattern of thongs is a handle by which the drum may be carried. The handle is called *hoo hew*, which means 'the ear to be carried' or 'carrying ear'. The centre and the rim of each head are painted with a black mixture made from the sap of a local tree (today, the drum makers

prefer to use chemical lacquer because of the advantage in technology and for economic reasons). The painting is done to preserve the hide. In performance, the round centre mark of each head will have applied to it a mixture of cooked rice and ashes mashed into a glutinous mass called *thuang na* (lit: 'to weight the face') or *khao* (lit: 'rice'). Its purpose is to tune the drum to a deeper pitch. The melodic pitch of this drum is not precisely tuned, but depends firstly, on the tension of the skin, and secondly, on the strokes used by the player.

Figure 1. the *raphon*



2.4 Myths and history of the *taphon*

Of all the drums used in the music of Central Thailand, the *taphon* is recognized to be the most important. All Thai musicians, particular those who play in the *pi phat* ensembles, regard the *taphon* as the spiritual leader, "a teacher" (*kru taphon* in Thai), and the most sacred instrument of Thai music. This can be seen in the traditional *wai kru* ceremony, the ceremony to honour the teacher and the music spirits, which precedes every serious - music performance. The leader of the ensemble, usually the music teacher or the most senior musician, will make obeisance (*wai*) to the gods or spirits of music and the great past masters of the art in front of the *taphon*, together with the lighting of a candle and joss sticks and the presentation of flowers, food and money. After the ceremony, he will leave these auspicious offerings with the *taphon*. The candle, joss sticks and money are usually either inserted into the back-cover leather thong of the *taphon* body, or placed as near as possible. When the performance is over, the *taphon* must be left in the highest place of all the musical instruments of the same ensemble.

The myths and legends which lie behind the origin of this instrument show the strong influence of Hinduism on Thai Buddhist society⁵. In the traditional music school or in the private house where *Dontri & Nattayasilpa* (the traditional music and drama) are to be found, the *taphon* occupies the same place and the same position as the mask of *Por Kair* (lit: 'the old father' -the hermit -*Phra Prot Rue Sii* - who is believed to be the creator of classical music and drama. He represents the Thai equivalent of *Bharata Muni*, the author of The Science of Dramaturgy [*Natya Sastra*] which is traditionally regarded as the origin of Indian dance drama), and the sculpture of *Phra Ganessa* (the god of wisdom). According to an ancient verse praising the teachers of Thai music, the *taphon* was created by the god *Phra Vishanukanma* who received an order from the lord of dance, *Phra Shiva* to make this instrument and give the knowledge of musical performance to the people of the earth at that time. The main god associated with this drum, according to Myers-Moro (1988:291-292), is *Phra Parakantapa* (also pronounced *Phra Parakontap*, or *Phra Prakhonthap* or *Prakontan* variously)⁶. This god, the lower-class god who performs music for all the other gods, is ideally symbolized by the *taphon*, according to the beliefs of some old music schools⁷, to reflect the importance of this rhythmic instrument to the Thai concept. Yupho (1960:35, quoted by Morton 1976:68-69) compares the *taphon* to the similar ancient Indian drum *mrdanga*, which is believed to have been invented by a Brahmin god when devising the rhythm for a dance of *Shiva* after his victory over the city of Tripura and *Phra Ganessa*. *Phra Shiva's* divine son, was said to be the first to play this drum. In the Thai version of the story of Buddha, when lord Buddha returned to the earth after visiting his mother in heaven, *Indra* played the *taphon* to accompany the angel ensemble, which included *Phra Panchashikara*, the god of music on the *phin* (lute), to honour lord Buddha.

These myths and legends still play major roles in music ceremonies and other kinds of arts, e.g. the classical dance and the traditional mural paintings in Thai Buddhist temples. Furthermore, it is also necessary to note some important rules for Thai musicians in order to pay respect to the *taphon*. For example, (1) they are not allowed to step over the *taphon* (or indeed any of the musical instruments in the ensemble); (2) the *taphon* student must attend the initiation ceremony, *yok kru*, i.e. pay homage to the teacher before he may start to learn the drum; (3) some of the sacred *taphon* patterns must be taught and practised secretly, and the day to give such lessons will usually be a Thursday (day of the teacher in Thai belief); (4) in past times it was taboo for a woman to play or even to touch the drum.

The historical evidence for the origin of this instrument is unclear. Yupho (ibid.) connects the *taphon* with an ancient Indian drum called *mrdanga*. The early Thai (Siamese) literature and poems⁸ dating from the Ayutthaya period (1350-1767) to the early Bangkok period include the names *muthing* and *marithang* when referring to the old-type *pi phat* i.e. the early *pi phat* ensemble consists of *pi* (oboe), *phat khong / khong wong* (the gong circle), *muthing / marithang* (the double-headed barrel drum beaten by hand i.e. *taphon*), *klong thad* (a pair of double-headed barrel drums beaten by a pair of sticks) and *ching* (a pair of small hand cymbals). The similarity of the *mridangan* drum of Southern Indian music and its relative, *pakkavaj* of Northern Indian music to the *taphon* can be compared by the drum shape, the method of attaching the heads to the body and the requirement of tuning paste. However in practice, to play the Indian type, the drum is held on the lap, or suspended from straps over the shoulders when played while standing, whereas the Thai type is mounted on, and permanently fastened to a wooden stand which keeps it steady during performance.

An alternative origin for the *taphon* is suggested by Morton (1976: 68): "if it was not created indigenously by the Thai, it may be derived from or related to any number of drums of neighbouring cultures". He gives an example of a carving on Angkor Wat in which the Khmer gong-kettle instrument is pictured and where a drum much like the *taphon* with stand may also be seen (see figure 3d., 5, 6 in ibid: 6-7). It is interesting to observe that in the present *pin peat* ensemble of Cambodia classical music, the *sampho* is obviously related to the Thai *taphon*, by its shape, its materials, its tuning method and also the varieties of sound production (see further details in the article of the Fine Art Department of Cambodia, published in Osman, 1974: 197-200). Also, it is found that the old name of the *taphon*, mentioned in the old Thai literature as *saphon*, coincides with the name *sampho* of the Cambodian drum. According to the Fine Art Department of Cambodia, there is the common belief that the *sampho* is the leading instrument (in all respects) and the other instruments of the orchestra come after (ibid:231). Another statement confirming the important role of the *sampho* may be found from Cravath (1985: 397). It is thought that in Cambodian music and dance, the most powerful spirits reside in the *sampho*. Before each performance and the beginning of each rehearsal, obeisance is made to the spirits by presenting auspicious

offerings to the drum. This custom, according to Cravath, has been followed by the dancers and orchestra since Ankorian times. The continual contacts of Cambodian and Thai civilizations, from the Khmer to Siamese and the Bangkok to Phnom Penh, both in social and cultural exchanges, have developed and contributed the hybrid of music history and other aspects of the music of the present day between the two countries. If we look at cross-cultural aspects of the two traditions on a larger scale, numerous representations in the form of the other music instruments, ensembles, music repertoire, and indeed the music scale will demonstrate the close relationship which signifies unity of one sort.

A Khmer origin for the *taphon* is therefore possible. However, since the evolution of Thai and Cambodian music may be traced back to their Indian origin and due to the fact that cultural influences in terms of 'diffusion' also play complex roles in South East Asian music cultures, therefore, this type of drum which is also found in Burma, Mon cultures, and Indonesia (but may be varied in name, shape, size, materials, sound production and perhaps, the philosophy behind the drum) needs further observation and clearer answers to the study of *taphon* history.

2.5 Other drums of the *taphon*-type

There are also similar drums in traditional ensembles (court music) which have the same construction and tuning methods as the *taphon*. One of these is the *taphon mon*, which has a bigger size and does not bulge out at the exact centre like the *taphon*. This drum is used mainly in the *pi phat mon* ensemble⁹ and sometimes, in the *pi phat* Thai when the *phleng mon* (a composition composed in mon style) is performed. The *taphon mon*, however, is slightly different from the *taphon* (Thai) in its playing techniques and sound colours. In general, this drum plays interlocking patterns with the *perng mang kauk*, the drum circle consisting of 7 graded sizes which also has a similar construction to the *taphon* (i.e. double headed drum tied close by the leather thongs) but made in smaller sizes and with neither *rat ok* nor *hoo hew*.

Another drum which usually replaces the *taphon*, particularly in the *pi phat sepha* ensemble¹⁰ and when accompanying solo instruments or the *sepha* chanting because of its lighter sounds, is the *klong song na*. This drum has a smaller and longer shape and is not mounted on a wooden stand like the *taphon*. However, the similarities of the *klong song na* and the *taphon* body can be seen from the method of tying up the covering of the drumhead by the leather thongs and both of them have the same kind of *rat ok* and *hoo hew*. The pitch of the *klong song na*, according to Yupho (1987:55) is tuned (by the mixture of cooked rice and ashes) to 'the same' pitch as the *taphon*. However, in the drum lessons taught to the author by kru Somphong, it was noted that this drum is tuned to a higher pitch than the *taphon* and more strictly to the particular note of the key used in the *sepha* chanting, whereas the *taphon* may be tuned to a different relative pitch according to the different

ensembles and the type of the compositions to be accompanied. The smaller head of *klong song na* is tuned to pitch *nok* or *kruad*,¹¹ the basic note of the *sepha* composition to be performed, while the bigger one produces a note that has a lower octave. The rhythmic pattern of this drum is also very much like the *taphon* but uses fewer different types of strokes. In general practice, if one can tune the *taphon* and the *klong song na* to the same pitch, it can be said that the usage of the two drums is interchangeable since they share the same sort of drum pitch, drum strokes and the drum patterns. Thus it is commonly found that during rehearsals or informal performances and recordings, sometimes, the *taphon* can be employed in the *sepha* music and similarly, the *klong song na* is used in the *taphon* part.

There is also a pair of drums called *klong taphon* used in the *pi phat dukdamban* ensemble¹², which in fact comprises two *taphon* laid on top of a special stand and beaten on the big heads by the drummer, using soft hammers in both hands. The *klong taphon* has been employed in this ensemble since the reign of King Rama V to replace the *klong thad* because of the need for a soft and mellow tone quality which contrasts with the loud and aggressive sound of the *klong thad*. The drum pattern of *klong taphon*, however, remains the *klong thad* pattern and always played alternately with the *taphon* one which is beaten by hand. The tuning of *klong taphon* is simply done by the same method of the normal *taphon* one (i.e. by applying the mixture paste of cooked rice and ashes to the drumhead). However, the tuning rather depends on the sense of relative low-high pitch on the *na theng* of both *klong taphon* drums.

Apart from the drums mentioned in traditional music ensembles (i.e. performed in court music and to be seen around central Thailand), several drums of the *taphon* type can also be found and heard in folk music ensembles; namely, the *theng thing* and *pum peung* from Northern and the *pued* from Southern Thailand. Throughout, this thesis attempts only to focus on the *taphon* which is considered to be the most important drum among this drum family, although the other types are referred to for general information.

2.6 The place of the *taphon* in music ensembles

The formal arrangement of the *taphon* seating place, with reference to the photographs of the Department of Fine Arts which are reproduced in Morton (ibid:106-107, figure 102, 104, 105), is usually located at the far left of the *pi phat* ensemble (as seen from the audience's view). In the small-sized *pi phat* ensemble¹³ and medium-sized or doubled *pi phat* ensemble¹⁴, the drummer sits on the front row next to the *ranat ek* player, and in the large-sized *pi phat* ensemble¹⁵, the drummer sits in the back row behind either the *ranat ek lek* (the *ranat ek* with the metal or bronze keys) or *pi nai* (the oboe), according to the available space on the stage. In the *wai kru* ceremony, the drum has its special place at the far left of the ensemble in which the white cloth lies underneath the drum and the offering food, candle, flowers and money are put in front of the drum. In general, the

taphon is usually placed at the left hand side of the *ranat ek* in the front row, as opposed to another drum(s), *klong thad*, which stays behind the *khong wong yai* or *khong wong lek* on the very back row of the ensemble. There are also the *klong khaek tua phoo* (male drum) placed together with the *taphon* in the *lakon* (dance drama) and *khon* (masked drama) performances. When the vocal part or the battle scene (sword or boxing) is employed in its musical context, the *taphon* player has to change his drum from the *taphon* to the *klong khaek tua phoo* and plays the interlocking patterns with the *klong khaek tua mea* (female drum) which is placed next to and played by the *klong thad* player. When the *taphon* is required in *mahori* ensembles, it is usually placed at the left hand side of the *ranat ek*. However, it is to be noted that the other drums, such as the *thon-rammana* and the *klong khaek* are preferred by the musicians of the *mahori* ensembles due to fact that the general character of *mahori* music is more relaxed than the *pi phat* one. Therefore, the usage of the *taphon* in *mahori* ensembles is limited to the sacred music, *phleng naphat*, whereas in *pi phat* ensembles, it can be used in almost every kind of music composition (except in some special music context in which the drum is omitted). Thus, the author will pay more attention to the study of the places where the *taphon* may be located in the different types of *pi phat* ensembles. Traditionally, it is thought that the *taphon* can be employed in at least 10 different popular types of *pi phat* ensembles. These ensembles are used in different contexts:

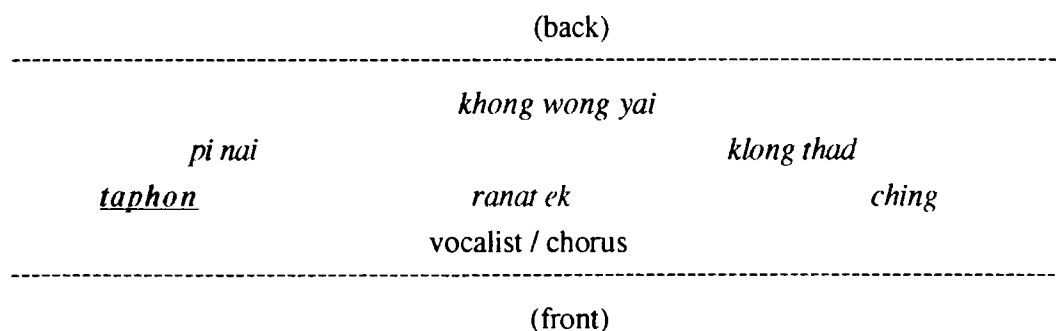
- a) the small-sized *pi phat* ensemble used in concert and ritual music
- b) the medium-sized or the double *pi phat* ensemble used in concert and ritual music
- c) the large-sized *pi phat* ensemble used in concert and ritual music
- d) the *pi phat* ensemble used in the *wai kru* (teacher homage) ceremony
- e) the *pi phat* ensemble used in the *khon* performance (masked drama)
- f) the *pi phat* ensemble used in the *nang yai* performance (shadow puppets)
- g) the *pi phat* ensemble used in the *lakon* performance (dance drama)
- h) the *pi phat* ensemble used in the *lakon dukdamban* performance (opera dance drama)
- i) the *pi phat* ensemble used in the *hoon gra bok* performance (puppet theatre)
- j) the *pi phat* ensemble used in the *yikay* performance (popular music theatre)

The formal positions of the *taphon* (underlined) and the other musical instruments found in these *pi phat* ensembles will be illustrated in the following plans (a-j). The arrangement of the *pi phat* plans is based on the general view as can be seen from the audience. The significance of the plans show that in almost the *pi phat* ensembles, apart from type c where the arrangement of the ensemble is due to the biggest number of instruments used in the ensemble (15 pieces), the *taphon* is usually found at the far left on the front row of the ensemble as seen from the audience's side (or at the far right of the ensemble as viewed from the musician's side). These formats reveal the Thai attitude that the position of importance figure in the formal events is considered to be the far left (as seen from the audience's view). Another clear example may be focused at the buddhist ceremony where the most senior monk will sit at the far left on the front row of the group (as seen from the audience's side).

Also, it is worth mentioning that, in the performances for concerts and ritual events, the *pi phat* ensembles type a, b, c (and d sometimes) are located in the middle of stage whereas in the theatre events, the *pi phat* ensemble types d, e, f, g, h, i and j are usually located on the left hand side of the stage. However, it should be noted also in the informal performance or in any music rehearsal, the drum and the other instruments are allowed to locate anywhere space permits.

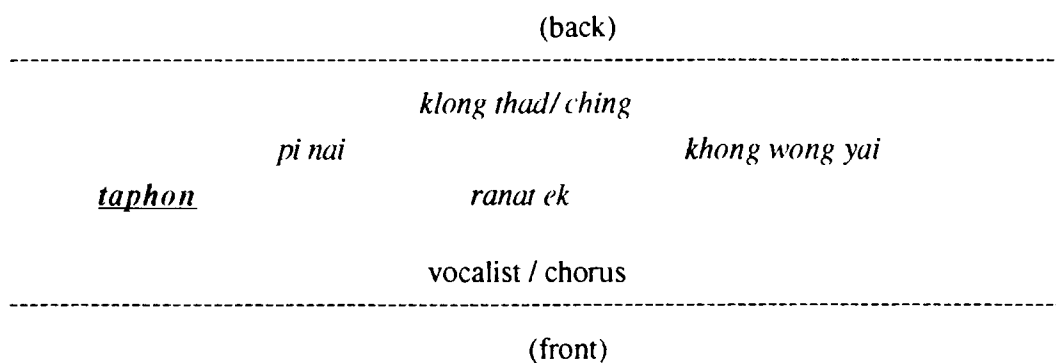
a) a plan showing the positions of the musical instruments and the musicians in the small-sized *pi phat* ensemble used in concert and ritual music.

Figure 2. Small-sized *pi phat* ensemble.



Note: In general practice, the *klong thad* player and the *ching* player can be also the same person. Therefore, an alternative plan for this ensemble is shown below:

Figure 3. Small-sized *pi phat* ensemble: an alternative plan.



b) a plan showing the positions of the musical instruments and the musicians in the medium-sized or double *pi phat* ensemble used in concert and ritual music.

Figure 4. Medium-sized *pi phat* ensemble.



Note: when the additional rhythmic instruments e.g *krab*, a set of 3 *mong* and *chab* are used, an alternative plan for this ensemble can be represented below:

Figure 5. Medium-sized *pi phat* ensemble: an alternative plan.



c) a plan showing the positions of the musical instruments and the musicians in the large-sized *pi phat* ensemble used in concert and ritual music.

Figure 6. Large-sized *pi phat* ensemble.



Note: i) an alternative *ching* place in the plan above is to sit in the middle front of the ensemble (i.e. the space between the *ranat ek* and the *ranat thum*).

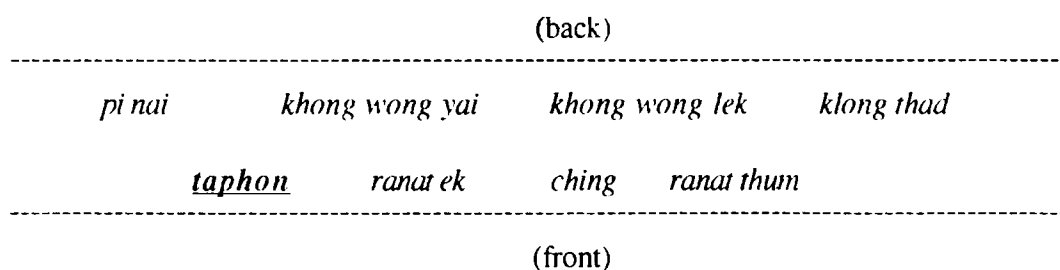
ii) if the additional rhythmic instruments e.g a set of 3 *mong* and *chab yai* are included, an alternative plan for this ensemble can be seen as below:

Figure 7. Large-sized *pi phat* ensemble: an alternative plan.



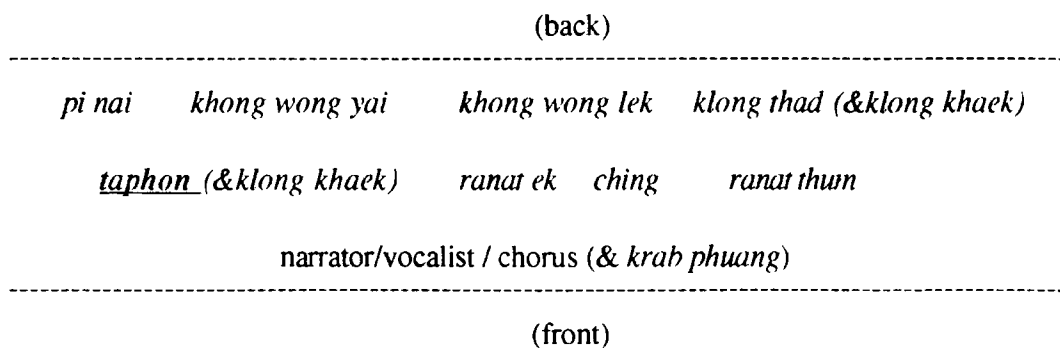
d) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *wai kru* (teacher homage) ceremony.

Figure 8. *pi phat* ensemble in the *wai kru* ceremony.



e) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *khon* performance (masked drama).

Figure 9. *pi phat* ensemble in the *khon* performance.



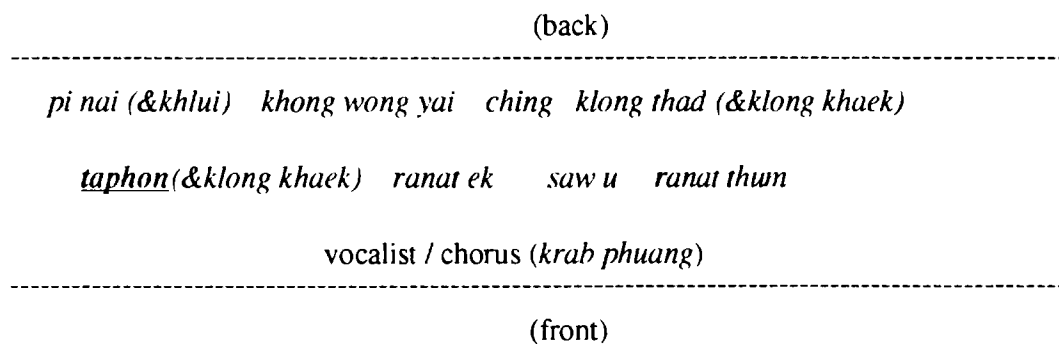
f) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *nang yai* performance (shadow puppets).

Figure 10. *pi phat* ensemble in the *nang yai* performance.



g) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *lakon* performance (dance drama).

Figure 11. *pi phat* ensemble in the *lakon* performance.



h) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *lakon dukdamban* performance (opera dance drama).

Figure 12. *pi phat* ensemble in the *lakon dukdamban* performance.



i) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *hoon gra bok* performance (puppet theatre).

Figure 13. *pi phat* ensemble in the *hoon kra bok* performance.



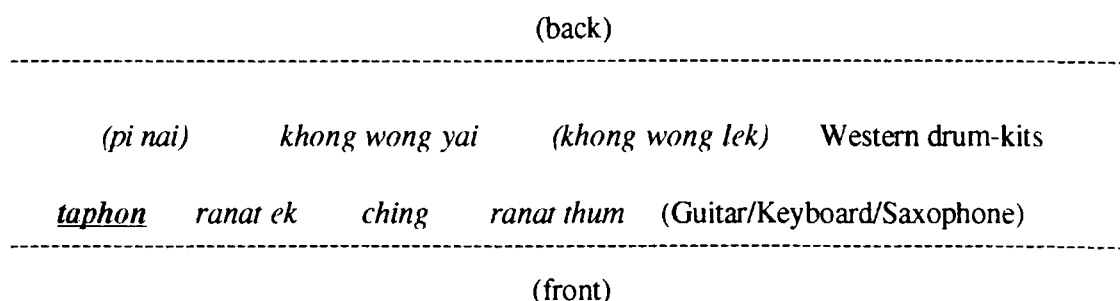
j) a plan showing the positions of the musical instruments and the musicians in the *pi phat* ensemble when accompanying the *yikay* performance (popular music theatre).

Figure 14. *pi phat* ensemble in the traditional *yikay* performance.



Note: in the modern *yikay* performance (e.g. the *yikay* company which was founded after 1960's and the contemporary *yikay* groups based in Bangkok), the *klong thad* is replaced by Western drum-kits!!. Sometimes, the Guitar, Saxophone and Keyboards are also inserted into the ensemble. The main reason can be explained by the great popularity of Thai 'Folk-pop' music, *phleng luk thung* ¹⁶ and the influence of Western 'pop' music on the modern *yikay* tradition. Luckily, the *taphon* still retains its importance for the *pi phat* ensemble and *yikay* music¹⁷. Thus, the last alternative plan of this *pi phat* series can be drawn as follows:

Figure 15. *pi phat* ensemble in the modern *yikay* performance.



¹The bronze drum, *klong mahorathuk*, is one of the main musical instruments used in royal processions (e.g. when the King makes his official appearance), in Buddhist ceremonies (e.g. to make an announcement before the daily chanting of the monks) and in some magical ceremonies in the rural areas of Thailand (e.g. the rain-making ceremony of the Karen people in Western Thailand). It is considered to be one of the early percussion instruments found in several areas of the South East Asia countries (e.g. Vietnam, Cambodia and Burma). Although the body of the drum is made entirely of metal, in function it still remains a drum which is beaten by a pair of bamboo beaters. Further discussion of this drum in Thailand can be found in Yupho (1987: 64-71) and Wongthet (1989).

²The Fine Art Department or *Krom Silpakon*, is the National Institute of Thai Arts and Culture. It was established in the mid-1930's by the Thai government after the end of the absolute monarchy. Various kinds of Thai cultural heritage, i.e. music, drama, visual arts, and literature have been researched and preserved as well as presented to the Thai people or foreigners. Among these activities, the Thai Music Centre, which belongs to the Department, is the main influence for all musicians of Thailand. The main reasons are: i) the earlier and the senior artists of the Department belonged to the royal courts and some of the main music schools; ii) There are a large number of music documentaries e.g. History of Thai music, Dictionary of Thai music and the music transcriptions published by the scholars of the Department; iii) There is the National Theatre run by the Department and regarded as the most important theatre in Thailand. All the best music performances, performed by the musicians of the Department or the other music schools, will be regularly found here.

³ An ensemble composed of string, wind, and percussion instruments. It usually performs entertainment music.

⁴ The melodic percussive ensemble consisting predominantly of tuned percussions (*phat*), untuned percussions and oboe (*pi*). It accompanies rituals and theatrical genres but can also be used for entertainment purposes.

⁵ see more discussion in Gaston 1987:15-6 Thai Court music: Buddhism and Hinduism in harmony.

⁶ The name *Phra Parakonhap* or *Phra Prakonhap* is most likely derived from the Indian music god, *Gandharva* (Sanskrit) or *Gandhabba* (Pali) of Gandhara. In Thai version, the title *Para* or *Pra* (= *Phra* / lord or god) is attached to *Gandharva* or *Gandhapa*. Thus, *Phra Parakonhap* or *Phra Prakonhap* can be interpreted as 'lord lord *konhap*'. This point is therefore illustrated the deeply connection of Thai and Indian music (Dr. Richard Widdess, personal communication: 1991).

⁷ Myers-Moro gives the name of two major music schools in contemporary Bangkok; the school of Luang Pradith Phai Roh and the school of Phraya Sanor Duriyang, where the names and beliefs of music gods still play their main role among Thai musicians to this day. Despite the fact that both of them may have different categories and classifications of the music gods, the acceptance of *Phra Parakonhap* as a god of rhythm and symbolized by the *taphon* is unique.

⁸ It is interesting to observe that in the old Thai (Siamese) literature, music events are usually described in the form of poetic or royal language. In religious festivals and the entertainment events, there frequently appear some of the most important instruments in the old *pi phat* and old *mahori* ensembles (e.g. *saphon*, *phin*, *phat*, *thab*, *khong*, *pi*). The well known literature which can be mentioned here are *Tri Phum Pra Ruang* (C. 15), *Lilit Yuan Phai* (C. 15-16), *Kot Mon Tain Ban* (15), *Chinda Mani* (C.16) and *I-Nao* (C.16-17). Further discussions may be obtained from Damrongrajapraph (1931), Roongruang (1978) and Yupho (1987).

⁹ This ensemble has its origin in the Mon people of the western part of Thailand and Northern Burma. The instruments which composed the ensemble include *ranat*, *khong wong mon*, *pi mon*, *taphon mon*, *perng mang kauk* and *ching*.

¹⁰ This *pi phat* ensemble is used for entertainment functions. The performance includes the *sepha* chanting and the *sepha* repertoires composed in the *thao* form.

¹¹ the third note from the right hand side of the *khong wong yai* key (considering 16 notes in total).

Based on Tramote (1964: 17), this note is equivalent to pitch C when notated in Western Notation.

¹² the ensemble used to accompany *lakon dukdamban* (a kind of dance drama which is sung by the dancers themselves, this supposed to be the opera in Thai version.)

¹³ This ensemble consists of the main and necessary instruments of the *pi phat* genres. There are: (1) *ranat ek* (the higher-pitched wooden xylophone); (2) *khong wong yai* (the large gong circle); (3) *pi nai* (the oboe); (4) *taphon*; (5) a single *klong thad* (barrel shaped drum hit with a pair of sticks); (6) a pair of *ching* (small hand cymbals). This ensemble is also called *pi phat kruang ha* (translated 'five piece instruments *pi phat*'), according to the five major instruments (omitting the *ching*).

¹⁴ This ensemble is doubled the size of the small *pi phat* ensemble, thus it may be called by its alternative name *pi phat kruang khoo* (lit: 'double instruments' *pi phat*). The additional instruments from the *pi phat kruang ha* instruments are: *ranat thum* (the lower-pitched wooden xylophone), *khong wong lek* (the small gong circle), *pi nok* (higher-pitched oboe), another *klong thad* drum (higher-pitched drum, called *klong thad tua phoo* as opposed to the lower-pitched, *klong thad tua mea* from the small-sized *pi phat kruang ha* ensemble). Also if necessary, the *mong* (hanging Gong), the *krab* (a small pair of wooden clappers) and the *chab lek* (a pair of hand cymbals which play the off-beat rhythm against the *ching*) can be added to this ensemble.

¹⁵ The biggest sized among the three *pi phat* ensembles, called *pi phat kruang yai* (lit: big/large instruments *pi phat*) in Thai. The additional instruments from those of the *pi phat kruang khoo* are: *ranat ek lek* or *ranat thong* (the higher-pitched metal xylophone), *ranat thum lek* (the lower-pitched metal xylophone) and miscellaneous non-melodic percussions e.g. *mong* (the hanging gong), *krab*, *chab lek*, *chab yai* (the largest hand cymbals), *kror* (large wood block).

¹⁶ *phleng luk thung* (music of the countryside), as opposed to *phleng luk krung* (urban/city music) is a style of music that developed from a variety of different types of music, including Thai classical music, folk songs which are sung in the fields, lullaby, folk music from every part of the country -particularly from the North East (*Isan* region)-, and even the music of the neighbouring countries and the West to a certain extent. The name of this music was first coined in 1960 by the TV channel 4 (which no longer exists) of Thailand which broadcast *luk thung* music regularly. It is now one of the most popular types of music found in Thailand and sung by the people of both rural and city areas.

The *luk thung* music can be played by any combination of musical instruments, ranging from traditional instruments to Western ones. It has a simple musical character: simple form; simple melodic and rhythmic structure; and it uses simple language (spoken language and poetic language) to compose the *phleng luk thung* lyrics. The subject matter of the *phleng luk thung* varies considerably: love, humour, morals, politics, social problems (e.g. prostitution and unemployment). However, the most common subject of this kind of music is love (e.g. patriotic love, romantic love and family love).

¹⁷ In the old-style *yikay* music, the *taphon* is used in the *phleng homerong* (overture) and to keep the rhythm of *rong don* (improvisation singing). It also accompanies the action of the dancers (i.e. walking, crying and fighting) in the *yikay* scene. In modern-style *yikay* music, the *taphon* still retains its activities, but is also used with other additional Western instruments to accompany *phleng luk thung* music.

Chapter 3

THE TAPHON LESSONS

3.1 Introduction

Generally speaking, there are at least two ways of studying the drum. Firstly, for people who really want to be a professional drummers and secondly for people who just learn how to make simple strokes on the drum or just want to understand the drumming pattern when it is played in actual performance. The first way of learning has mostly been done in the traditional style, and requires a good disciplined student (*sit*) who devotes his time to his teacher (*kru*). To learn the drum from the absolute beginning to the mastery, in fact, is not only to simply experience the lessons and keep practicing, but also involves the relationship of teacher and student, who regards each other as a part of their family, that is, the student treats his teacher as his second parent. Another fact of the transmission process, the *yok kru* (literally: to praise the teacher) ceremony which is the initiation ceremony to be undertaken before the first drumming lesson, is the most important thing for the student to do in order to pay respect to his teacher and to gain a confidence in learning or playing the drum. The second way of learning the drum, in contrast to what has been described in the first way, is generally done among the other musicians in the ensemble and the audience in order to appreciate Thai music with the drum accompaniment. This way also applies to students of Thai music who are required to study either the general or the specific knowledge of the drums used in Thai music and their rhythmic patterns. However, the relationship of teacher-student in this second case is found less than in the first one. Therefore, the following discussion of this chapter will concentrate only on the traditional side.

The following information is mainly taken from the drumming lessons given by kru Somphong Rohitajol, the drummer who played in the pi phat ensemble of the Fine Arts department, Krom Silpakorn, since the 1960's and died recently (1990). kru Rohitajol learned to play the various kind of drums from one of the great masters in the old royal court, kru Phring Karnjanaphalin, and reached the peak of being "the great" drummer under the name "*song Somphong*" (meaning, "Somphong twins") with his contemporary companion, kru Somphong Nuchphichan, after he entered the Fine Art Department. There are also additional remarks from kru Somphong Nuchphichan and kru Phin Ruangnont to represent the other *taphon* schools. It is interesting to observe that, despite the fact that both "*song Somphong*" have the same *taphon* teacher (kru Phring) and work in the same Department, and their drumming styles are identical, yet the given information is sometimes not the same. The information collected from the latter teacher, kru Phin, who is the drummer of *Fongnam* music group and works in the music section of the Thai Royal Air Force, will be contributed in the other music school accounts. kru Phin has learned drums from kru Sawad Kijnithet (may be called here as the 'ordinary drummer' in contrary to kru

Phring 'court drummer' since it was the fact that throughout his lifetime, kru Sawad played in the private pi phat ensemble only) and has become one of the most virtuoso drummers of the present time. His drumming style is of course very different from the other kru mentioned before. Also, it is to be noted that the information obtained from these kru are mostly done by oral practice without any written music references. Sometimes, it happens that the information may not be the same again when the lessons or the drum patterns or even the questions are repeated.

6 aspects of *taphon* lessons will be studied:

- a) the initiation ceremony, *yok kru* and the teacher homage ceremony, *wai kru*
- b) tuning the *taphon*
- c) basic techniques of playing the *taphon*
- e) basic *taphon* exercises
- f) *nathap taphon*
- g) *sai*

3.2 The initiation ceremony, *yok kru* and the teacher homage ceremony, *wai kru*

3.2.1 The *yok kru* ceremony

According to the tradition, the Thai music student will begin his music lessons with the teacher who he chooses to be the master of his musical life. In general, the student will go to ask the teacher for music lesson. If they agree to have the music lessons, then the initiation ceremony, *yok kru*, will be performed as the first step before beginning the training sessions.

The *yok kru* ceremony usually takes place on Thursday, the day of teacher tradition according to the Thai belief. It is the ceremony that symbolically unites the relationship of music and life between teacher and student. In this ceremony, the student honours his teacher and the teacher accepts the student to be part of his responsibility. The place for performing the ceremony is the teacher's house where all the musical instruments are kept. The *yok kru taphon* ceremony, in the author's experience, begins with the student offering the flowers, a candle, incense, a bowl with a piece of white cloth and money (6 *baht* in Thai ~ 13 pence) to the teacher. After the teacher accepts the offering, he will start to chant for the Buddha, Dhamma, Sangkha and pray the *Mantra*¹ to invite the music gods, *Phra Panjasinkhon*, *Phra Visnukamma*, *Phra Ganesha* and the god of *taphon*, *Phra Parakonthap*, and the great drum masters who have passed away to come to witness the ceremony. In the *Mantra*, the teacher will ask those spirits of music to bless the student and give him wisdom and skill. When the homage ceremony is finished, the teacher will demonstrate the sacred *taphon* pattern in the introduction part of *phleng sathukarn*² to the student and do the *jab mue* by holding his hands and the student's hands together and playing the sacred patterns three

times. The ceremony is completed by the student worshipping the teacher and the drum, which both now become his *kru* and play an important part throughout his musical life. After the ceremony, the teacher will relate his personal drumming lessons in the past (i.e. his previous *kru* and the music school which he belonged to) and give the introduction to *taphon* practice (i.e. basic drum strokes). It is to be noted that once the ceremony has been performed, the student will fix his heart and his confidence to the teacher who he regards as a master of his musical life and their relationship should never be broken. After many sessions of music practice, the well disciplined student will reach the standard of cultivated musician and thus he will confidently use his teacher's heritage to play the *taphon* in any public performances.

After the *yok kru* ceremony, there is another ceremony which the *taphon* student must take part in in order to get the *license* to become a 'proper' musician in the Thai music society and among the other musicians. The next ceremony, which is considered to be one of the most important ceremonies in Thai music, is the *wai kru* ceremony.

3.2.2 The *wai kru* ceremony

Traditionally, all the Thai musicians will gather together once a year to pay homage to their teachers (whether living or not), to the spirits of music and to pay respect to the Buddha, Dhamma, Sangkha in the *wai kru* ceremony. The group of musicians or the school of music will arrange a convenient time of the year³ to perform their ceremony and the other group of the other school will be invited to participate in the ceremony. It is to be noted that professional musicians will undertake this ceremony seriously throughout their musical life, and it is believed that if one fails to take part in the ceremony of the year, he will suffer, get sick or even die as a result.

Like the *yok kru* ceremony above, the *wai kru* ceremony will take place on a Thursday⁴ after preparations have been carried out on the previous days. The ceremony lasts from the early morning to late night and music teachers, students of all levels and professional musicians join in. Buddhist monks will be invited to chant whilst prayers and offerings are made to various gods of music. Throughout the ceremony, the *pi phai* ensemble will play sacred music relating to the various sections of the ceremony. The climax of the ceremony is the *kroh kru* in which the musicians of different levels participate and which is conducted by the master of ceremony, *kru*, who is the most senior and the most respected musician at that event. In the *kroh* section, the new music students will request to study more advanced music; the more advanced musicians will ask to become teachers; and the most experienced musician will be granted permission to be the new master of the next *wai kru* ceremonies. The ceremony will close with the musicians performing selected compositions by solo or ensemble.

The author, having observed the *wai kru* ceremony, has three remarks to make about

the *taphon* and the *taphon* student. First, among the musical instruments displayed for decorating the offerings and the sculptures of various music gods, the *taphon* must be kept in the highest place of all the instruments in the ceremony. Second, in the *pi phat* ensemble accompanying the ceremony, the *taphon* is especially placed on the white cloth whereas the rest may not be required to do so, and, sometimes, the *taphon* body will be fastened by a small piece of white cloth. Third, the *taphon* student is requested to do the *krob kru taphon* with the master of the ceremony. Here, the student will take the offering items (as described in the *yok kru* ceremony) to the master of the ceremony. After the master accepts the offerings, he will pray the *Mantra* and perform the *jab mue* once again, and at the end of the ceremony, he will bless the student to become a good musician. Also in some cases, the master will give the extra *jab mue* for the *taphon* student on the *khong wong yai*. The reason may be explained by the fact that the *khong wong yai* is considered to be the principal melodic instrument of the *pi phat* ensemble and the basic compositions are usually given according to the *khong wong yai* version. Therefore, it is important for the *taphon* student to be able to understand the *khong wong yai* (or, at least, granted the *official licence* to play the *khong wong yai* from the master of *wai kru* ceremony).

3.2.3 The *wai kru* ceremony before playing music

There is another ceremony, with the same name *wai kru*, to be performed by every professional musician before each performance. This ceremony is the brief version of the annual *wai kru* ceremony above and has the same belief as that of the main *wai kru* one. The leader of the ensemble, usually the teacher or the most senior musician, will make obeisance to the spirits of music in front of the *taphon*, together with the lighting of a candle and joss sticks and the presentation of flowers, food and money. He will then pray for the success of all the performers and ask for the forgiveness if some errors may happen during the performance. After praying, he will leave these auspicious offerings with the *taphon*. The candle, joss sticks and money are usually inserted into the back-cover leather thong of the *taphon* body, or placed as near as possible. When the ceremony is over, the music will start with the confidence and pleasure of all the performers.

3.3 Tuning the *taphon*

It is common practice for the *taphon* player to tune the drum himself before playing it, and remove the tuning paste from the drumheads when the performance is finished. The 'tuning' of the *taphon* in this sense is not related to the precise melodic pitches in music, i.e. pitch 1 2 3, but rather a feeling of tension and the deep vibration of the cover skin. However, referring chapters 2.5, it is worth mentioning again that there are some drums in the *taphon* families, the *klong song na* and the set of seven *perng mang kauk*, which tuned their drumheads to melodic pitches. According to kru Somphong, the tuning of *klong song na* is based on pitch *nok* or *kruad* of the *pi phat sepha* ensemble (equivalent to C when notated in

Western notation) whereas the set of 7 *perng mang kauk* is based on the relative pitches from 'low' to 'high', i.e. pitch 1 2 3 4 5 6 7 of the drum set. However, he never mentioned the reference pitch for tuning the *taphon* except to suggest the general rules: the big head is tuned to 'low', the small head is tuned to 'high' and both of them are tuned ad lib.

A personal experiment has been carried out by using the *taphon* belonging to Mr. Um Mongkol as a model of study. Tuning and measuring the drum at different times and on different days, the author's average desired drum pitches of both open drumheads, big and small, roughly occurred in the pitch low *phieng or bon* and high *phieng or bon* (low B and high B when notated in Western notation) respectively. This study can be also compared to the measuring of some *taphon* tuning in selected commercial cassettes. From 7 compositions performed by 7 different groups of *pi phat* ensemble, it is found that none of them are tuned in the same pitch, even in the selected compositions sharing the same name, same music scale, and, by aural judgement, the tuning of melodic instruments are more or less the same. The measured tuning of the bigger heads ranges from low *nok* pitch (C) to low *nai* pitch (G) whereas the smaller heads are widespread in the higher pitches namely *nai* to *nok* (G to C) of the higher octave. Another interesting remark about *taphon* pitches is, without removing the tuning paste from the drumheads, the tuning sometimes slightly changes during the performances or from the beginning to the end of the compositions. In this case, the skins on the open drumheads observe the main notes used in the composition. Thus, the vibration of the skins will respond to the frequency of the notes found in that time. Therefore, the results found from the study of the two approaches may reach the conclusion that the *taphon* can be tuned in various intervals. Furthermore, some think that the drummer may tune the *taphon* to suit his preference and is sometimes influenced by the tuning of ensemble and the music scale or the other characteristics of the compositions which may be found in each performance. Clearly, investigation into the various practices of well known *taphon* players need to be carried out.

The drums in the *taphon* families all require the same materials and the same method for tuning the drumheads. Traditionally, the *thuang na* or *khao* (a mixture of cooked rice and ashes mashed paste) is applied in a glutinous mass at the round mark on the centre of each end. The thicker and the heavier the *thuang na*, the slower will be the vibrations of the head and consequently the deeper the pitch. Also, the *thuang na* helps to damp out certain partials with the result that the sound has a more definite pitch than would otherwise be produced by the drumhead.

About the ashes which provide the important ingredient in the *thuang na*, Duriyanga (1948:14) says that the best are from the burnt branches of palm-trees. He also mentions that the white part of new bread would serve the same purpose as cooked rice.

According to the author's experience, there are also several materials equivalent to the

given examples above: for the ash, coconut shell ash makes a good substitute for palm ash. Sometimes baby powder is also used instead of the ash; and sticky rice, rice sticks or Chinese noodle *Ho Fun*, and moistened pancakes are usable in place of cooked rice. Another long-life material, sticky but smelly, is mashed dry banana in honey. The author has also found that the recently-available 'Blu tack' and 'white tack' (a brand name for 'adhesive putty') provide a good sound and are easily movable.

3.4 The basic techniques of playing the *taphon*

3.4.1 Sitting posture

To play the *taphon*, a performer customarily stands the *taphon* in front of him. He sits upright on the floor, cross-legged, with the right leg across the left. This sitting upright and cross-legged, for the Thai gives an impression of confidence and comfort which men mostly prefer. The other common position, but less relaxed, is to sit with legs folded back, either to the right or left, with feet pointing in the same direction, a position preferred by most women or youngsters in an adult context. There is also the idea, which has been introduced in Thai music after the second World War, that the musician should sit on a chair with the instrument raised on a supporting desk. However, the latter case has not won popularity among Thai musicians.

The author has been taught to sit with legs crossed flat, about 12 cm. from the *taphon* body. The hands are able to control the drum conveniently and the drummer's body faces the *rat ok* (the central bulge of the body). The left foot pushes inside the *taphon*'s stand whereas the right foot is placed outside the stand to hold it in place. This is done in order to prevent the movement of the *taphon* when hit by the right hand.

3.4.2 The hand techniques

The *taphon* player produces intricate sound variations by using every part of his hand: fingertips, fingers, palms and the whole flat of his hand. Each part makes a different effect when it strikes a particular place on either head of the drum. There is no rule about which hand should strike which head. The author learned to play the *taphon* from two teachers, kru Somphong Rohitajol and kru Somphong Nuchphichan; the first right-handed and the second left-handed. Both of them are well known among Thai drummers for their ability to produce the *taphon* sound beautifully and in a very complex manner. In the drum lesson separately taught by each of them, the author had to follow their instructions in the way they played. kru Rohitajol plays *na theng* (the big head) with his right hand but kru Nuchphichan prefers to play the other way round, so the student must learn both techniques. However, when questions about the standardization of *taphon* playing technique arose, the main scholars in Thai music seemed to agree that the right hand should play on *na theng* and the left hand on *na mud* (Samniangchunchoeng 1952: 2-7, Duriyanga 1956: 28-30, Nagasawadi 1981:9, Phookhaothong 1989: 30). The reason for the right hand playing on

na theng is that this head is considered to provide much more important sounds (i.e. louder and deeper) than the other; in practice, however, there are a number of left-handed musicians still using their left hand to play *na theng*.

3.4.3 the basic strokes of the *taphon*

The author will now discuss the basic techniques of playing the *taphon*, which are essential knowledge for the beginner. To play any *nathap* on the drum, first of all the drummer must know exactly how many basic strokes are required or frequently used. Then after he has studied all the general strokes, and the simple techniques involved in playing, he can move forward to the basic *nathap*, which consists of the basic sounds of his early lessons. Traditionally, there are at least 12 basic *taphon* strokes which are frequently used in the performance.

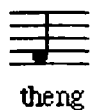
The author will use the description of the *taphon* strokes written by Phra Chen Duriyanga (1948: 14-18) as a reference source to clarify and explain those basic drum strokes which are generally recognized by Thai musicians today. However, it is important to state that there are also other varieties and possibilities of playing techniques and syllables to represent the sounds, from one school to another or even within the same tradition, some of which the author refers to in the following description. Since it is clear that the original description of Duriyanga gives us very extensive information on how to make the basic strokes on the drum, it is useful to quote his remarks again (and of course, with some minor corrections). Duriyanga's description will be represented in *Italic type*, whereas the author's additional commentary will be in *Normal type*.

The accompanying video presentation deals exclusively with the basic *taphon* tradition. Examples 1-12 demonstrate the basic strokes.

For convenience, the transcription of the *taphon* strokes will be given in the form of both the simple spoken syllables and the Western staff notation. The staff notation, written here by the music computer program (Professional Composer version 2.0) on the Macintosh word processor, will represent the higher-pitched sounds of *na mud* in the top space of the staff, and the lower-pitched sounds of *na theng* in the bottom space of the staff. The different drum strokes will be identified by marking special signs above and below each note. Although the notation can picture all the *taphon* strokes, the pitches of the *taphon* are not precisely related to the pitches of the notes on the staff.

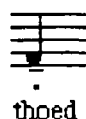
A. *na theng* ; playing with the right hand :

1. *A brisk light blow on the rim with outstretched fingers, held straight and closely together and withdrawn immediately allowing the drum-head to vibrate freely, gives the short sound 'theng'.*



Alternative syllables for this stroke are: 'thang', 'thoeng', 'tha', according to the different schools of music.

2. *The same as 1, but the fingers are withdrawn and immediately after applied again to damp the sound, giving the short sound 'thoed'.*



3. *The same as 1, but keeping the fingers on the drum-head to damp the sound, gives the short sound 'tha'.*



This stroke is also called 'thoe' by some schools.

4. *A smart blow given with open fingers and full palm of the hand and damped, gives the short sound 'pa'.*



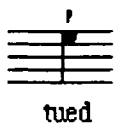
B. *na mud* ; playing with the left hand :

5. *The same as 1, gives the long sound 'ting'.*



If this stroke is played twice quickly, then it will be called 'taling'.

6. *The same as 2, gives the short sound 'tued' .*



This stroke is also called 'teed' by some schools.

7. *The same as 3, gives the short sound 'tub'.*



Some schools call this stroke as 'ta'.

C. The combination of *na theng* and *na mud* ; playing with both hands

8. *Light freely resonating blows on the rims, when that on the left is stronger than that on the right, give the long sound 'phring' or 'phrung'.*



9. *Smart blows on the rim, when that on the right is stronger than that on the left, gives the long sound 'phroeng'.*



Some schools use the syllable 'phreng' or 'nam' to indicate this sound.

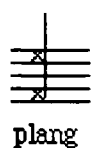
10. *The same as 8, when the sound is damped immediately, gives the short sound 'phrued'.*



11. *The same as 9, when the sound is damped immediately after, gives the short sound 'phroet'.*



12. *A heavy damped blow, the left fingers spread out making a short damped sound, the right palm stopping on or above the centre and damping immediately, creates the sound 'plang'.*



These are all the essential strokes which are frequently used in performance. However, it is to be noted that some extra strokes which may occur sometimes during the performance i.e. 'na' (by the index finger lightly hitting the rim of drum head) or 'a' (the palm gently damping one drum head during the making of the proper stroke on the other head) will not be counted as being one of the major strokes as those 12 basic strokes given above (although these extra strokes may be found a lot throughout the performance. In this case, they may be regarded as passing strokes or minor parts of the complete drum patterns).

When the composer or the drummer combines the individual strokes into rhythms and structures, then we can say that formulaic drumming pattern, *nathap*, is created.

From the spoken syllables used for the *taphon*, from examples 1 to 12, it is interesting to observe that the drummer uses different consonants to indicate the drum's sounds when they played on the different heads or the combination of two heads. We may categorize the *taphon* consonants as follows: (1) *na theng*: th- or p- ; (2) *na mud*: t- ; and (3) both heads: phr- or pl-. Also, there are different vowels for different types of resonance.

3.5 The basic *taphon* exercises

Before playing any patterns on the drum, the beginner must learn all the basic strokes which are frequently used. After he can produce the sounds clearly and satisfactorily, his teacher will then give him instruction in drumming patterns, starting from simpler examples and gradually moving forward to more complex strokes and rhythms as his repertoire and knowledge of techniques develops. The general strokes and the simple techniques involved in playing will be given in terms of drumming exercises. The teacher will guide his student by demonstrating or chanting the variety of strokes as well as some

short, standard basic patterns or longer ones for the student to practice. These taught patterns can be used later as the basis of a more complicated improvised part. After the beginner has mastered the early exercise sessions and has been approved by his teacher, he is then allowed to learn the *nathap* which consists of the basic strokes of his earlier lessons. These processes are all done aurally, without any written form of notation. Thus, the student must have a good memory and concentrate on the example given by his teacher during the drumming lesson.

To make this early stage much more clear, the author will use the following examples from the earlier *taphon* lessons in order to show how the beginner learns the *taphon* exercises.

Since there is no use of music notation for the beginner, the author will simplify the drum syllables, *Thai klong phayang*, into normal English script to aid the reader's understanding. Also, when one plays the *taphon*, it is common practice to use the *ching* for marking the rhythm. Therefore, the *ching* symbols, o on the weak beat (*ching*) and + on the strong beat (*chab*), which were introduced by David Morton (1976: 65) will be represented together with the *Thai klong phayang*.

3.5.1 na theng (big head):

Example 1.

The simple strokes, played in the period of 4 or 8 *ching* strokes, with repeat.

	o	+	o	+
a)	theng	theng	theng	theng
b)	thoed	thoed	thoed	thoed
c)	tha	tha	tha	tha
d)	pa	pa	pa	pa

Example 2.

The combination of all the simple strokes, in the period of 4 or 8 *ching* strokes, with repeat.

	o	+	o	+
a)	theng	thoed	tha	pa
b)	thoed	theng	tha	pa
c)	tha	pa	theng	thoed
d)	pa	tha	thoed	theng
e)	tha	pa	thoed	theng
f)	thoed	pa	theng	pa
g)	pa	thoed	pa	theng
h)	pa	theng	pa	thoed

Example 3.

The combination of simple strokes, but developed to a more complex degree, in the period of 4 or 8 *ching* strokes, with repeat.

	o	+	o	+
a)	----	papapapa	----	thengthengthengtheng
b)	- theng - thoed	- theng - thoed	- pa - tha	- pa - tha
c)	--- theng	- pa - theng	--- tha	- pa - tha
d)	--- thoed	- theng - thoed	--- pa	- tha - pa
e)	- pa - thoed	- patheng -	- pa - tha	- patha -
f)	--- tha	- patheng -	- theng - theng	- pa - -

etc.

Example 4.

The variety of simple strokes, in free *ching* period, with or without repeat.

- a) papapapa thengpa -- - thoed- - - - thapa
- b) tha.a.tha tha.a.tha thengthengthengtheng papapa
- c) - - -theng - pa - - - - -tha pathengthoettha
- etc.

3.5.2 na mud (the small head):**Example 5.**

The simple strokes, played in the period of 4 or 8 *ching* strokes, with repeat.

- | | | | | |
|----|------|------|------|------|
| | o | + | o | + |
| a) | ting | ting | ting | ting |
| b) | tued | tued | tued | tued |
| c) | tub | tub | tub | tub |

Example 6.

The combination of all the simple strokes, in the period of 4 or 8 *ching* strokes, with repeat.

- | | | | | |
|----|------|------|------|------|
| | o | + | o | + |
| a) | ting | tued | ting | tub |
| b) | tub | tued | tub | ting |
| c) | tub | tued | ting | tub |
| d) | ting | ting | tued | tub |

etc.

Example 7.

The combination of simple strokes, but developed to a more complex degree, in the period of 4 or 8 *ching* strokes, with repeat.

	o	+	o	+
a)	-- tingtaling	-- tingtaling	ting ---	- ting - tub
b)	--- tub	--- ting	tub - tubtued	--- taling
c)	--- ting	- tued - ting	--- tub	- taling - ting
d)	- taling - tub	tuedtuedtuedtued	- taling - tub	talingtingting
e)	--- ting	- tubtingtub	- ting - ting	- tued - taling

etc.

Example 8.

The variety of simple strokes, in free *ching* period, with or without repeat.

a)	talingtingtingting	tubtubtub	- taling - tued
b)	tingtubtalingtub	tuedtubtalingtub	
c)	tubtubtuedtub	tuedtubtubtued	tubtuedtingtued
			tingtuedtingtubtingtub

etc.

3.5.3 na theng and na mud (both head):**Example 9.**

The combination of *na theng* and *na mud*, individual strokes in simple pattern, played in the period of 4 or 8 *ching* strokes, with repeat .

	o	+	o	+
a)	theng	ting	thoed	tub
b)	tub	theng	tha	ting
c)	theng	ting	tha	pa
d)	tub	pa	theng	ting
e)	ting	thoed	pa	thoed

etc.

Example 10.

The combination of *na theng* and *na mud*, individual strokes in more complex patterns, played in either the period of 4 or 8 *ching* strokes or free rhythm, with or without repeat.

	o	+	o	+
a)	- - - theng	- - - taling	- - - theng	- ting - theng
b)	- - - tub	- - - pa	- ting - theng	- ting - tub
c)	- pa- pa	- pa - pa	- tub - ting	- talingtubpa
d)	- - thoed -	- thatingting	- thoed - tha	- ting - ting
e)	- - - pa	- tub - ting	- theng - tha	- tub - ting
f)	- tub - ting	- tub - ting	- tub - ting	- theng - theng
g)	- taling - tub	- taling - tub	- taling - tub	- thengtingtheng
h)	- thengtingting	- patingting	- thengtingting	tingpatingtheng

etc.

Example 11.

The combination of *na theng* and *na mud*, simultaneous strokes in simple patterns, played in the period of 4 or 8 *ching* strokes, with repeat .

	o	+	o	+
a)	phring	phring	phring	phring
b)	phroeng	phroeng	phroeng	phroeng
c)	phrued	phrued	phrued	phrued
d)	phroet	phroet	phroet	phroet
e)	plang	plang	plang	plang

Example 12.

The combination of *na theng* and *na mud*, individual strokes and simultaneous strokes in more complex patterns, played in either the period of 4 or 8 *ching* strokes or free rhythm, with or without repeat.

	o	+	o	+
a)	- - - phring	- - - phring	- - - pa	- - - tub
b)	- - - tub	- - - pa	- - - phroet	- - - phring
c)	- - - theng	- tha - tub	- - - phring	- - - phring
d)	- - taling	- - - tued	- - - ting	- - - phring
e)	- phroet - pa	- phrued - plang	- phroet - pa	- phrued - plang

etc.

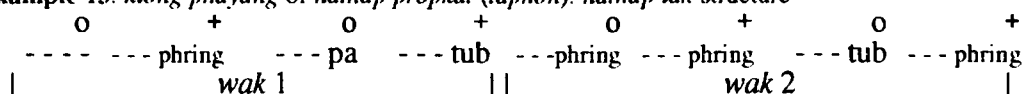
Then, the next step is to learn the *nathap*.

3.6 nathap taphon

After the general *taphon* exercises have been established and practiced, the student will then learn the fixed drum pattern called here *nathap taphon*. The *nathap taphon* is the rhythmic pattern performed cyclically on the *taphon* drum. It consists of a given unit of drum strokes put into the rhythmic framework. The teacher will teach the basic *nathap*, *nathap lak*, which is the standard pattern of the *nathap* to the student. Again, the student will be asked to memorize the *nathap lak* and keep practising the pattern until he can remember it. The teacher will also give the names of some of the compositions that the *nathap lak* can be played with. Also, he will teach the different versions of the same *nathap lak* name for alternative drums (e.g. *klong khaek*, *thon-rammana*). Further discussions of *nathap* can be found in chapter 4 of this part.

The next example will illustrate the *nathap lak taphon* called *propkai* which is generally used in *phleng ruang* (suite), *phleng sepha* (concert music) and *phleng lakon* (theatre music). This *propkai* version is traditionally called *nathap propkai song chan* and is played in medium tempo. The *nathap* consists of 8 *ching* beats structure (4 *ching* & 4 *chub*) and can be divided into 2 equal phrases, *wak*, which are each composed of 2 *ching-chub*. The cycle will start soon after and will end at the last stroke (*phring*) of the last *ching* beat (*chab* 4).

Example 13. *klong phayang* of *nathap propkai (taphon)*: *nathap lak* structure



Once the student can remember this (or some other) *nathap lak*, he will use this (or the other) learned *nathap* as the basis of drumming accompaniment for the ensemble, or will use it as the basis of a more complicated level of improvisation called *sai*.

3.7 *sai*

3.7.1 General remarks about *sai*

The term *sai* (lit: swing) is employed to describe the way of making improvisation on drums. The general method of *sai* is to play an ornamentation of the basic drum pattern in each cycle which is related to the melodic pattern of the composition. Before mastering the *sai* level on the drum, or making improvisation on any melodic instruments, the student will usually collect a variety of models of variations through listening to his teacher, through observing performances, and selecting good examples to memorise. This covers a wide range of variation features, from the simple to the very complicated *sai*. When it comes to a real performance, the drummer has his own choices of *sai* : either by drawing on his past experience or by composing his own version of each *nathap lak* (usually pre-composed with well organized *sai*). Moreover, it is much better for these creative processes, if the drummer has learnt how to make the *thang* (variation from the main theme) on melodic instruments in the ensemble.

The learned basic *nathap* pattern can be played the same for every repeated cycle or one can make variations when repeating the cycles. There are no explicit rules about how one should repeat the drum pattern, that is, about how much decoration or variation can be introduced. Once in a drumming lesson, the author asked kru Phin about this question and he replied that the author can do whatever the author imagines or wants to do without destroying the 'soul' and the 'beauty' of the music. This extraordinary answer, however, still reminds the author to be careful whenever he plays the *taphon* or the other instruments.

New ornamentations which make different emotional effects from the basic pattern and the possibilities of elaborating *nathap* are interesting considerations for the drummer and the other players in the ensemble which he accompanies as well as his audience. In the author's experience, the "mature" and "creative" drummer always receives as much attention from the listeners as the *ranat ek* player who actually leads the ensemble.

In the group of musicians who have been practiced together in advance, the drummer will make up his *sai* variations by using prearranged *sai* appropriate to the way that the ensemble will play. In this case, the resulting *sai* patterns may come out in a refined and

beautiful style according to the Thai concept. However, on the other hand, if a group consists of players who are 'strangers', the results of the *sai* can be also interesting, but are usually too disorganized for the Thai aesthetic.

3.7.2 the *sai*-making from the *taphon* lessons

The author will illustrate how he first learned to do the *sai* pattern from the *taphon* lesson on *nathap propkai*. The lesson was taught by demonstration, but is here shown in *klong phayang* notation.

example 14. *klong phayang* of early *sai*-making lesson

	0	+	0	+		0	+	0	+
	1	2	3	4		5	6	7	8
	<i>wak 1</i>					<i>wak 2</i>			
1	.	.	.	.	.	.	.	.	phring
2	.	.	.	tub	.	.	.	.	phring
3	.	phring	.	tub	.	phring	.	.	phring
4	.	phring	pa	tub	phring	phring	tub	.	phring
5	phring	phring	pa	tub	phring	phring	tub	.	phring
6	.	phringphring	tub pa	tub	phring	phring	tub	.	phring
7	.	phring phring	tub pa	tub	theng ting	pa tub	phring theng	.	phring
8	tubphring	tubphring	tubphringphring	pa tub	theng ting	pa tub	phring theng	.	phring

The first line shows where the strongest *changwa ching* is, which ends with *phring*. It is the point of culmination which completes a *propkai* structure, and is also the place where the *taphon* will start to play in any composition. The *phring* of this line is counted as the first cycle when counting the number of cycles. Then each following line shows one cycle. The second line contains the final strokes of the first *wak* (*tub*) and the second *wak* (*phring*) of the second cycle. In the third cycle, all the strong beats (*chab*) and their strokes are shown. The fourth line is the complete basic pattern which is to be kept as the 'standard' *nathap* for the *propkai* structure on the *taphon*. In the next four cycles, there are the simple possibilities of *sai*, starting by simply filling in every *ching* and *chab* beat and gradually changing to rather more complex versions. At this stage, the teacher will show the student the "popular" variations (line 6- 7- 8) which are frequently used among *taphon* players in the *taphon* performance.

After the student has memorised all the "popular" variations from the teacher, then he will be asked to create his own *sai*, based on the simple strokes of the earlier lessons. This stage is the starting point of 'personal improvisation'. However, the strict 'fixed' framework of the *nathap* during the lesson must be retained. The student must always remember the strict rule that in actual performance he may alter the designated strokes of the *nathap* somewhat, but he must not alter the length of the pattern, except in the case of the special

variation known as *fag* (lit: to deposit) which is made by 'crossing' the rhythm from the previous cycle and 'picking up' the rhythm again at the next cycle. However, the *fag* technique is rarely used in the rhythmic part due to the fact that the drum must provide the correct rhythm for the ensemble. If his *sai* does not satisfy his teacher for some reason, such as missing the last *chab*, or the *sai* does not make sense of 'clever improvisation', the teacher would correct him or compose the appropriate *sai* for him. When the student feels confident with his *sai* pattern, the teacher will give him a more complicated composition based on the basic *nathap* structure which he will practice *sai* along with it. Sometimes, the student must commit the characteristic of the composition to memory as well as the best way to make the *sai* decorations. Also, the teacher will perhaps fix a special variation or *loog len* (Thai term for 'trick') to be applied at certain points of the melody. This method of *sai*-making may applied to any *nathap* in the *taphon* lessons.

3.7.3 The study of *sai*-making on the *taphon*

There are at least 7 challenging and interesting points of *sai*-making on the *taphon* which may be simply suggested:

- 1) where and when the *sai* is introduced into the performance
- 2) the density of drum strokes in *wak* and *nathap* cycle.
- 3) will the *sai* be repeated again?
and if it is repeated, will it remain at the same point of *wak / nathap / thon* ?
- 4) the possibilities and the limitations of the *sai* in each composition
- 5) The general characteristic of the *nathap lak* and the *sai*
- 6) the *sai* activity and the comparative study between the activity of *nathap lak* and the *sai* in the performance.
- 7) the relationship between the *sai* and the basic melody or its variation.

The study and the analysis of *nathap taphon* and *sai*-making based on the *taphon* recordings and performed by the author will be carried out and summarized in the second part of this thesis.

¹The *Mantra* used in this ceremony is one of the most sacred *Mantra* in Thai music. It can be used only once when the new student come to learn music from the teacher who must became the monkhood before and has been granted the permission to be the master of music from the *wai kru* ceremony. The magic words of the *Mantra* is usually kept in secret and the teacher is not allowed to write or pray this *Mantra* in public if not necessary.

²The *taphon* pattern used in *phleng sathukarn* is regarded to be the most important *nathap taphon* for the *pi phat* repertoire, and *phleng sathukarn* composition is believed to have a strong connection with the story of Lord Buddha and Shiva when Shiva honours Lord Buddha by performed this *phleng*. In the traditional music transmission, this *phleng/nathap* is used for the first music lesson and all the students are required to remember this *phleng/nathap* well before going to the next lesson.

In the performance practice, the *taphon* will give the introduction part ('tub ting tub phroeng') to the *pi phat* ensemble which will play the melodic part soon after the *taphon* part.

³the time to perform the yearly *wai kru* ceremony may be different from one group or one school to

another. For example, the *wai kru* of Luang Pradith Phairoh school will be held in the first week of August whereas the *wai kru* of the professional *pi phat* club (Wat Phraphiren, Bangkok) will be conducted in September and the Thai music Club of Chulalongkorn University will arrange the *wai kru* ceremony in January.

⁴On this day, for the convenience of the participants who work or study on official weekdays (Monday to Friday), some schools may use Sunday as an alternative day to perform the ceremony although the tradition still strongly respects Thursday as the true teacher's day.

Chapter 4 NATHAP

4.1 The definition of *nathap*

The term *nathap*, used in this thesis, denotes a basic rhythmic pattern performed cyclically on the drums which are beaten by hand e.g. *nathap taphon*, as opposed to the word *mai* which is the rhythmic pattern for drums beaten by stick e.g. *mai klong thad*. It is a combination of small sub-units of simple drum strokes into a specific rhythmic framework. The drum pattern measures the rhythmic units which underlie the organization of all Thai melodies. The term *nathap* covers the standard patterns to fit general compositions, and also specific patterns to fit particular contexts such as the different metric levels, *chan*, of a composition. A basic *nathap* may be repeated cyclically in successive metrical units. One can see the similarity between the *nathap* with its cyclical rhythmic manner, the *theka* of North Indian music, and other types of repetitious drumming in South East Asia (e.g. *kendangan* cycle in Javanese *gamelan* music and *skor* cycle in Cambodian *pinpeat* music). The usage of the *nathap*, as well as the *ching*, can be found everywhere in Thai music except in very informal contexts when drums might not be used and in special compositions in which only the *ching* is required.

4.2 The history and development of the *nathap*

The term *nathap*, as far as early published Thai (Siamese) literature is concerned, was first mentioned by Prince Sathitthayathamrongsawadi in the music article "*Ruang Khah Rong*" (the story of vocal music), published in the monthly newspaper *Vachirayanwiset* in 1888 (Nawigmul, 1989:108-113). Prince Sathitthayathamrongsawadi, one of King Pinklo's sons and an early Siamese journalist, wrote the article to explain the characteristics of vocal music found in classical and folk styles. In the classical section, he pointed out that the slower beat used in singing is appropriate to *nathap propkai* and the faster beat is *nathap songmai* (Sathitthayathamrongsawadi, 1888: 193; quoted by Nawigmul, *ibid*:112). Since he paid attention to the kinds and the names of vocal music which existed in his time, there were no further explanations given to the term *nathap*. There is another interesting source, oral literature, which is no doubt a valid source of information for Thai traditional music. The earliest evidence of *nathap* was found in the collection of *doksoy sawan* texts from the Ayutthaya period (1350-1767) and compiled by the son of King Mongkut (Rama IV) and scholar in Thai history, Prince Damrongrajanuphab (1920: 1-12). *doksoy sawan* was the dialogue song type which is composed in poetic form and sung in improvisation style with a chorus and rhythmic accompaniment. Traditionally, it was usually sung during the 'water season', *na nam*, from early October to late November. The group of singers/poets and the chorus/musicians used to row boats along the river and sing the *doksoy sawan* when they

met another group. Among the song texts collected from the old court poets by Prince Damrong, there are a large number of old compositions given for the singing parts. The rhythm section, usually the *ching* and the *thap*, the goblet-shaped drum known today as the *thon*, will use different *nathap* to accompany rhythm parts in different compositions. The names of *nathap*, or *thap* for short, were listed together with the names of compositions, or *lam* in short ; e.g. *lam long rua - thap nanghai*, *lam nangkrai - thap nerapati*, *lam sephanai - thap propkai*, *lam sroyson - thap phadcha*, *lam rasamrasai - thap phrathong* etc.. However, nowadays some *nathap* in the *doksoy sawan* texts no longer exist in Thai music, or have been hardly ever heard by the learned Thai musicians. Also, the *doksoy sawan* tradition was completely lost during the changing of Thailand to the modern world in this century. Therefore, the historical documents of *nathap* given by Prince Damrong and Prince Sathitthayathamrongsawadi in the early days of publishing are highly significant as there is little other evidence for the early history of *nathap* in Thai music.

There are several theories, from both the historic and linguistic viewpoints, given by scholars in Thai music concerning the origin of *nathap*. Among those hypothetical works¹ on the development of *nathap*, a famous article written by kru Montri Tramote, *Sub sangkeet*, (1964: 46-47) published by the Department of Fine Art as a standard reference book for Thai musical terminology, stands out from the various opinions. kru Montri remarks on the definition of *nathap* by subdividing this term into two parts, *na* and *thap*. According to kru Montri, the *thap*, a goblet-shaped drum, is played in the old *mahori* ensemble from the Sukhothai to the early Bangkok period in the eighteenth century, and *na* is a corruption of *hua na*, which means the "leader" of the ensemble. Hence, the term *nathap* represents the rhythmic pattern first performed on this drum which has the leading role in the ensemble. Although Thai musicians have since introduced other drums; e.g. *taphon*, *klong song na*, *klong khaek*, and *thon-rammana* into the contemporary *mahori* and *pi phat* ensembles, the term *nathap* still retains today its generic meaning. The drumming patterns performed on these new instruments, however, may vary from those played on the *thap*. Another theory given by an anonymous Thai musician is quoted by Myers-Moro (1988: 436) in her dissertation on ethnography in Thai music. Her informant claims that the significance of the term is comparable to the term *naphat* used in ritual music and dance drama. As the literal translation of *na* is "in front of", and *phat*: referring to percussion instruments in general, hence *naphat* means "to play /to dance in front of percussion instruments". He also suggests that the term *nathap* refers to the common technique of performing the *thap* (or *thon* in the present day), together with the *rammana* in the *mahori* ensemble. According to this musician, the technique consists of striking the *rammana* before /in front of the *thon* thus creating the desired interlocking patterns, *nathap*.

Also, it is interesting to note that in Indian music, the Hindi word '*thap*' meaning 'slap' denotes the main right-hand stroke on the *pakhavaj* (*ta*), and *thapiya* is an alternative word for *theka* (Dr. Richard Widdess, personal communication 1991). This term perhaps

hints another origin of *nathap* since it is known that there are some connections between Indian and Thai classical music.

However, both the explanations given by kru Montri and other authors, like a lot of Thai musical terms, are still unclear and usually confuse readers. Since Thai music is based on an oral tradition and there are very few written documents available to give a clearer reference, this aspect of the definition and the origin of the *nathap* may need further research to clarify it in the proper way.

4.3 The relationship of *nathap* to other aspects of rhythmic structure in Thai music

4.3.1 *changwa*

A complete cycle of a drum pattern is called *changwa*. The *changwa*, broadly speaking, is the 'universal' definition which covers every aspect of rhythm [pulse, beat, metre, phrase etc.] in Thai music. It refers to (1) tempo, i.e. *changwa cha* (slow), *changwa reo* (fast); (2) *changwa saman*, the pulse or a sense of a metrical division throughout the composition; (3) *changwa ching-chab*, the complete unit of ching strokes pattern (4) *changwa nathap*, a complete length of drum cycle. (5) Also, the rhythmic patterns which are created by the other percussion instruments e.g. the *krab* (a pair of wood-blocks) and the *mong* (a single or a set of hanging gongs) may be referred to as *changwa krab* and *changwa mong* respectively.

Two terms frequently used in Thai rhythm are *changwa yai* and *changwa yoy*. The *changwa yai* (the 'big rhythm') is another term for *changwa nathap* which defines the specific length of the musical 'phrase' and is structured according to complete *nathap* cycle/units. The *changwa yoy* (the 'small rhythm') is the length of the *ching* pattern from after one *chab* to the next *chab* in each *chan*, or metrical level, and has its tempo ranging from slow to fast; which this *changwa* can hence be called *changwa ching-chab*.

The difficulties of understanding Thai rhythm by using Thai terms above are somehow against readers who are familiar with the concept of rhythm in Western music. So it is necessary to give a 'surface' equivalent idea on both sides:

Table 1. Thai '*changwa*' and Western 'rhythm' comparison

Thai ' <i>changwa</i> '	Western 'Rhythm'
1. <i>changwa</i> as in general	1. any aspect of rhythm: pulse, beat, metre, phrase etc.
2. <i>changwa saman</i>	2. pulse
3. <i>changwa ching</i> or <i>changwa yoy</i>	3. segment/ a metrical period which is a sub-division of a phrase; as in the length of one complete <i>ching</i> unit
4. <i>changwa nathap</i> or <i>changwa yai</i>	4. phrase/a complete cycle of a rhythmic unit; as in the length of one complete <i>nathap</i> unit

It is also necessary to mention that, in contrast to Western music, when the Thai musician thinks of the rhythm or goes to write music based on Thai *changwa*, he usually stresses the end of a rhythmic or melodic unit rather than the beginning as in the Western concept [for example, within a group of four notes in one bar, Western might be 1 2 3 4 whereas the Thai would be 1 2 3 4].

These Thai rhythm terms can also be compared to other kinds of rhythmic concept in South East Asian musical cultures; e.g. Javanese *gamelan* music or the classical music of Cambodia *pinpeat* and *mahori*² music which are, the author believes, closer and 'deeper' analogies of Thai rhythmic concepts than is Western music. In order to emphasize his personal viewpoint, the author will briefly apply the essential aspects of rhythm from the Thai, Javanese and Cambodian music to contrast with the universally idea of rhythm in the Western sense.

What marks the significance of *gamelan* music, regardless of the magical sounds of gongs and the other metallophone/idiophone instruments, is the idea of colotomic interaction. The following musical terms are employed in *gamelan* rhythmic organization in order to measure a *gending* (composition): (i) *gatra* - the smallest metrical units (4 beats); (ii) *kenongan* consisting of a number of *gatra* and concluded by a stroke on the *kenong* (horizontal knobbed gong set); and (iii) *gongan* - a larger metrical period consisting of a number of *kenongan* and concluded by a stroke on the *gong ageng* or *gong suwukan* (hung large gong). In performance of a piece in *lancaran* form, for example, the musicians must listen to and follow the regular pattern of *kenong*, *kempul* (small hanging gong) and *ketuk* (small horizontal gong) which mark the certain period of *kenongan*. This regular cyclical pattern, or *gongan*, provides the underlying structure for every piece in *lancaran* form. These facts are then common to the Thai case if one can imagine the cooperative structure of the *ching*, *krab*, *mong* and drum(s) in term of *changwa* as the author has mentioned before.

An analogy with *gamelan* may have influenced Morton in his discussion of Thai rhythmic structures. It seems that Morton had absorbed basic *gamelan* structure before he came into contact with the world of Thai music (Morton 1976: vii), as one can notice in most of his cipher notation, whether he used it in the convenient Chinese way or in the *gamelan / Thai* way. Morton has also introduced the signs 0 and + to denote the *ching* and *chab* beat in melody (ibid.:40).³ Moreover, at the end of every two complete *ching-chab* units, he uses the special symbol [±] which combines the *ching chab* into one *mong* (hanging gong) phrase. This *mong* beat appears to be analogous to the gong beat in the *gamelan*. Although he invented the term "Phrase Unit"⁴ to describe the regular pattern of 4 *ching* 4 *chab* per one musical phrase, Morton seems to ignore any further discussion of the larger music structure, the *changwa nathap* unit, which is equivalent to *gongan* in the sense that it is the largest unit of rhythmic structure. Also from personal experience in Thai and *gamelan* music, the author would argue that Morton's concept of "Phrase Unit" never comes into the musician's mind. Rather, Thai and *gamelan* musicians think of the composition and structure in terms of *changwa ching* and *kenongan*; and *changwa nathap* and *gongan*. If one of them wants to compose *phleng* or *gending*, the most important thing is to fix the melody within the complete *changwa nathap* or *gongan* framework. Whatever the details of their melody, the underlying cyclical pattern must retain its integrity: the melody must comprise a whole number of *changwa nathap* or *gongan*. Therefore, the author would like to postulate the relationship between *changwa nathap* and *gongan* in preference to Morton's analysis.

The *changwa nathap* can be regarded as the period of time between the *nathap* ending strokes (*); whereas the *gongan* is the period of time between the *gong* strokes, G. Thus, the similarity of the colotomic phenomena of two cultures, regardless of their specific forms⁵ or their rhythmic structure⁶, may be represented in the following diagram:

Figure 17. Colotomic structure of gamelan music and Thai *changwa*

a) *gamelan: lancaran form*

<i>ketuk</i>	+	+	+	+	+	+	+	+
<i>kempul</i>	(P)		P		P		P	
<i>kenongan</i>			n		n		n	N
<i>gongan</i>								G

b) Thai: *phleng cha form*

<i>changwa ching</i>	o	+	o	+	o	+	o	+
<i>changwa krah</i>		-		-		-		-
<i>changwa mong</i>				±				±
<i>changwa nathap</i>								*

However, from the figure above, it is interesting to note that the *ketuk*, *kempul* and

kenongan strokes do not coincide, whereas the *chab*, *krab* and *mong* do coincide.

In the case of Thai music, *changwa* is thus a period of time between two given points; these points may be marked by one or more non-melodic percussion instruments:

- (a) *ching* only
- (b) *ching+krab*
- (c) *ching+krab+mong*
- (d) *ching+krab+mong+chab* (*chab* here = cymbals)
- (e) *taphon* only
- (f) *klong khaek* only
- (g) *thon* and *rammana* only
- (h) *klong thad* only
- (i) *klong song na* only
- (j) *taphon+klong thad*
- (k) any combination of one from (a)-(d) and one from (c) to (j)

etc.

In the *gamelan* music, analogous rhythmic periods are demarcated by combinations of *ketuk*, *kenong*, *kempul*, *gong* and the *kendang* (drum).

The closest analogy to the Thai concept of *changwa* is found in the classical music of Cambodia. These two countries in fact share the same musical culture, from the 'soul'/tuning system⁷ ; to the 'body'/instruments⁸ as well as the 'spoken language'/compositions⁹. The terms, *choen* (metric level given by the *ching* [a pair of small hand cymbal as similar to Thai *ching*]) and *changvak* (rhythmic pattern which is produced by the *skor* [drum]) are generally used in the Cambodian *pinpeat* and *mahori* ensemble. Since it is accepted that Thai and Cambodian music are similar, the author will leave detailed comparison for a future occasion.

4.3.2 chan

In Thai music, there are different musical forms which can be distinguished by melodic and rhythmic organization. In general, the composition comprises the melodic and rhythmic structure. The composer and musicians will be allowed to interpret the main composition to some degree of freedom and limitation. Both in the melodic and rhythmic sides, the process of interpretation involves the 'vertical' and 'horizontal' music variations and the use of instrumentation. 'vertical' and 'horizontal' variations in this sense, cover the level of expansion and contraction according to mathematical ratios or the other possibilities e.g. use different styles of playing (*keb*, full melody and *kror*, long melody) or different stylistic 'languages', *phasa*.

The musical term used in the process of interpretation of music in different forms is *chan*. By general usage (i.e. everyday spoken language), *chan* (lit: level or degree) can be used as a noun, adverb and adjective¹⁰. In music, this term is employed in both the melodic and rhythmic sides and gives different meanings:

a) In the melodic side, it means 'variation' of the composition. The 'variation' covers every level or degree of the composition. The degree of variation is indicated by the number 1, 2, 3 implying the order of occurrence. *chan* number 1 considered to be the first variation level of the composition and the *chan* with other numbers 2, 3..etc. are the next steps of variation. An interesting fact in variation making in terms of *chan* is that the number of *chan* and the number of notes will increase in both a horizontal and a vertical way. Therefore, the first *chan*, *chan* number 1, will have fewer notes than the second *chan*, *chan* number 2, and *chan* number 2 will have fewer notes than the third *chan*, *chan* number 3 and so on.

b) In terms of rhythm, *chan* is used for describing the *ching* tempo in the performance. In this case, the number 1, 2, 3...etc. symbolize the degree of *ching* tempo from faster to slower. The *ching* tempo is fastest in *chan* number 1, and becomes slower in the next *chan* numbers.

It is to be noted that the numbers 1, 2, 3 ...etc. used in making *chan* in the two cases above are normally written in Thai as *dio* or *nueng* (1), *song* (2), *sam* (3)..etc.. and the traditional term for *chan* number 1, 2, 3 are *chan dio*, *song chan* and *sam chan* respectively.

One of the most important music forms in Thai music is the *thao*. Its literal meaning refers to a set of something in graduated sizes which have a connection with one another. When the term is used in a musical context, particularly in the composition form *phleng thao*, it can be interpreted as a set of variations based on the same main composition framework. The *phleng thao* composition consists of a set of at least three different *chan* put together in order : *sam chan*, *song chan* and *chan dio*.

The use of the *chan* for compositions which form together into *phleng thao* has become one of the topics to puzzle Thai musicians, in particular why the numbers: *sam* (3); *song* (2); and *dio* or *nueng* (1), are put in the opposite order to the naturally logical pattern. Ketukaenchan (1984:6-7) gives an interesting answer to this question by referring the chronological order of the development of the tempi in relation to the evolution of forms in Thai music :

The Thai designations, *sam chan*, *song chan*, and *chan dio*, are not so much indications of order as indications of different tempi and, most importantly, the order of their development in the history of Thai music. The fast *chan dio*, both the tempo and a form, was the earliest to develop - hence its designation as 'first'[1]. The *song chan*, in medium tempo, was a later development, hence No.2. The slowest, *sam chan*, was the last to emerge, and thus characterized as No.3.

This explanation, however, seems to contradict the theory of *phleng thao* published by Tramote (1964: 22), Roongruang (1978:85-92) and Aroonrat (1984:24-40), which are the main reference sources in contemporary academic institutions. In particular, Tramote (ibid) and Roongruang (ibid:85-86), when they refer to the fashion of *thao* composition during its 'popular' time [from King Rama IV - King Rama VI; 1851-1925], state that the composer usually used *song chan* as his main piece to be augmented or diminished. However the questions, why the movements of *thao* compositions are numbered in an apparently illogical order, and whether it is right to state that all the *thao* compositions are based on the *song chan* metric level, require further investigation and cannot be resolved at present.

Phookhaothong (1989:134-143), suggests another solution to this question. He mentions that in fact the *thao* may be conceived from any *chan*, and the term *chan* is just the 'metrical phenomenon' which is used to identify and compare pieces which existed in the same or difference sizes [medium, large, and small]. In the past, these compositions were played separately and independently from each other. When the pieces are grouped together in *thao* form, they are traditionally arranged from slower to faster. Whether the *thao* is developed from the *song chan* metric level or not, it is Thai custom to perform the composition starting from the biggest size [he also suggests the bigger model of augmentation: *sii chan* (4 *chan*), *hok chan* (6 *chan*)] to the smaller size [in the smaller diminution model: *kroeng chan* (1/2 *chan*), *siew chan* (1/4 *chan*)]. The rhythmic percussions such as the *ching* and the drum thus follow the new size of composition.

Phookaonthong also explains the Thai musician's general concept of *thao* composition in which the author will briefly summarize here:

The processes of *thao*-making are concerned with the techniques of augmentation and diminution of the original melodic and rhythmic structure. The new *chan* variation/level will have different length, different degrees of improvisation and different meanings from the old one. However, the relationship of the new *chan* and the original *chan* still retains their essential structures. This can be compared to the processes of enlarging or reducing a main house to bigger or smaller size (ibid:136).

The reason for using a house as a simple model, as given by Phookhaothong, is that one might think of the *phleng* as the 'house' in which the melody and rhythm live. Since the concepts of 'house' are varied the Thai and Western readers, thus it should be noted here that according to the Thai belief, the traditional Thai houses are commonly expanded and reduced in size by strict proportions. Therefore, the 'Thai house *thao*' will come in graded scales. As an architect, after enlarging and/or reducing the *phleng*, the composer will then take the responsibility to deciding how his new *phleng* size should be re-created by means of composition and decoration. When the main *phleng* is enlarged or reduced, the original rhythmic units, *changwa ching* and *changwa nathap*, will change their sizes accordingly.

In practice, we can hear the tempo of the *ching* pattern being varied from *sam chan* to *song chan* and *chan dio* as slow, medium and fast in tempo marking, or can feel the difference of *ching* strokes from one to another. But the drum patterns of the *thao* form are somewhat different in concept from the *ching*. The patterns of drum strokes in different *chan* levels differ in the arrangement of *nathap lak* and the density of drum strokes used in *nathap*. In the *nathap thao*, however, unlike those theories of making *phleng thao* in terms of the melodic augmentation and diminution or the mathematical foundation of *ching* patterns, it is more difficult to find rules for the methods of how to create the new *nathap* from the main one.

Among the large amount of research on *phleng thao* under the aspects of melodic and rhythmic structure, the following works can be recommended: Morton (1976: 182-196); Becker (1980:431); Ketukaenchan (1984); Phookhaothong (1989). Among these, melodic relationships in *thao* form have been studied extensively by Morton (ibid.) with regard to melodic structure and by Ketukaenchan (ibid.) with regard to vocal and instrumental technique. Therefore, there is no need for further discussion of the *thao* from the melodic point of view. The author will therefore look for the meaning of *thao* by analysing only the rhythmic part performed by the drum and *ching* in part II.

However, the author would like to make another remark on the usage of the music terms *sam chan*, *song chan* and *chan dio* to form and explain the melodic structure of *phleng thao*. Again, grammatically, the order and the meaning of the *chan* numbers seem to confuse the Thai language reader. By direct Thai-English translation, *sam chan* means 'three *chan*'; *song chan* means 'two *chan*'; whereas *chan dio* means 'the first *chan*' or 'the first variation' rather than 'one *chan*'. In this thesis, in order to avoid any confusion of:

(a) the composition which can be performed in the *thao* context (i.e. the composition composed of three *chan* altogether and traditionally begins with the largest number (3) and ends with the smallest number (1)) and,

(b) the composition in the individual *chan* context (e.g. the *phleng* which consists of 1 *chan* or 2 *chan* only),

It is proposed to re-define the meaning of *chan* throughout the further discussion and the analysis part of the thesis.¹² The new definitions of *chan* used in *phleng thao* is shown below:

chan: A metrical level in a composition.

chan dio: the shortest metrical level of a *thao* composition.

chan song: the medium metrical level in a *thao* composition. This term is traditionally called *song chan*.

chan sam: the longest metrical level in a *thao* composition. This term is traditionally called *sam chan*.

Traditionally, in *thao* performance, the *chan sam* melody will be the first *chan* to be performed, followed by the *chan song* melody and finishing with the *chan dio* melody.

4.4 *changwa nathap*

It is interesting to observe that in Thai music, the composer and musician use the *changwa nathap* and *changwa ching* to count the length of notes or melodic units, just as in Western notation groups of notes are organized by the music bar. A section of Thai music may be counted in a number of *changwa nathap* and subdivided into a number of *changwa ching*. For example, each section of *phleng khamen saiyok chan sam* is composed of 4 *changwa nathap* and 16 *changwa ching*. Since Thais denote the length of a song by the number of *changwa* it covers, it is important that this term be properly understood. Another word (but rarely used) for *changwa nathap* is *rob* (lit; "round"). One cycle or one *rob* consists of a group of short *wak*, meaning "a phrase" or "a motif"; it does not imply a specific length but always comprises one or more complete *changwa ching* ('*ching chap*').

In a cyclical manner, the last stroke of the last *wak*, falling on the last *chap* (strong beat), is the most important stroke of *changwa nathap* and carries the most important melody note of the cycle. When counting the *changwa*, this stroke serves as a reference point and will be numbered throughout the composition. The following *klong phayang* example illustrates the basic structure of *changwa nathap* in two cycles (1 and 2).

Example 15

o	+	o	+	o	+	o	+	phring	0
								(last <i>changwa</i>)	
.	phring	pa	tub	phring	phring	tub	phring		1
	1st <i>wak</i>		&	2nd <i>wak</i>					
	= 1 <i>rob</i> / <i>rob</i> 1 / 1st <i>changwa</i>								
.	phring	pa	tub	phring	phring	tub	phring		2
	1st <i>wak</i>		&	2nd <i>wak</i>					
	= 1 <i>rob</i> / <i>rob</i> 2 / 2nd <i>changwa</i>								

In the *klong phayang* example above, the activity of cycle 1 will start immediately after the last stroke of cycle 0 which is considered here to be the reference point of the last *changwa*. In *wak* 1, there are 3 strokes (*phring*, *pa* and *tub*) used to make the phrase under 4 *ching* beats. *wak* 2 has 4 strokes (*phring*, *phring*, *tub* and *phring*) which fall on every *ching* beat. The last stroke (*phring*) of the last *ching* beat (*chab* 4) in *wak* 2 is the most important of all the stroke activity and shows the end of the cycle. Here, we can mark number 1 on this last stroke and the activity of this cycle is thus called 1 *changwa* (1 *rob*) and will be played in the given example as *changwa* 1 or the first *changwa*. This method can also apply to the activity in the next cycle and it will be called *changwa* 2 or the second *changwa*.

4.5 The classification of *nathap* in Thai music

From the Thai perspective, the author will classify the *nathap* according to the main category of song types or repertoire (*phleng*) which require different drumming patterns. Broadly speaking, most Thai song types can be divided into three main categories:

- 1) entertainment - 'pure'/concert' music;
- 2) entertainment - music to accompany the dance drama;
- 3) ritual music.

The first can be sub-divided into *phleng sepha*, *phleng ruang*, and *phleng betalet*. The second group, called *phleng lakon*, comprises *phleng naphat* and *phleng kret*. The third group are compositions of *phleng naphat* which are performed in various ceremonies, some connected with Buddhism. Each of the above groups can be further subdivided according to their functions and composition structure. Some compositions can be used in more than one category, in which case the *nathap* or the drums to accompany them must be chosen according to context. There are already some books (see: Morton 1964-1976, Jearadithaporn 1973, Myers-Moro 1988, Ketukaenchan 1989) discussing the significance of those song types and their families, so the author will not go into more detail. Instead the author will proceed to the relation between the *nathap* and the drum(s) to give an idea of the extent and variety of the *nathap* in these three main categories of compositions.

Regarding the compositions found in these three main categories, the majority of the rhythmic patterns (*ching* and drum) used to accompany the first and the second category is, to the author's opinion, rather simpler and considered to be more popular than the third one. The basic *nathap* (*nathap lak*) and the decorations used in the first and second category can be interchanged by different drums (if their *nathap lak* are available) and different *phleng* (if the character of the compositions allows this) whereas the *nathap* in the third category are fixed by the specific usage of the drum and the *phleng*. The *nathap* can be classified into two categories:

- 1) the *nathap* used in general compositions which can be played by any drums, called here *nathap saman* (lit: ordinary *nathap*)
- 2) the *nathap* used in specific compositions which require specific drums, called here *nathap phised* (lit: special *nathap*)

There are a large number of *nathap* used in Thai music. No musician, not even a professional drummer, can say how many *nathap* exist, because the drumming tradition is extremely rich and varied, and is handed down from generation to generation without the use of any written music system. The basic standard pattern of each named *nathap* is usually varied from one drum to another according to the different nature of sounds of the drum-

type. For example, a given standard pattern will be performed differently on the *taphon* and on the *klong khaek*. They may also be played differently on each of these drums according to the music school or style (*thang kru*).

Some of the well-known *nathap* used in both *phleng* categories will be shown in the table below with their names, their *chan* forms, *changwa ching-chab* per cycle, and the different kind of drums used in performance. The number of drum types: *taphon*, *klong khaek*, *thon-rammana*, *klong song na*, *klong yao*, *klong jeen*, *klong malayu*, *perng mang*, *klong chana* and *klong thad* are abbreviated into TP, KK, TR, KS, KY, KJ, KM, PM, KC and KT respectively. The information is based on early drumming lessons with kru Somphong and kru Phin.

A. *nathap saman* type

<u><i>nathap</i> name</u>	<u><i>chan</i> form</u>	<u><i>ching-chab</i></u>	<u>Drum</u>
<i>songmai</i>	<i>thao</i>	2	TP, KK, TR, KS
<i>chaosen</i>	<i>chan song, chan dio</i>	2	KK, TR
<i>lao</i> (Lao)	<i>chan song</i>	2	KK, TR
<i>mon</i> (Mon)	<i>chan song</i>	2	TP, KK, TR
<i>yuan</i> (Vietnamese)	<i>chan song</i>	2	TP, KK, TR
<i>phama</i> (Burmese)	<i>thao</i>	2	KY, TR
<i>farung</i> (Western)	<i>chan song</i>	2	KK, TR
<i>jeen</i> (Chinese)	<i>chan song</i>	2	KJ, KK, TR
<i>senlao</i>	<i>chan song</i>	2	TP, TR
<i>rong ngeng</i>	<i>thao</i>	2	TP, KK
<i>phleng reo</i>	<i>chan dio</i>	2	TP, KK, TR
<i>nang nai</i>	<i>chan song</i>	2 or 4	KK, KM
<i>propkai</i>	<i>thao</i>	4	TP, KK, TR, KS
<i>sadayong</i>	<i>thao</i>	4	KK, TR
<i>khamen</i> (Khmer)	<i>thao</i>	4	KK, TR
<i>worrachet</i>	<i>chan song</i>	8	TP, KK, TR
<i>phrathuong</i>	<i>chan song</i>	8	TP, KK, TR
<i>nang hong</i>	<i>chan sam, chan song</i>	8	KK, KT
<i>sawningthong</i>	<i>chan song</i>	8	TP, KK, TR
<i>khuen ma</i>	<i>chan song</i>	16	KK, TR
<i>long song</i>	<i>chan song</i>	16	TP, KK
<i>bao lud</i>	<i>chan song</i>	16	TP, KK, TR
<i>saraburong</i>	<i>chan song</i>	16	TP, KK, TR
<i>balim</i>	<i>chan song</i>	16	TP, KK, TR
<i>saraburong nai</i>	<i>chan song</i>	20	KK, TR

B. *nathap phised* type

<u>nathap name</u>	<u>chan form</u>	<u>ching-chab</u>	<u>Drum</u>
<i>teao</i>	<i>chan song</i>	4	TP&KT
<i>lo</i>	<i>chan song</i>	8	TP&KT
<i>phayasok</i>	<i>chan song</i>	8	TP
<i>hor</i>	<i>chan song</i>	8	TP&KT
<i>karana</i>	<i>chan song</i>	8	TP
<i>khaoman</i>	<i>chan song</i>	12	TP&KT
<i>la</i>	<i>chan song</i>	16	TP&KT
<i>lom</i>	<i>chan song</i>	16	TP
<i>khamen yai</i>	<i>chan song</i>	16	TP
<i>samer</i>	<i>chan song</i>	18	TP&KT
<i>chamnan</i>	<i>chan song</i>	24	TP&KT
<i>ot</i>	<i>chan song, chan dio</i>	30,14	TP&KT
<i>tra</i>	<i>chan sam, chan song</i>	64,32	TP&KT
<i>choed</i>	<i>chan song, chan dio</i>	(<i>ching</i> only)	TP&KT
<i>kronai</i>	<i>chan song, chan dio</i>	(<i>ching</i> only)	TP&KT
<i>kraonok</i>	<i>chan song, chan dio</i>	(<i>ching</i> only)	TP&KT
<i>kraoran</i>	<i>chan song</i>	?	TP&KT
<i>klom</i>	<i>chan song</i>	(<i>ching</i> only)	TP&KT
<i>prathom</i>	<i>chan song</i>	(<i>ching</i> only)	TP&KT
<i>sathukarn</i>	special form	(<i>ching</i> only)	TP
<i>rua</i>	special form	(<i>ching</i> only)	TP&KT
<i>sarama-plaeng</i>	special form	(<i>ching</i> various)	KK
<i>bualoy</i>	special form	(no <i>ching</i> ; <i>mong</i> only)	KM
<i>ong phra phirah</i>	special form	(<i>ching</i> various)	TP&KT
<i>phak khon</i>	special form	(no <i>ching</i>)	TP&KT
<i>klong yon</i>	special form	(no <i>ching</i>)	PM& KC

Among the *nathap* found in the *saman* type (type A), the most important *nathap* which are frequently used in concert and theatre music are *nathap propkai* and *nathap songmai*. Therefore, it is interesting to give some more brief details to contribute to the understanding of these two *nathap*, whereas the *nathap phised* (type B) will be described in general.

4.5.1 *nathap propkai*

The name of the *nathap*, '*propkai*' has no specific significance. Literally *prop* means 'to clap'; *kai* means 'chicken'. It is the standard and popular *nathap* used to accompany a large number of entertainment repertoire for both concerts and dance drama. Its original

drum pattern, according to kru Montri Tramote (ibid: 46-47), is developed from the rhythmic pattern sung by the chorus in an ancient folk dialogue song, *phleng propkai* or *phleng tob kai*, sung since the late 18th century. kru Montri claims that the chorus pattern, "cha cha cha cha- cha cha hi", has been transformed into the *taphon* pattern "*phring pa tub phring phring tub phring*", and the drum pattern hence called *nathap propkai*. However, it seems strange that the drum's rhythm does not really fit or sound like the original chorus pattern at all, except that they remain the same length (4 *changwa ching-chab* in *changwa song chan*). This theory, however, is still widely accepted and quoted among kru Montri's fellow musicians since there has been no further investigation at the present time.

The structure of one *nathap propkai* unit¹³, in its original version which is *changwa chan song* or medium tempo, comprises 2 *wak* totalling 8 *ching* strokes (i.e. 4 *changwa ching-chab*) and can be notated in 4 bars of 2/4 when Western notation is used. The 'basic pattern', called here, *nathap lak* of *nathap propkai* may vary in its details according to the drum playing it, such as *taphon*, *klong song na*, *klong khaek*, or *thon-rammana*. The *nathap lak propkai* of different drums will be shown in the following example:

Example 18. *nathap propkai thao - nathap lak* (basic *nathap*)

a) *taphon, klong song na* (same *nathap lak*)

chan sam

	O		+
--phring	--pa	---theng	-ting-pa
---theng	-ting-pa	---pa	----tub
----	---phring	----	-ting-phring
---theng	-taling-ting	-thengtingtheng	-tub-phring

chan song

	+		+
----	---phring	---pa	---tub
--phring	--phring	--tub	--phring

chan dio

	O	+		O	+		O	+
--phring	-pa	--	-phring-pa	-tub-phring				

b) *klong khaek*

Note: *klong khaek tua phoo* (male drum) = 'ting' (big head: open); 'cho' (small head: open)

klong khaek tua mea (female drum) = 'thang' (big head: open); 'cha' (small head: open)

chan sam

	O		+
-thang-ting	-cho-cha	-cho-cha	-cho-cha
----	-cho-cha	-cho-cha	-cho-cha
-ting-ting	-thangtingthang	tingthang-ting	-cho-cha
-ting-thang	-ting-ting	-thang-ting	-ting-thang

chan song

	+		+
-thang-ting	-cho-cha	-cho-cha	-cho-cha
-ting-thang	-ting-ting	-thang-ting	-ting-thang

(when repeat, play the below pattern)

talingtingting	-thangtingthang	tingchothangting	thangtingchocha
-ting-thang	-ting-ting	-thang-ting	-ting-thang

chan dio

	O	+		O	+		O	+
--tingthang	-ting--	-tingthangting	-thangtingthang					

c) *thon-rammana*

Note: *thon* = 'tham' (open stroke at the center); 'chong' (open stroke on the rim)

rammana = 'ting' (open stroke on the rim); 'cha' (damped stroke on the rim)

chan sam

	O		+
--thamting	thamtingchachong	--chachong	--chachong
----	--chachong	--chachong	--chachong
-tingtingting	-thamtingtham	tingchothamting	thamtingchachong
-ting-tham	-tingtingting	tingchongthamting	thamting-tham

chan song

	+		+
tingchongthamting	thamtingchachong	--chachong	--chachong
-ting-tham	-tingchongting	-tham-ting	thamting-tham
talingchongting	-thamtingtham	(when repeat, play the below pattern)	thamtingchachong
-ting-tham	-talingtingting	tingchongthamting	thamting-tham
		-tham-ting	

chan dio

	O	+		O	+		O	+
--tingtham	-ting--	-tingthamting	-thamtingtham					

It is worth adding that *propkai* is also the original idea used to compose the other drum patterns in *phleng phasa*, 'languages' such as *khmer* and *khaek*, which share the

same length of *ching* structure. Here, however, the author does not intend to go on to those details of *phasa*, but will discuss the second popular *nathap*, called *songmai*.

4.5.2 *nathap songmai*

nathap songmai, like the *propkai*, is said to be developed from a rhythmic pattern used to accompany an ancient Central Thai folk song. The pattern for *rong don song mai* became a standard pattern to be played on the *taphon* (Roongruang 1989: 42-43). The main character of this song, according to Tramote (1964:42-43), is the art of *rong don* - impromptu ballad-singing in short phrases, flexible improvisation, which has no limited length and is based on the *song mai* melody. This folk song still exists in several folk plays found in rural Thailand, i.e. *yikay* (popular music theatre) and *lakon nok* (Male dance drama). It is usually sung in narrative scenes or in poetic conversations of the plays. The rhythmic pattern, named *nathap song mai* accordingly, is presented by the drum pulse given in the short unit cycle.

The meaning of *songmai* is again confusing and untranslatable [*song* means 'two'; *mai* means 'wood'], however, Phookhaothong (1989:43) suggests that the term *songmai* might refer to 'two *changwa*' or 'two beats'. His argument is that in Thai musical terminology, '*mai*' covers a lot of meanings including: (1) the beating of *klong thad* per stroke or per cycle; (2) a section of *klong khaek* in some compositions, e.g. *phleng sarama*; (3) the original version of *songmai* - which nobody knows - may have some connection with the rhythmic pattern in two beats (two *mai*) of the *klong thad* pattern.

There is neither clearly written nor aural documentation of the original drumming pattern of *songmai* quoted in Thai music history. Despite the suggestion of Tramote (1964: 42-43), that this *nathap* is perhaps the result from an enlargement of the fast tempo on the ancient *nathap phleng reo*, it still not clear how to relate the *phleng reo* pattern¹⁴ to this present *songmai* pattern (see Appendix B) and why the title is so far away from its origin. However, it is generally accepted that the present *songmai* pattern on the *taphon* has been adopted and adapted from folk music into the old classical music repertoire. There are a number of compositions types which have been extensively structured by this *nathap*, ranging from instrumental music such as in the *phleng ruang* (suite)¹⁵ to vocal music in the *phleng lakon* (dance drama) which uses the *songmai* singing style for sad mood¹⁶. The *nathap* then became 'fixed' itself into the standard *nathap* which still remains popular among Thai musicians to this day. Since the tradition of *phleng thao* in *sepha* music emerged in the reign of King Rama III (1824-1851), the *songmai* was chosen along with the *propkai* to be the main *nathap* to structure and measure new compositions. The typical characteristic of the *phleng* (composition) formulated under the *songmai* framework is a short *changwa ching-chab* unit and is rather flexible in comparison to *propkai*. It is interesting that in any *phleng*

songmai, particularly when composed in the *yon* style¹⁷, the composer or the musician is allowed to create or interpret the given *phleng* by means of shortening or extending or subtracting the melody and rhythmic pattern, according to traditional composition methods, without any damage to the main composition and *nathap lak*. The *songmai* pattern used in this special performance practice is therefore variable and thus has its alternative name *-nathap loi* - which can be translated as 'the floating *nathap*' (Nagasawaddi, 1987: 59).

The *songmai* structure has a short cyclical unit, 2 *changwa ching-chab* in its length. It can be written in Western notation as 2 bars of 2/4 time signature. Compared to the length of *propkai* mentioned before, it can be seen that the primary distinction between the *propkai* and the *songmai* pattern is one of length; the *propkai* is proportionately twice as long as the *songmai*. In the three different metric levels of the *thao* form, the *propkai* pattern will always be accompanied by eight *ching* strokes regardless of the tempo, while the *songmai* pattern will have four *ching* strokes.

A *nathap lak songmai* pattern is varied from drum to drum but still retains the *ching* structure. The next example is a *nathap lak songmai thao* for different drums used in the performance.

Example 17. *nathap songmai thao* - basic *nathap* (*nathap lak*)

a) *taphon, klong song na* (same *nathap lak*)

chan sam

-- -phring	-- -phring	--- pa	--- tub
----	---pa	---tub	-- -phring

chan song (2 *nathap lak* versions)

o	+	o	+
--- pa	- tub - ting	--- pa	-tub-phring

or

--- tub	-- -phring	--- phring	--- phring
---------	------------	------------	------------

chan dio

o	+	o	+
--- tub	- phring - phring		

b) *klong khaek*

Note: *klong khaek tua phoo* (male drum) = 'ting' (big head: open); 'cho' (small head: open)

klong khaek tua mea (female drum) = 'thang' (big head: open); 'cha' (small head: open)

chan sam

-thang-ting	-cho-cha	-cho-cha	-cho-cha
-ting-ting	-thangtingthang	-ting-ting	-thangtingthang

chan song

o	+	o	+
ting - chocha	tingting-ting	-cho-cha	tingting-thang

chan dio

o	+	o	+
ting - chocha	tingting-thang		

c) *thon rammana*

Note: *thon* = 'tham' (open stroke at the center); 'chong' (open stroke on the rim)
rammana = 'ting' (open stroke on the rim); 'cha' (damped stroke on the rim)

chan sam

	o		+
--thamting	thamtingchachong	-- chachong	-- chachong
-ting-ting	-thamtingtham	-ting-ting	- thamtingtham

chan song

	o		+
ting - chachong	tingting - ting	-- chachong	tingting - tham

chan dio

	o		+
ting-chachong	tingting - tham		

There are also the group of *nathap phasa*, namely, *lao*, *yuan*, *mon*, *chaosen*, *farang*, *jeen*, which are based on the same structure (i.e. 2 *ching-chab*) of *nathap songmai*. However, the *nathap lak phasa* and their decorations vary from each other and must be performed by more specific drums and other additional rhythmic instruments, e.g. *nathap jeen* will be performed by *klong jeen* (similar to the Chinese vertically suspended drum - *tanggu*) and the *chab yai* (the biggest pair of hand cymbals) whereas the *nathap chao sen* will be performed by either *klong khaek* or *thon-rammana* only.

4.5.3 *nathap phised*

The *nathap phised* category comprises a large number of drumming patterns used to accompany specific pieces:

- 1) pieces that cannot be played like *nathap saman* because of their flexible *ching* rhythm and composition techniques;
- 2) the specific compositions in *phleng naphat* (those performed in ritual music) which require the *klong thad* (a pair of big barrel-shaped drums played by two sticks) to be played together with the *taphon* to complete the *nathap*;
- 3) special compositions using *nathap* specifically composed to suit those melodies, i.e. *nathap sathukarn* for *phleng sathukarn*.

These specially composed *nathap* are fixed patterns which the drummer must play carefully and must try not to mix up with other *nathap*, particularly not with those patterns accompanying *phleng naphat* of the ritual events. Also, the *ching* usage is more diverse: some *nathap* require no *chab* stroke, or no *ching* at all. Another factor which distinguishes the *phised* from the *propkai* and *songmai* categories is the hierarchy within the *phised* category, that is, some *nathap* may be considered as a *chan soong* (lit: 'high class' *nathap*) and some may be categorized under *chan tam* (lit: 'lower class' *nathap*). The distinction between *nathap chan soong* and *nathap chan tam*, in the author's opinion, covers the rhythmic structure of the *nathap*, the traditional belief and the occasions when the *nathap* is to be performed. The *nathap chan soong* (e.g. *nathap ong phra phirap*, *nathap tra sam chan*)

will have a more complex rhythmic structure and will be mainly used to accompany sacred music in the *wai kru* ceremony or religious festivals whereas the *nathap chan tam* (e.g. *nathap samer*, *choed*, *krao nai*) will have a simpler rhythmic structure and can be found in theatre music, concert music as well as religious festivals.

Example 18. *nathap phised: nathap lak*

a) *taphon*

nathap sathukarn [for the first part only] - *ching* only

(<i>taphon</i> intro.)	o		o		o		o
					-- tubting		-- tubtheng
	----		----		----		----
	----		--- theng		--- tha		-- tubting
	----		----		----		----
	----		----		----		--- ting
	----		----		----		--- ting
	----		--- ting		-- tubting		-- tubtheng
	----		----		----		--- ting
	----		--- ting		-- tubting		-- tubtheng
	----		--- ting		--- ting		-- tubtheng
	--- ting		-- tubtheng		--- tha		--- tub

b) *klong khaek*

Note: *klong khaek tua phoo* (male drum) = 'ting' (big head: open); 'cho' (small head: open)
klong khaek tua mea (female drum) = 'thang' (big head: open); 'cha' (small head: open)

nathap sarama from *sarama-plang* (*ching* only)

	o		o		o		o
	- cho - cha		- cho - cha		- cho - cha		- ting - thang
	- cho - cha		- ting - thang		- ting - thang		- cho - cha

c) *klong malayu*

Note: *klong malayu tua phoo* (male drum) = 'ting' (big head: open stroke; beaten by a hammer);
'cho' (small head: open stroke; beaten by hand)
klong malayu tua mea (female drum) = 'thang' (big head: open stroke; beaten by a hammer);
'cha' (small head: open stroke; beaten by hand)

nathap bua loy (no *ching*; *changwa mong* variously)

			±				±
	--- ting		--- ting		--- cho		--- cha
	- ting - ting		- cho - cha		- ting - ting		- thang - ting
	----		- cho - cha		- ting - ting		- thang - ting
	- ting - ting		- thang - ting		- thang - ting		- ting - thang

d) *perng mang* (PM) and *klong chana* (KC)

Note: *perng mang* = 'perng' (big head: open stroke; beaten by hand);

'ting' (small head: open; beaten by hand)

klong chana = 'phruad' (big head: open stroke; beaten by a hammer)

nathap klong yon (no *ching*)

PM	----	--- perng	----	- ting - perng
KC	----	----	----	----
PM	----	- ting - perng	- ting - perng	- perng - -
KC	----	----	----	- - - phruad

e) *taphon* (TP) and *klong thad* (KT)

Note: *klong thad tua phoo* (Male drum) = 'toom' (open stroke; beaten by a hammer)

klong thad tua mea (Female drum) 'tom' (open stroke; beaten by a hammer)

phleng samer - chan song

		o	+	o	+
TP	-- tubting	-- tubphroeng	---	ting	----
KT	----	----	----	----	--- tom
TP	---	ting	---	tha	---
KT	----	----	----	tub	- ting- tub
TP	-- tubtheng	---	tha	---	tub
KT	----	----	----	----	- ting- tub
TP	---	phroeng	--	tingting	- ting- tub
KT	----	----	----	----	- phroeng- theng
TP	-- tubting	-- tubphroeng	---	ting	---
KT	----	----	----	----	--- tom
TP	---	theng	- ting- tub	- thengtingtub	- thengtingtub
KT	----	----	- toom--	---	toom
TP	---	theng	- ting- tub	- thengtingtub	- thengtingtub
KT	----	----	- tom--	---	tom
TP	- ting- theng	- tha- tub	- ting- tub	- ting- tub	- tingtubphroeng
KT	---	toom	---	toom	----
TP	-- tubting	-- tubphroeng	- tha- tub	- ting- tub	- ting- tub
KT	- toom--	---	toom	---	tom

4.5.4 conclusion of the study of *nathap propkai*, *songmai* and *phised*

From the study of the different *nathap* described in this chapter, the clear conclusions can be drawn as follows:

- 1) Namely, that in *nathap propkai* and *songmai* both the sequence of drum-strokes, and the surface rhythm, are different for different *chan* and for different drums.
- 2) The *nathap propkai* and *songmai* are therefore not definable as single pattern of drum-strokes.
- 3) *nathap songmai* is freer than *nathap propkai*.
- 4) Each *nathap phised* can be defined as an established sequence of drum-strokes on specific drums, and in performance the drummer is limited to variations derived directly from the basic pattern.
- 5) To compare the characteristic of *nathap propkai* and *songmai* to *nathap phised*, in the performance, the drummer will have much more freedom to interpret *nathap propkai* and *songmai* than *nathap phised*. because they provide considerable scope for the drummer to create his own variations during performance whereas the *nathap phised* is more fixed and is limited to making variations upon its basic pattern.
- 6) As previously discussed in paragraph 4.1, it is clear that *nathap phised* seem to be more like the concept of *theka* of Indian music rather than the other two *nathap*. (where a particular sequence of drum strokes is associated with a particular *tal* regardless of tempo).¹⁸

However, because of time constraints, the following part will deal with the analysis of *nathap taphon songmai* structure only. The material of study is obtained from the video recording which was performed by the author for the S.O.A.S Music Centre in March, 1990. The two selected *phleng*, *phleng si nuan* and *phleng khaek borrahet thao*, are used as the model of study. The methodology, the results of study found at different levels and the conclusion will be shown in the next part of the thesis.

¹ see Tramote(1964:46-47), Nagasawadi (1984:53-54), Aroonrat (1984), Phookhaothong(1989), Roongruang(1989:27).

²see *pi phat* and *mahori* in the music glossary (Appendix E).

³ The signs o and + are used in various oriental music cultures. For example, a) in Indian music, they are reminiscent of *tala* signs; whereas b) in Burmese music, the signs represent *si* (hand cymbal = (o)) and *wa* (small bamboo clapper =(+)); and c) in *gamelan* music, the sign (o) means *kempyang* note or the sound *tong* on the *kendang* when played by one left finger at the edge and sign (+) refers the *ketuk* note and the sound *tak* on the *kendang* when slapped with all fingers near the middle of the

drum. In the case of Thai music, they are used as a *ching* symbol (o) and *chap* symbol (+). To the author's understanding, these signs were never used in Thai traditional notation nor in music practice before until Morton published his Ph.D thesis in 1964.

⁴ see further details in Morton (1976: 120)

⁵ The actual forms used in the example are *lancaran* (*gamelan*) and *phleng cha* with *nathap propkai* (Thai). The musical forms of both Thai and *gamelan* music are numerous. However, it is possible to mention some well known forms which found in both musical cultures as follows.

In Thai music, the major musical forms include:

(a) *phleng thao*: a set of *phleng* composed of at least three metric levels (i) *chan sam*; (ii) *chan song*, and (iii) *chan dio*. In general, the main body of the *phleng* in each *chan* may consists of 4, 6, 8, 12, 16 or 32 *changwa nathap* (*changwa yai*) and the relative *changwa ching*, *changwa krab* and *changwa mong* (*changwa yoy*). see *thao* and *chan*.

(b) *phleng ruang*: a medley of *phleng* (instrumental music only). The typical form of *phleng ruang* consists of (i) *phleng cha*; (ii) *phleng songma*; (iii) *phleng reo*, and (iv) *phleng la*. The length of *changwa yai* (i.e. *changwa nathap*) and *changwa yoy* (e.g. *changwa ching*, *changwa krab*) may vary according to the body of the *phleng* in each sections.

(c) *phleng tub*: a medley of *phleng* (instrumental and vocal music). It can be divided into (i) *phleng tub* with the same melodic and rhythmic structures for vocal and instruments e.g. same scale, same *changwa ching* and same *changwa nathap*, (ii) *phleng tub* with different melodic and rhythmic structures; (iii) *phleng tub* with the lyrics from the same story; (iv) *phleng tub* with the lyrics from different story. The length of *changwa yai* (i.e. *changwa nathap*) and *changwa yoy* (e.g. *changwa ching*, *changwa krab*) may vary according to the body of the *phleng* in each sections.

(d) *phleng homrong*: Overture. The typical form of *phleng homrong* consists of (i) *rua pralong sepha* / the introduction part; (ii) *phleng homerong* (the main section of overture. The body of this section is usually made up of the *phleng* with *nathap propkai chan sam* structure and has 2 or 4 *thor*; (iii) *walending*. The length of *changwa yai* (i.e. *changwa nathap*) and *changwa yoy* (e.g. *changwa ching*, *changwa krab*) may vary according to the main body of the *phleng* in each sections.

(f) *phleng thayoy* or *phleng yon*: the *phleng* having special character. It is usually created by the techniques of sub-tracking the decorated patterns and ends with the main note of the composition. In this case, the length of *changwa yai* (i.e. *changwa nathap*) and *changwa yoy* (e.g. *changwa ching*, *changwa krab*) are depend on the melodic and rhythmic patterns of the *phleng*.

In *gamelan* music, the major musical forms include:

(a) *gending*: a long form often having 64 beats to a *gong* cycle (or, may be 128 or 256 in some composition). A typical *gending* form consists of (i) *buka* (introduction), (ii) *merong* (first section; composed of *ompak*/first version and *ngelik*/ higher pitches version), (iii) *minggah* (second section; composed of *minggah*/ a variation of the *merong*, *ompak* and *ngelik*), (iv) additions sections called *kalaenjengaken*, (v) *suwuk* (cadential ending).

(b) *ladrang*: a smaller form; comprising 32 *balungan* beats per *gongan*. (4 *kenongan* each of 8 *balungan* beats)

(c) *ketawang*: a smaller form than *ladrang*; comprising 16 *balungan* beats per *gongan*. (2 *kenongan* each of 8 *balungan* beats)

(d) *lancaran*: a smaller form than *ketawang*; comprising 16 *balungan* beats per *gongan*. (4 *kenongan* each of 8 *balungan* beats)

⁶ for the rhythmic structure of *gamelan* music, the term *irama* (lit: the breathing place) is considered to be the most important. In performance, the *gamelan* musician uses this term to indicate the tempo of the composition as well as the instrumentation techniques. There are 5 *irama*: (i) *irama lancar* or *irama 1*; (ii) *irama tanggung* or *irama 1/2*; (iii) *irama dados* or *irama 1/4*; (iv) *irama wilet* or *irama 1/8*; (v) *irama rangkep* or *irama 1/16*.

⁷ There is the concept of an 'ideally equidistant intervals' for the percussion instruments which applied to both court music of Thailand and Cambodia. For the further details, see Danielou 1957:2-4, Kaufman 1962: 2, Brunet 1970: 1, Morton 1976: 117, Tran 1980: 789, Sam 1988: 100-107.

⁸ Thai and Cambodian ensembles share common instruments e.g. xylophone = *ranat* (Thai)/*roneat* (Cambodian); oboe = *pi* (Thai)/*sralai* (Cambodian); drum = *klong* (Thai)/*skor* (Cambodian) etc.

⁹ A great number of compositions in Thailand and Cambodia share common names and melodies, such as *sathukarn*, *kraonai*, *klom*, *choed*, *rua* and *la*. However, the interpretations are different in performance practice and styles.

¹⁰ *chan* as a noun covers a number of meanings which include: level(s), a shelf, a set of shelves; layer, order; floor; class, grade (of officials) and degree. *chan* as an adverb and adjective needs the particular subject/prefix/suffix to make a proper meaning. For example, *chan ton* = firstly or first instance, *chan rag* = the first generation, *chan nai* = inside or inner, *chan nok* = outside or outer, *chan phised* = the special grade etc.

¹¹ This fact is to mirror the imagination of Thai musician and the composition as the place where melody and rhythm reside. The house, however, is not something that one usually does in practical subject and may cause the reader confusion since the universal concepts of 'house' are varied.

¹² The author also introduces some new musical terminology associated with the term *chan*. The purpose for coining these terms is to make a clearer understanding of the complex usages of *chan* in Thai music. The new terms are therefore shown below:

chan chay: the expanded version of the composition where the original *changwa nathap* is retained.

Example:

phleng nakkiew is a *phleng chan sam* with *changwa chan song*.

chan doem: the original composition which is used as base of a *phleng thao*.

chan doem can be either a *chan sam*, *chan song* or *chan dio*. See *chan raek*.

Example:

phleng lao duang daun chan song is a *phleng chan doem* of *phleng som song saeng thao*.

chan khayay: A composition in a new *changwa nathap*, obtained by a process of extension from a *chan doem* composition. Generally it has a longer length than the latter composition.

A *chan khayay* may be a *chan song* or *chan sam*.

Examples:

phleng Nok khamin chan sam is a *chan khayay* of *phleng nok khamin chan song*.

phleng sai phra chan chan song is a *chan khayay* of *phleng nakarach chan dio*.

chan klang: the middle *chan* of a *phleng thao*.

Example:

phleng pae chan song is a *chan klang* of *phleng pae thao*.

chan lot: A composition in a new *changwa nathap*, obtained by a process of reduction from a *chan doem* composition. Generally it has a shorter length than the latter composition.

A *chan lot* may be a *chan song* or *chan dio*.

Examples:

phleng sud sanguan chan song is a *chan lot* of *phleng sud sanguan chan song*

phleng khaek khao chan dio is a *chan lot* of *phleng khaek khao chan song*.

chan plai: the last *chan* of a *phleng khoo* (the *phleng* consists of 2 *chan*) or *phleng thao*.

Example:

phleng klomnaree chan dio is a *chan plai* of *phleng klomnaree thao*

phleng nang hong chan song is a *chan plai* of *phleng nang hong*

chan sam and *chan song* (this piece consists of two *chan* only).

chan raek: Synonym of *chan doem*.

chan tat: A *chan lot* composition where the original *changwa nathap* is retained.

Example:

phleng sroy son tat is a *phleng sroy son chan dio* with *changwa chan song*.

chan ton: the first *chan* in a *phleng khoo* or *phleng thao*.

Example:

phleng nang hong chan sam is a *chan ton* of *phleng nang hong chan sam* and *chan song* (this piece consists of two *chan* only).

phleng thayoy nok chan sam is *chan ton* of *phleng thayoy nok thao*.

¹³ In the book "The Traditional Music of Thailand" published by David Morton (1976:40-43), the term

propkai is however used in different meaning from what the author understood. Morton refers this term to 'slow tempo' or the *phleng cha* section in *phleng ruang* compositions (suite) and the pattern used in the 'extended' version, *sam chan*, of the *thao* form. This can be explained by the character of the slow *ching* pattern which is associated with the performance practice rather than the music structure and the drum pattern. Using the duration of *ching* strokes, one *propkai* pattern has 4 *changwa chaing-chab* structure. This can be also compared to other terms in Morton's view: the *songmai* pattern represents medium tempo and *phleng reo* pattern represents fast tempo. The following chart is the reproduction of his remarks in which the different *ching* patterns when played in different tempo are notated in South East Asian style:

	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
<i>propkai</i>				
<i>sam chan</i>	0	+	0	+
<i>songmai</i>				
<i>song chan</i>	0 +	0 +	0 +	0 +
<i>phleng reo</i>				
<i>chan dio</i>	0 + 0 +	0 + 0 +	0 + 0 +	0 + 0 +

In his statements, Morton seems to mix the music form together with the song-classification. To the author's knowledge, Thai musicians however consider *propkai* being identical to *phleng cha*. Thus, what Morton defined may lead to misunderstanding in his reader as regards the theory and the compositional form of the *thao* and *phleng ruang*. It is known that the *thao* form is uniquely constructed of a single song consisting of three metric levels: *chan sam* (*sam chan*), *chan song* (*song chan*), and *chan dio*, whereas *phleng ruang* is a set of different songs grouped into the standard sequence: *phleng cha*, *songmai*, *phleng reo* and *phleng la*. The tempos of these two song types in fact depend very much on the context of performance, not just on the 'ideal' of the term '*cha*' or '*reo*' as Morton argues. Being a Thai musician, the author knows it is common practice for the *ching* player to keep the timing of the performance of any *phleng* from slow to fast at any convenient speed within the same metric level. In other words, the *ching* has priority to change its pattern to provide the most suitable tempo whereas the drum must keep the responsibility of the underlying *changwa nathap* according to that specific metric level. As a result, sometimes the outsider might get confused when he heard the same composition being played in different *ching* patterns but the *nathap* remains the same.

It may be necessary to mention here another confusing piece of information regarding the chapter on the musical instruments. Morton points out some of the basic *taphon* patterns which include *propkai* - for slow tempos (ibid:70). The illustrated drum notation is in fact *nathap propkai song chan* written down in two cycles (with eight *ching* beats on the top of *nathap* pattern). To the author's knowledge, this *nathap* is used to accompany either the *phleng cha* section in *phleng ruang* compositions or those of *phleng chan song* level particularly composed in *propkai* structure. These two song types cannot be mixed!! (so as the case of *phleng songmai* and *chan song* rhythmic pattern and, *phleng reo* and *chan dio* rhythmic pattern). Hence, in the author's opinion, the term *propkai-sam chan*, *songmai-song chan*, and *phleng reo-chan dio* as used by Morton may not be clear nor the correct way of explaining the concept of rhythmic organisation in Thai music.

¹⁴ the *taphon* pattern for *phleng reo*, in the version performed by the musicians of the Department of Fine Arts, now uses the basic pattern:

0 + 0 +
tub phring phring

and accompanied by *ching* in *chan dio* tempo.

¹⁵ *ruang* - the story or the subject matter in Thai meaning - is a category of the old compositions in Thai instrumental pieces grouped together and somewhat equivalent to the 'suite'.

The *phleng ruang* can be classified into four parts: 1. *phleng cha* (slow tune in *propkai* drum pattern and *ching chan song* or *chan sam* tempo); 2. *phleng songmai* (medium tune in *songmai* drum pattern and *ching chan song* tempo); 3. *phleng reo* (fast tune in *phleng reo* drum pattern and *ching chan dio* tempo); and 4. *phleng la* (farewell tune in *phleng la* drum pattern and *ching chan song* tempo).

This is the best-known, 'standard' structure for *phleng ruang*, called *phleng ruang phleng cha* which is usually referred to or known in Thai music when someone wants to make a brief definition or discussion of

this subject. However, its family is very expansive and can be broken into difference complicated branches. Other well known forms of *phleng ruang* category apart from the prescribed *phleng ruang phleng cha* are: *phleng ruang songmai*, *phleng ruang phleng ching*, *phleng ruang phleng reo* and *phleng ruang nanghong*.

16 the 'sad' mood in *phleng lakon* is set up by using special vocal technique and musical mood. Good examples of this *phleng lakon* are *phleng songmai khaek lobburi* and *phleng thayoy*. Both of them are constructed and accompanied by the *nathap songmai*.

17 *yon* (literary: swinging) is the method of composition using the *luk lor* (question and answer within the same theme) and *luk khad* ((i) question and answer within the different theme; (ii) syncopation) to furnish the main note of *phleng*. It can be varied, shortened, or extended from the main note to the others. However, it is the rule that it must come back into the main note at the end of *yon*.

Example: *yon* from *phleng ok thale chan sam thon 1*
(notations 1 = C, 2 = D, 3 = E, 4 = F, 5 = G, 6 = A, 7 = B
see also discussion on *khong wong yai* keys in Appendix A)

			yon 3 | yon E					
		^o		⁺	^o			⁺
luk lor A	2123	2523	2123	2356	5671	2176	2765	7653
luk lor B	2123	2523	2123	2356	5671	2176	2765	7653
luk lor A	2165	1653	6532	5321	7567	2671	2712	3123
luk lor B	2165	1653	6532	5321	7567	2671	2712	3123
luk khad A	2123	2523	2123	2356				
luk khad B	5671	2176	2765	7653				
luk khad A	2165	1653	6532	5321				
luk khad B	7567	2671	2712	3123				
luk khad A	2123	2523						
luk khad B	2123	2356						
luk khad A	5671	2176						
luk khad B	2765	7653						
luk khad A	2165	1653						
luk khad B	6532	5321						
luk khad A	7567	2671						
luk khad B	2712	3123						
luk khad A	5123	23--						
luk khad B	--51	2323						
luk khad A	2356	56--						
luk khad B	--23	5656						
luk khad A	3216	16--						
luk khad B	--32	1616						
luk khad A	1653	53--						
luk khad B	--16	5353						
luk khad A	3123	23--						
luk khad B	--31	2323						
luk khad A	5321	21--						
luk khad B	--53	2121						
luk khad A	5671	71--						
luk khad B	--56	7171						
luk khad A	7123	23--						
luk khad B	--71	2323						
luk khad A	5123	23--						
luk khad B	--51	2323						
luk khad A	5653	23--						
luk khad B	--56	5323						
luk lor A	5123	---						
luk lor B	---	5123						
luk lor A	5653	---						
luk lor B	---	5653						
luk lor A	5652	---						
luk lor B	---	56523						
luk lor A	5653	---						
luk lor B	---	5653						
end yon (A&B)	5552	5553	5552	5553	5253	5253	5253	5253

¹⁸ Dr. Richard Widdess, personal communication, 1991.

PART II

**ANALYSIS OF
NATHAP SONGMAI STRUCTURE
AS PERFORMED BY THE AUTHOR ON THE TAPHON
IN PHLENG SI NUAN CHAN SONG
AND PHLENG KHAEK BORRATHET THAO**

Chapter 1

Introduction

As has been mentioned in the first part of this thesis, the Thai music repertoire is very vast and the non-melodic percussions used are numerous. Within the time available, it is proposed to study here only:

(a) the *taphon* which is, as mentioned earlier, one of the most important percussion instrument of the Thai ensemble,

(b) and the *nathap songmai*, which is one of the most popular medium length *nathap* found in many Thai repertoires.

The influences of the melodic theme of the *phleng* on the *taphon* performance are left out of consideration. It is thought that the subject is a very important and complex one, thus deserved more attention and time that can be provided in this present study.

Among the recorded materials the author has performed for the Centre of Music Studies S.O.A.S., described earlier, the following two contrasting pieces have been chosen:

(a) *phleng si nuan*, performed in *chan song* form only, and

(b) *phleng khaek borrahet* in the *thao* form.

In these recordings, the instruments used are: the *khong wong yai*, which plays the melodic theme, the *taphon* and the *ching*, which indicates the form and the tempo of the compositions. The main aims of the analysis are:

(a) to establish the particular characteristics of the *nathap songmai* as performed on the *taphon* and,

(b) to study the *nathap songmai* in the context of a *chan song* form and *thao* form.

Due to lack of well defined terms for describing the structure of Thai music, both in Thai and Western languages, it is necessary first to give the meanings of those used throughout this thesis. A new drum notation¹, *lekha sangkeet*, will be also presented here to facilitate the statistical study of the drum performance.

1.1 Terminology and Notations

1.1.1 Terminology

chab: a damped stroke of a *ching*.

ching: an undamped stroke of a *ching*.

changwa: the 'universal' music definition in Thai music which covers every aspect of rhythm (pulse, beat, meter, phrase, tempo, etc.) and is used in the context of measurement.

changwa chab: the period of time which starts after the preceding *ching* stroke and ends on the *chab* stroke. To put it another way, a *changwa chab* begins on hearing the *ching* stroke and finishes on hearing the *chab* stroke of the *ching*.

changwa ching: the period of time which starts after the preceding *chab* stroke and ends on the *ching* stroke. The alternative formulation can be also given in a similar way to that of *changwa chab* mentioned above.

changwa ching-chab: the period of *changwa* comprising a *changwa ching* and a *changwa chab*.

dio: the rhythmic position at which a *ching* or *chab* stroke sounds; called respectively *dio ching* and *dio chab*.

changwa dio: general term to represent the period of time between two *dio*, in other words either a *changwa ching* or a *changwa chab*.

changwa kroeng: One half of the duration of a *changwa dio*.

changwa siew: One quarter of the duration of a *changwa dio*.

changwa kroeng siew: One eighth of the duration of a *changwa dio*.

changwa siew siew: One sixteenth of the duration of a *changwa dio*.

phleng: This word has the following meanings:

1. music, e.g. *phleng Thai* (Thai music), *phleng sakol* (Western music)
2. musical form, e.g. *phleng reo*, *phleng ruang*, *phleng thao*
3. musical genre, e.g. *phleng phithi* (ritual music), *phleng ngansop* (funeral music)
4. musical repertoire, e.g. *phleng naphat*, *phleng mahori*, *phleng sepha*
5. composition, e.g. *phleng si nuan*

However, in this thesis *phleng* refers solely to the musical composition.

raya nathap (*raya changwa nathap*): the total length expressed either as a total number

of *dio* contained in the *changwa nathap*.

thon: section of a *phleng*.

changwa nathap : One cycle of a drum pattern in a composition. By tradition, the length of a *thon* is measured into a number of *changwa nathap*, referred to only as *nathap* for short.

wak: a segment of a *changwa nathap* comprising a multiple number of a combination of *changwa ching* and *changwa chab*. Generally, a complete *changwa nathap* consists of 2 *wak*.

e.g. one *wak* of *nathap songmai* = *ching* + *chab*
 one *wak* of *nathap propkai* = *ching* + *chab* + *ching* + *chab*
 one *wak* of *nathap jeen* = silence + *ching* + *ching* + *chab*

nathap micro structure: the relationship of various drum strokes used within a *nathap* and their frequency of occurrence in the entire performance.

nathap macro structure: the relationship between various *wak* of a *nathap*. It is thought that the distinction between various kinds of *nathap* can be made at this level. The macro structure includes also the study of the degree of decoration of the *nathap* used in the entire performance of a *phleng*.

chan: A metrical level in a *phleng*.

phleng thao: a *phleng* with three or more *chan*. The majority of *phleng thao* has only three *chan*. In this case, it is normally played in the following sequence: *chan sam*, *chan song* and *chan dio*.

chan sam: the longest metrical level in a *phleng thao*. This term is traditionally called *sam chan*.

chan song: the medium metrical level in a *phleng thao*. This term is traditionally called *song chan*.

chan dio: the shortest metrical level in a *phleng thao*.

1.1.2 Symbols

For the purpose of the analysis, some symbols have been used to represent *dio*, *kroeng*, *siew* and *kroeng siew* positions of a *nathap*.

Di = *dio* at a *changwa ching* or *chab* *i* of a *changwa nathap*, where *i* is a number representing a position of a *dio* in a *nathap*. Odd numbers will fall on *changwa ching* and even numbers on *changwa chab* as shown in the chart below:

<i>dio</i> no., Di	D1	D2	D3	D4	D5	D6	D7	D8
<i>ching</i> no.	1		2		3		4	
<i>chab</i> no.		1		2		3		4

In *nathap songmai*, $i = 1$ to 4 (i.e. 2 *changwa ching* + 2 *changwa chab*)

In *nathap propkai*, $i = 1$ to 8 (i.e. 4 *changwa ching* + 4 *changwa chab*)

e.g. D5 = *dio* at the 3rd *changwa ching* of a *nathap propkai*.

D4 = *dio* at the 2nd *changwa chab* of either a *nathap songmai* or *propkai*.

Ki-1 = The first *kroeng* of a *dio* i

e.g. K4-1 = the first *kroeng* of the fourth *dio*, D4.

K7-1 = the first *kroeng* of the seventh *dio*, D7.

Ki-2 = The second *kroeng* of a *dio* i . It is to be noted that the position of **Ki 2** coincides with that of **Di**.

e.g. K3-2 = the second *kroeng* at the third *dio*, D3. K3-2 and D3 have the same position.

K7-2 = the second *kroeng* at the seventh *dio*, D7. K7-2 and D7 have the same position.

Sij = The *siew* of *dio* i at a position j , where $j = 1$ to 4. *siew* **Si2** and **Si4** coincide with **Ki-1** and **Di**.

e.g. S4-3 = the third *siew* at the fourth *dio*.

S5-1 = the first *siew* at the fifth *dio*.

KSik = The *kroeng siew* of *dio* i , *siew* j and at a position k where $k = 1$ to 8

e.g. KS4-2 = the second *kroeng siew* of the fourth *dio*.

The diagram below illustrates the positions of *dio*, *kroeng*, *siew* and *kroeng siew*.

								Di	
				Ki-1					Ki-2
		Si1	Si2		Si3		Si4		
KS11	KS12	KS13	KS14	KS15	KS16	KS17	KS18		

By tradition, a *nathap* is thought to consist of a given number of *wak* and each *wak* consists of a given number of combination of *changwa ching* and *changwa chab* (see examples in 1.1.1). The *nathap songmai* is divided into two *wak*. Each *wak* is built upon one *changwa ching-chab*. Therefore, the complete macro structure of *nathap songmai* can be represented by the format below:

<i>nathap songmai</i>			
<i>wak 1</i>		<i>wak 2</i>	
<i>ching</i>	<i>chab</i>	<i>ching</i>	<i>chab</i>

For convenience, *nathap*, *wak 1* and *wak 2* will be represented by NT, W1 and W2 respectively. Therefore, the *nathap songmai* structure above becomes:

NT			
W 1		W 2	
D1	D2	D3	D4

Traditionally, a *phleng* is thought to be made up of a given number of *chan*. Each *chan* contains a given number of *thon*. Each *thon*, which is generally played with a repeat, is built from a given number of *changwa nathap*. Therefore, the general structure of a *phleng* can be illustrated as below:

PHLENG THAO (illustrated from the top to the bottom)		
<i>chan</i>	<i>thon</i> <i>thon repeat</i>	<i>changwa nathap (s)</i> <i>changwa nathap</i>
next <i>thon</i>		
next <i>chan</i>	<i>thon</i> <i>thon repeat</i>	<i>changwa nathap</i> <i>changwa nathap</i>
next <i>thon</i>		

1.1.3 Notations

It has been decided to adopt the Thai drum syllables, referred to here as *Thai klong phayang*, as described by Phra Chen Duriyanga and later modified by kru Somphong Rohitajol.

The *nathap songmai* is traditionally notated in *Thai klong phayang* as follows:

chan sam :

	o		+
- - - phring	- - - phring	- - - pa	- - - tub
- - - -	- - - pa	- - - tub	- - - phring

chan song (2 versions) :

	o	+		o	+
- - - pa	- tub - ting	- - - pa	- tub - phring	- - - phring	- - - phring
or	- - - tub	- - - phring	- - - phring	- - - phring	- - - phring

chan dio:

o	+	o	+
- - - tub	- phring	- phring	- phring

Generally, the above *Thai klong phayang* notation is quite satisfactory for the purpose of teaching and learning the *taphon*, however, it is clearly very cumbersome for the purpose of an analytical study.

It is in the tradition to notate various instrumental parts in the form of cipher notation known as *lekha sangkeet* in Thai. Many examples of this kind of notation can be found in publications by Duriyaban Music Ltd. for string instruments such as *saw ou*, *saw duang*, *jakay* and *khim*. In this thesis, in order to facilitate the analysis study, we have devised a new *lekha sangkeet* for the *taphon* where the *Thai klong phayang* are represented by cipher notation below. The order of numbers 0 to 12 refers back to the 12 basic strokes previously discussed in chapter 3.5 of part I:

0 = - (rest, none)	7 = tub
1 = theng	8 = phring
2 = thoet	9 = phroeng
3 = tha	10 = phrued
4 = pa	11 = phroet
5 = ting	12 = plang
6 = tued	

We have also adopted David Morton's symbols for the *ching* strokes below:

o = *ching* + = *chab*

1.1.4 *lekha sangkeet*

In essence, the drum *lekha sangkeet* is based on a principal of tablature notation where each number represents a *kroeng siew*, *siew*, and *kroeng* in *chan sam*, *chan song* and *chan dio* respectively. Therefore, each *dio* contains 8 *kroeng siew*, 4 *siew* and 2 *kroeng* in *chan sam*, *chan song* and *chan dio* respectively. Furthermore, unlike in Western notation, it is traditionally thought that the accent falls on the last note of the *dio*.

In the example below, there are two groups of four *siew* strokes in *chan song* which represents the following *Thai klong phayang*:

Example 20. *siew* strokes: *Thai klong phayang*, *lekha sangkeet* and Western notation

	theng	theng	theng	0 theng	theng	theng	theng	+ theng	
	1	1	1	1	1	1	1	1	

Using this system, the notation of *nathap songmai* to be studied here will be notated as follows:

<i>chan sam</i> :	D1	D2	D3	D4
	o	+	o	+
	| 0008 |	| 0008 |	| 0004 |	| 0007 |
	| 0000 |	| 0004 |	| 0007 |	| 0008 |

<i>chan song</i> :	D1	D2	D3	D4
	o	+	o	+
	| 0004 |	| 0705 |	| 0004 |	| 0708 |
or	| 0007 |	| 0008 |	| 0008 |	| 0008 |

<i>chan dio</i> :	D1	D2	D3	D4
	o	+	o	+
	| 0007 |	| 0808 |		

Generally, for convenience, a group of four notes is separated by vertical bar lines. To avoid confusion between the notation for various *chan*, either the *ching* strokes or the *chan* form of the *phleng* must be given. The identification of the *nathap* would not be complete unless the name and numbers of the *changwa nathap* are provided for each *thon*.

In addition, a *kroeng siew* of *chan song* and *siew* in *chan dio* are traditionally written in small numbers as shown below:

taling = 55 ting-ngud = 66

However, it was found that these special notations are very inconvenient in the

analytical work. Therefore, we have introduced an expanded form of *lekha sangkeet* notation in which the unit is a *kroeng siew* of all the three *chan*. This format will be used in place of the standard *lekha sangkeet* whenever clarity is called for. The expanded forms of *nathap songmai* can be written as follows:

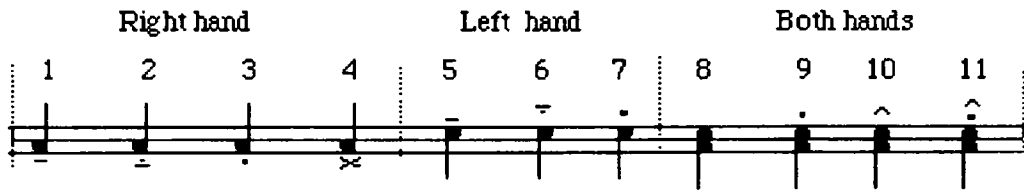
<i>chan sam:</i>	D1	D2	D3	D4
	o	+	o	+
	| 0008 0008 |	| 0004 0007 |	| 0000 0004 |	| 0007 0008 |
<i>chan song:</i>	D1	D2	D3	D4
	o	+	o	+
	| 0000 0004 |	| 0007 0005 |	| 0000 0004 |	| 0007 0008 |
or	| 0000 0007 |	| 0000 0008 |	| 0000 0008 |	| 0000 0008 |
<i>chan dio:</i>	D1	D2	D3	D4
	o	+	o	+
	| 0000 0000 |	| 0000 0007 |	| 0000 0008 |	| 0000 0008 |

In this case, the *ching lchab* beat will fall always on the last *kroeng siew* of a *dio* (i.e.KSi8). So, ideally, vertical barlines may be used to separate groups of eight notes. This convention implies, of course, that the values of *dio* (therefore, *siew* and *kroeng siew*) are different in each *chan*. Generally, It is thought that the *chan sam dio* has twice the length of the *chan song dio*; whereas that of *chan dio* has half the length of *chan song dio*. Therefore, to avoid any confusions, the *chan* form of the *phleng* must be always given (due to the fact that in the expanded *lekha sangkeet* form, the *ching* patterns are the same for all *chan*).

The expanded *lekha sangkeet* has clearly the advantage of having *dio*, *kroeng*, *siew* and *kroeng siew* at the same positions in all the *chan*. Therefore, it is a convenient format for comparative studies between various *chan* of a *phleng thao*. It is to be noted also that in *chan sam*, the expanded *lekha sangkeet* has the same form as that of the standard one. Throughout this thesis, '*lekha sangkeet*' will refer to the standard unexpanded form unless otherwise specified.

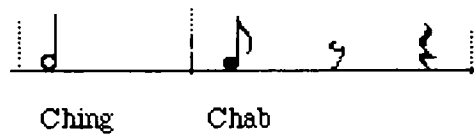
1.1.5 Western staff notation

Since the introduction of Western notation in Thailand by Phra Chen Duriyanga during 1929, it is customary to notate Thai music in 2/4 time signature for all *chan* forms. Time signatures 1/8 and 7/4 have been also used in some exceptional music forms such as *phleng choed chan dio* and *phleng chom talad*. By this convention, the notations of *nathap songmai thao* are as follows:

11 basic *taphon* strokes form Chen Duriyanga's notation

Chen Duriyanga's *taphon* notation represent the following *klong phayang*:

Right hand	Left hand	Both hands
1 = theng	5 = ting	8 = phring
2 = thoed	6 = tued	9 = phroeng
3 = tha	7 = tub	10 = phrued
4 = pa		11 = phroet

ching symbols form Chen Duriyanga's notationExample 20. *nathap songmai thao* form Chen Duriyanga's notation

Chan Sam

Taphon

Ching

Chan Song

Taphon

Ching

Chan Dio

Taphon

Ching

The example shows three systems of notation for different pieces: Chan Sam, Chan Song, and Chan Dio. Each system consists of a Taphon staff (with a 2/4 time signature) and a Ching staff. The Taphon staffs contain notes with stems pointing up or down, and some notes have a cross symbol. The Ching staffs contain notes with stems pointing up or down, and some notes have a squiggle above them.

In Duriyanga's notation, the *taphon* part is written on the staff containing only three lines and without a clef below the notation for the *ching*. The *ching* staff consists of only one line.

In this notation, the notes representing the sounds produced on the bigger drum head are written in the lower space, whereas those of the smaller head in the higher space. The combined sounds of the two heads are written as though they are a chord. When the same time signature of 2/4 is used and the value of the crochet note (one quarter-note) remains

practically the same. The *ching* patterns for various chan forms are as indicated in the notation above.

In this thesis, due to unavailability of three-line and one-line staves in the Professional Composer music program, the standard five-line staff is used with addition of adapted notations from Chen Duriyanga's invention. Furthermore, a box symbol has been used in place of the clef for the *taphon*. As for the notation for the *ching*, David Morton's symbols will be written above the staff. It must be stressed here that the *ching* notation is of vital importance to the *taphon* notation. The reason is, due to the fact that the same time signature of 2/4 being used for all *chan* form, the distinction between the tempo and forms of the *phleng* and *nathap* can only be identified by the *ching* strokes. Therefore, the notations for the *nathap songmai taphon*, with appropriate *ching* patterns, can be written in the form below:

Example 21.

The image shows three musical staves, each labeled on the left: Chan Sam, Chan Song, and Chan Dio. Each staff begins with a box symbol (representing a clef) and a 2/4 time signature. The notation consists of rhythmic patterns on a five-line staff. Above the notes, there are various symbols representing *ching* patterns: circles (some with a dot above), plus signs, and arrows. The Chan Sam staff has a sequence of notes with these symbols above them. The Chan Song staff has a similar sequence. The Chan Dio staff has a shorter sequence of notes with symbols above them. The notation is complex and specific to the *nathap songmai taphon* form.

To clearly identify the actual *chan* form of the *phleng* and *nathap*, either the *chan* form (*chan sam*, *chan song* or *chan dio*) or the *ching* patterns (shown in the notation above) must be always given. It is to be noted also that, with the use of single time signature of 2/4, a cycle of the *nathap songmai thao* can be said to have the length of 4 bars, 2 bars and 1 bar in *chan sam*, *chan song* and *chan dio* respectively.

Thai *nathap* are invariably in duple meter, consisting of a weak and a strong beat marked by a *ching* and *chab* strokes respectively. It is to be noted also that, here the *nathap* cycle is thought to begin first with a *ching* stroke and to finish with a *chab* stroke. Therefore, Duriyanga's notation pays attention to this Thai perception of the *nathap* cycle. However, as quoted by David Morton (1976:228), Prasit Silpabanleng (a Western-trained Thai musician) says that this method of notation does not "look" or "feel" right to him. Also, in the author's opinion, as trained in the traditional way of writing and reading Thai music, it is found that difficult and always confused himself to be able to relate the Western philosophy of writing music. David Morton also gives another reason why this notation is less satisfactory than the Thai traditional *lekha sangkeet* notation. In his words (ibid):

In the Western pattern of metric emphasis with the strong pulse on the first beat of a measure, the three patterns for the *ching* appear as in chart 3.

In this method of notation the *ching* patterns for propkai begin with an unaccented stroke, while the other two *ching* patterns begin with accented strokes. The reason for this is that, as indicated below in the last measure, each division ends with an accented *ching* stroke; therefore, according to this method of notation, the pattern of the next "faster" pattern must be introduced in the final measure of the preceding pattern (chart 4).

These patterns are made much clearer and become more organized and systematic if notated in the pattern of emphasis found in South East Asian music with the emphasis on the final beat of the group of pulses or the phrase (chart 5).

Instead of Morton's charts 3, 4 and 5, we are producing here an equivalent staff notation for a continuous performance of *nathap songmai chan sam*, *chan song* and *chan dio* in order to illustrate the problem.

Example 22.

Assuming that the *nathap* in each *chan* form are repeated once, the *ching* pattern in the second time bar of *chan sam* must be replaced by the *chan song ching* pattern. Similarly, the *ching* pattern in the second time bar of *chan song*, again, must be replaced by the *chan dio ching* pattern. Obviously, this writing is not as clear and organised as can be achieved in the Thai traditional *lekha sangkeet* writing below:

<i>chan sam</i>	| --- 8 |	^o | --- 8	⁺ --- 4 |	| --- 7 |	---	^o | --- 4 |	| --- 7	⁺ --- 8 |
repeat								
<i>chan song</i>				^o | --- 4	⁺ - 7 - 5 |	^o | --- 4	⁺ - 7 - 8 |	
repeat								
<i>chan dio</i>						^o | --- 7	⁺ - 8 - 8 |	
repeat								

In order to retain the simplicity of the Thai traditional writing, Mr. Um Mongkol suggests an alternative notation based on the Western metrical concept. The *nathap* can be regarded to begin with the last stroke of the Thai *nathap* which is a *chab* stroke satisfying thus the Western requirement of having a strong beat at the first beat of the first measure of a *nathap* cycle. By this convention, the foregoing example becomes:

Example 23.

The notation system above, still requires the appropriate *ching* pattern to be indicated above the staff notation in order to identify the *chan* form. Furthermore, the *ching* patterns and the number of measures in each *chan* are different and do not reflect the duple feature of Thai music (i.e. two beats per measure). These anomalies can be corrected by the use of time signatures $2/2$, $2/4$ and $2/8$ in *chan sam*, *chan song* and *chan dio* respectively. The resulting notation for the *nathap songmai thao* now may be written as below:

Example 24.

This alternative still retains the Thai concept of beginning the *nathap* by a *ching* stroke. However, it can be seen already that the *nathap* in each *chan* form now have the following features:

- (i) all *nathap* cycles are of equal length of two measures,
- (ii) all measures are in duple time,
- (iii) the *ching* patterns remain the same throughout,
- (iv) the crochet note value, as far as tempo is concerned, can be taken to be the reference note duration in every *chan* forms.

In addition, following the concept of a *nathap* cycle beginning by a *chab* stroke as mentioned earlier, the above notation becomes:

Example 25.

Example 25 shows three staves of musical notation. The top staff is labeled 'Chan Sam' and has a 2/2 time signature. The middle staff is labeled 'Chan Song' and has a 2/4 time signature. The bottom staff is labeled 'Chan Dio' and has a 2/8 time signature. Above each staff are rhythmic markings: '+' and '>' above the first two notes, and 'o' above the last two notes. The notes are quarter notes in Chan Sam, eighth notes in Chan Song, and sixteenth notes in Chan Dio.

Finally, the examples of *nathap songmai thao*, when played in sequence, can be written in the following form:

Example 26.

Example 26 shows three staves of musical notation. The top staff is labeled 'Chan Sam' and has a 2/2 time signature. The middle staff is labeled 'Chan Song' and has a 2/4 time signature. The bottom staff is labeled 'Chan Dio' and has a 2/8 time signature. Above each staff are rhythmic markings: '+' and '>' above the first two notes, and 'o' above the last two notes. The notes are quarter notes in Chan Sam, eighth notes in Chan Song, and sixteenth notes in Chan Dio.

It must be mentioned however, in this convention, although the *ching* patterns and the *chan* forms may be omitted, all the *nathap* can be still identified by the presence of the time signatures (i.e. $2/2 = \text{chan sam}$, $2/4 = \text{chan song}$ and $2/8 = \text{chan dio}$).

The convention so far applied to the notation is based on the *ching* patterns which was assumed by previous music scholars such as Duriyanga and Morton to be the criteria of the metric form of the *changwa nathap*. However, in performance, the strong beat which is the last *chab* stroke of a *nathap* cycle (in Thai concept of *changwa*), is generally reinforced by other colotomic percussion instruments such as the *krab*, the *mong* and sometimes the *klong thad*, among which the *mong* or the *klong thad* is the cycle marker. Therefore, the *changwa nathap* can be regarded as composed of the total number of *dio* in the *nathap* cycle. This argument, as examples, leads to the concept that *nathap songmai* and *nathap propkai* being *nathap* with four beats and eight beats per cycle respectively. The corresponding notation of these *nathap* will have the following forms:

Example 27.

Example 27 shows two staves of Thai music notation. The first staff is labeled "Chan Sam" and the second "Chan Song" and "Chan Dio". Above the notes are symbols: "+" and "o" indicating strong and weak beats respectively. The notation includes rhythmic values like "9" and "7" and various note heads.

Example 28.

Example 28 shows three staves of Thai music notation. The first staff is labeled "Chan Sam", the second "Chan Song", and the third "Chan Dio". Above the notes are symbols: "+" and "o" indicating strong and weak beats respectively. The notation includes rhythmic values like "9" and "7" and various note heads.

In these format, the *ching* patterns are regular throughout the *nathap* with alternating strong beats (*chab*) and weak beats (*ching*). Thus the time signature 4/2, 4/4, 4/8, 8/2, 8/4 and 8/8, unlike in Western practice, should be regarded to consists of these *ching* patterns only. It stands to reason that they may be omitted without serious drawback. The dotted bar lines are used to mark the duple meter of the *nathap* and to facilitate the reading. Furthermore, as far as *nathap* used in *phleng thao* is concerned, the *chan* forms are no longer required to be indicated. They can be identified by the time signatures alone, once this convention is accepted and written in the rules of Thai music notation.

1.1.6 *nathap* generation :*nathap noeur* & *nathap roon*

We are introducing here the concept of the structure of the *nathap*. It is believed that all *nathap* can be built from the most basic structure, with the least number of drum strokes, to a more complicated ones by adding more embellishing strokes at various positions of the *nathap*: *nathap noeur* and *nathap roon*.

nathap noeur is an analytical abstraction of the structure of a *nathap*, which is intended to provide the minimal information characterizing the *nathap*. It is considered to consist solely of strokes at *dio chab* positions of the *nathap*.

nathap roon is a decorated level of a *nathap noeur*. *nathap roon* 1, 2, 3, 4 represent *nathap* with at least one decorated stroke at *dio ching*, *kroeng*, *siew* and *kroeng siew* positions respectively.

The above concept is applicable to all Thai *nathap*. However, we are giving here only examples of two most popular *nathap*: *nathap songmai* and *nathap propkai* written both in the standard and expanded *lekha sangkeet*. The underlined positions indicate the levels (*dio ching*, *kroeng*, *siew* and *kroeng siew*) at which the *nathap* are decorated.

Example 29.

(a) Standard *lekha sangkeet*
nathap songmai chan song

		o	+	o	+
<i>noeur</i>	0000	0000	0000	0000	0000
<i>roon</i> 1	0000	0000	0000	0000	0000
<i>roon</i> 2	0000	0000	0000	0000	0000
<i>roon</i> 3	0000	0000	0000	0000	0000

(b) Standard *lekha sangkeet*
nathap propkai chan song

		o	+	o	+	o	+	o	+
<i>noeur</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 1	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 2	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 3	0000	0000	0000	0000	0000	0000	0000	0000	0000

(c) Expanded *lekha sangkeet*
nathap songmai chan song

			o		+		o		+
<i>noeur</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 1	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 2	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 3	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 4	0000	0000	0000	0000	0000	0000	0000	0000	0000

(d) Expanded *lekha sangkeet*
nathap propkai chan song

			o		+		o		+
<i>noeur</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 1	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 2	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 3	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>roon</i> 4	0000	0000	0000	0000	0000	0000	0000	0000	0000

As has been mentioned earlier in part I of this thesis, it is customary to teach a version of *nathap*, called *nathap lak* to a drum student. The *nathap lak* of a given *nathap*

may be varied from school to school. Due to oral tradition, the *nathap lak* taught by the same *kru* may even be different from pupil to pupil. As will be discussed later, most of the *nathap lak* will fall within a *nathap roon* mentioned above.

1.1.7 Tempo

As a rule, in Thai traditional ensembles, no conductor (in Western sense) is employed. Each performance normally begins with a solo introduction of one instrument of the ensemble or the vocal part. The remaining instruments or the chorus and including the *ching* generally join in at a convenient place as soon as possible. In the case of the non-melodic percussion instruments, the end of the first *nathap* is the most usual beginning point to start. It is clear that the tempo (here, the term *changwa* is used once again!) is dictated to begin with, by the soloist in the introduction and not by the *ching* player as commonly believed. During the performance, the tempo is really adopted collectively by all the performers of the ensemble and, in this case, the *ching* player can be said to be simply the receiver as well as the transmitter of the 'collective' tempo being performed. Occasionally, the *ching* player may impose a more consistent tempo in order to bring back the players which are momentarily out of step with each other. The changes of tempo during any parts of the performance are generally dictated by the leader of the ensemble who, at the time, could be playing any instrument of the ensemble.

During rehearsals, the indication of the desired tempo, *changwa*, are expressed in the following Thai terminology:

<u>tempo</u>	<i>cha mag</i> (very slow), <i>cha</i> (slow), <i>pan klang</i> (medium), <i>reo</i> (fast), <i>reo mag</i> (very fast), <i>wai</i> (very very fast)
<u>mood</u>	<i>cha sao</i> (sad and slow), <i>cha wan</i> (sweet and slow), <i>sabai</i> (comfortable pace), <i>reo sanuk</i> (fun and fast), <i>reo talok</i> (jolly and fast), <i>reo grot</i> (angry and fast)
<u>action</u>	<i>euay</i> (floating and slow), <i>luay</i> (snake pace), <i>doen</i> (walking pace), <i>doen thap</i> (marching pace), <i>wing</i> (running pace)

Also, the words *changwa sam chan / sam chan*, *changwa song chan / song chan* and *changwa chan dio / chan dio* are used to mean: slow, medium and fast tempo respectively. However, these terms have a different sense from that of metrical level.

Due to the confusion of the traditional terms (i.e. *chan* (=form) and *chan* (=tempo)) and the limit of ability to define the meaning of tempo in Thai music, thus it is necessary to study tempo in more details. In this chapter, in order to have some indication of the tempo used in actual performances, some selected recorded commercial performance have been measured and analysed.

1.1.7.1 Selection of materials

The selection of the recorded performances is based on:

(i) commercial recorded performances. In total 45 performances are selected from 25 commercial labels.

(ii) only three main categories of ensemble are considered: *pi phat*, *mahori* and *kruang sai*.

(iii) only *phleng thao* form are considered here. If possible, more than one version of each *phleng* are measured. Sometimes, other versions are not a complete *thao* performance. However, these type of performances can be used to illustrate the tempo of various *chan* when played separately.

(iv) preference is given to performance with vocal parts in order to study its relative tempo to the instrumental parts.

(v) only two *nathap* are considered: *songmai* and *propkai*. The drums in the performances are: *taphon*, *klong khaek*, *thon-rammana*, *klong song na*, *taphon mon*, *perng mang kauk*. A performance with a drum machine is included for comparison only.

1.1.7.2 Equipments and method of measurement

Two models of hand-held metronomes are used:

(i) Seiko quartz metronome model SQM-359. The range of marking is: 40-60 (step 2), 60-72 (step 3), 72-120 (step 4), 120-208 (step 8).

(ii) Seiko model DM-20 digital metronome. The range of marking is: 30-250 (step 1).

The tempo measured are related to the tempo of the pulse which is taken to be the duration of a crochet note (one-quarter note) in all *chan* forms. Therefore, the tempo marking for various *thao* forms, are as shown below:

chan sam

<i>ching</i> strokes	+		o		+
pulse (crochet note)	^	^	^	^	^

chan song

<i>ching</i> strokes	+		o		+
pulse (crochet note)	^		^		^

chan dio

<i>ching</i> strokes	+		o		+
pulse (crochet note)	^				^

It is clear that the tempo of *ching* strokes in *chan sam*, *chan song* and *chan dio* are 1/2, 1 and 2 times the measured pulse tempo respectively. The adoption of the same measured pulse tempo in each *thao chan* allows us to have a direct comparison between the tempo of each *chan* forms.

Both the slowest and the fastest tempo, referred to as minimum and maximum respectively, are measured for every *thon*, vocal parts, instrumental parts and *chan* forms of every *phleng* considered here.

1.1.7.3 Analytical procedure

Five statistical values of tempo are calculated from the measured tempo:

(i) minimum tempo, the minimum value in any given set of measured minimum tempo.

(ii) maximum tempo, the maximum value in any given set of measured minimum tempo.

(iii) average minimum tempo, the value equals the sum of the measured minimum tempo divided by the total number of the measured tempo in any given set of measured minimum tempo.

(iv) average maximum tempo, the value equals the sum of the measured maximum tempo divided by the total number of the measured tempo in any given set of measured maximum tempo.

(v) average tempo, the value equals the average of the calculated average minimum and maximum tempo. (the sum of the calculated minimum and maximum average tempo divided by 2).

The measured tempos are analysed in three different categories where the following are considered:

- (a) *phleng thao* with more than one version,
- (b) ensemble types: *pi phat*, *mahori* and *kruang sai*
- (c) all *phleng*.

1.1.7.4 Results

Generally, the measured and calculated values of tempo scatter over a very wide range. However, the overall picture of the tempo changes in the actual performances considered here reveals the following facts:

(i) Each *thon* begins with a slower tempo and finishes with a faster one. In instrumental passages, the faster tempo can be as much as six times faster than the slow tempo in the *chan sam* of the *pi phat* ensemble. In other ensembles, this ratio is maintained at the same value of approximately two throughout the performances. In the vocal parts, the increase of tempo at the end of each *thon* is less than twice that at the beginning throughout the performances.

(ii) Taking the average pulse tempo at the *chan sam* as unity, the tempo of the instrumental parts increases gradually towards the *chan dio* where it can be about 1.5 times that of *chan sam*. This is applicable to all ensemble types. In the vocal parts, this value is more than 2.

(iii) Generally, there is an abrupt change of tempo at the junction between the instrumental and vocal parts. This drop of tempo can be as large as 3 times in *chan sam*. However, in *chan dio* there are no difference in tempos between the instrumental and vocal parts.

(iv) It appears to have three ways of ending a performance: with a normal tempo, with a slower tempo and with a *loog mod* (coda). In the second way of ending a performance, the tempo is reduced to about a quarter from that at the beginning of the last *thon*. In the third case, the *loog mod* tempo varies between 1.2 to 2 times of that of the last *thon*.

(v) Further details can be found in the appendix D.

The results of the study are summarized in the tables belows:

(paste: summary of (8 special) measurements tempo)

(paste: summary of (8 special) measurements tempo)

1.2 Methodology of *nathap* analysis

In order to achieve the aims set out in chapter 1.0, it is proposed to carry out the analysis of the two *phleng* in two levels: macro and micro structures of the *nathap*.

The author shall begin first by the study of the micro structure and then will continue with the macro structure of the *nathap*.

1.2.1 *nathap* micro structure

The study of the micro structure of the *nathap* will be carried out in the following stages:

- (i) *phleng si nuan chan song*,
- (ii) *phleng khaek borrahet chan song*,
- (iii) the combined study of *phleng si nuan* and *phleng khaek borrahet chan song*,
- (iv) *phleng khaek borrahet chan sam* and *chan dio*

In each of these stages, in order to study various relationship between drum strokes used in the *nathap*, it was found necessary to consider the followings:

- (a) *Thai klong phayang* of performed *nathap*
- (b) *lekha sangkeet* of performed *nathap*
- (c) Expanded *lekha sangkeet* of performed *nathap*
- (d) *nathap roon 1* of performed *nathap*
- (e) Drum stroke distribution at *dio* positions in *wak 1* and *wak 2*
- (f) Drum stroke distribution at *changwa chab* of *wak 1*
- (g) Drum stroke distribution at *changwa chab* of *wak 2*
- (h) Underlying *nathap noeur*
- (i) *dio* relationship in *wak 1*
- (j) *dio* relationship in *wak 2*
- (k) Summary of drum stroke relationships in *wak 1* and *wak 2*
- (l) distribution of drum strokes at *changwa kroeng*
- (m) distribution of *kroeng* stroke in the relation to *dio* stroke
- (n) *kroeng* patterns from expanded performed *nathap*
- (o) *siew* and *kroeng siew* patterns from expanded performed *nathap*
- (p) collected *klong phayang* from *kroeng*, *siew* and *kroeng siew*

1.2.2 *nathap* macro structure

The following aspects of the macro structure of the *nathap* will be investigated:

- (a) distribution of *nathap lak* in performed *nathap*
- (b) distribution of *nathap noeur* in performed *nathap*
- (c) variation of performed *nathap* from *nathap lak*
- (d) degrees of the decoration of the *nathap* at *chan sam*, *chan song* and *chan dio*
- (e) characteristics of *nathap songmai taphon*
- (f) macro structure of *nathap songmai* in relation to other *nathap taphon*

¹devised by the author and Mr. Um Mongkol, 1991.

Chapter 2

ANALYSIS OF NATHAP SONGMAI (TAPHON) IN PHLENG SI NUAN CIHAN SONG

2.1 Introduction

phleng si nuan is performed here only in its *chan song* form in order to obtain the contrast with *phleng khaek borraethet thao* in both the character of the piece as well as the context in which it is performed. *phleng si nuan chan song* is one of the most popular and important pieces in *phleng ruang*. It is a concert piece which may be performed both by *pi phat* and *mahori* ensembles. It is also generally performed during the waiting for the arrival of Buddhist monks or during their meal times where the atmosphere is required to be calm and unemotional. It is also used in semi-classical dance performance, where it is admired for its sweet lyrics in the vocal part (not included here). In the latter case the music can be considered to be played in a more exuberant mood than in the former case. However, the performance of the author in this study was rather in a more neutral mood.

2.2 Form and structure of *phleng si nuan*

As the *taphon* has been selected as the instrument to be studied here, it is required by tradition that the melodic instrument should be played in the *pi phat* pitch level. In the case of *phleng si nuan*, the pitch level is *thang nai* (Thai G). Melodically, the piece is pentatonic consisting of notes *nai*, *klang*, *phieng or hon*, *klang haeb* and *chawa* (Thai G A B D E).

It is commonly known that *phleng si nuan* is a *changwa chan song* in *nathap songmai* [Tramote 1980: 501]. The piece contains 4 *thon* where the second and the fourth *thon* have identical *noeur phleng*. Each *thon* consists of 4 *changwa nathap songmai*. Although it is possible to use the *nathap lak* throughout the piece, however it will be found no two identical *nathap* have been used in the recorded performance. In fact the *nathap lak* has not been used at all in the original form.

The performance has been transcribed in the traditional *Thai klong phayang* for the *taphon* and in *lekha sangkeet* for the *khong wong yai*. The Western notations for both instruments can be found in the appendix.

2.3 Analysis of drum stroke distribution and frequency of occurrence

For the purpose of the analysis, the performed *klong phayang* for the *taphon* only will be used here. This transcription is further converted into the standard *lekha sangkeet* presented below:

2.3 a) *phleng si nuan chan song nathap songmai (taphon)*

Thai klong phayang: the performed nathap

thon 1 - first (4 changwa nathap)

0	+	0	+
- - - -	- - - -	- - - -	- - - -
- - - -	- - - -	- - - -	- - - phring
- - - tub	- - - phring	- - - phring	- - - phring
- - - tub	- talingtingphring	- thengtingphroeng	- tub - phring

thon 1 - repeat (4 changwa nathap)

0	+	0	+
- - - pa	- - tubting	- - ting - pa	- tub - phring
- - - pa	- tub - ting	- theng - tha	- tub - phring
- - - pa	- tub - ting	- thengtingpa	tingtubpatub
- - thaphroeng	- tubphroengting	- tha - phroeng	- tub - phring

thon 2 - first (4 changwa nathap)

0	+	0	+
- - - tub	tubtub - phring	- phring - tub	- tha - phroet
- - - tub	- - - pa	- - - ting	- - - phring
- phring - pa	- tub - phring	- phring - pa	- tub - phring
- - - theng	- thatubting	tubthatubphroeng	- tub - phring

thon 2 - repeat (4 changwa nathap)

0	+	0	+
- - - tub	tingthengtingpa	- ting - theng	- - tubphring
- - - pa	- - tubting	- ting - pa	- tub - phring
- patingpa	tubtingtubphroeng	tingtubpating	tubthengtingpa
- ting - phroeng	- tha - tub	- - - ting	tingtingtingphroeng

thon 3 - first (4 changwa nathap)

0	+	0	+
- - - tub	- - - phring	- phring - tub	- phring - phring
- - - theng	tingtheng- tub	- ting- theng	- tub - phring
- tubtingphroeng	-tubphringtingtub	tingthengthatub	- tingtubphring
- - - tub	- phring - phring	- phring - phring	- theng - phring

thon 3 - repeat (4 changwa nathap)

0	+	0	+
- - - pa	- - tubting	tubpatubting	- pathaphroeng
- - tubphring	- phringtubphroeng	phroengpatub	tubtingthengting
- - - pa	- tub - ting	- phring - pa	- - tubphring
- pa - taling	tingtingtubpa	- tued- theng	- tub - phring

thon 4 - first (4 changwa nathap)

0	+	0	+
- - - ting	- pa - -	papapating	- thengtub -
ting - tingphring	- tingtingphring	tingtingthengting	- tub - phring
- phring - tub	- phring - phring	- phring - tub	- pa - tub
- ting - phroeng	- tha - tub	- ting - phroeng	- thatubting

thon 4 - repeat (4 changwa nathap)

0	+	0	+
- - - pa	- - tubting	- ting - pa	- - tubting
- phring- pa	- talingtubting	- pa - pa	- tub - phring
- - - pa	- tub - phring	- phring - pa	- tub - phring
- ting - phroeng	- tub - ting	- - - phring	- - - phroeng

**2.3 b) *phleng si nuan chan song nathap songmai (taphon)*
*lekha sangkeet : the performed nathap***

<i>thon</i> <i>dio</i>	<i>wak 1</i>		<i>wak 2</i>	
	D1	D2	D3	D4
<i>ching</i>	o	+	o	+
1.1	00 00	00 00	00 00	00 00
	00 00	00 00	00 00	00 08
	00 07	00 08	00 08	00 08
	00 07	05 58	01 59	07 08
1.2	00 04	00 75	00 50	07 08
	00 04	07 05	01 03	07 08
	00 04	07 05	01 54	57 47
	00 39	07 95	03 09	07 08
2.1	00 07	77 08	08 07	03 01
	00 07	00 04	00 05	00 08
	08 04	07 08	08 04	07 08
	00 01	03 75	73 79	07 08
2.2	00 07	51 54	05 01	00 78
	00 04	00 75	05 04	07 08
	04 54	75 79	57 45	71 54
	05 09	03 07	00 05	55 59
3.1	00 07	00 08	08 07	08 08
	00 01	51 07	05 01	07 08
	07 59	07 57	51 37	05 78
	00 07	08 08	08 08	01 08
3.2	00 04	00 75	74 75	04 39
	00 78	08 79	09 47	75 15
	00 04	07 05	08 04	00 78
	04 05	55 74	06 01	07 08
4.1	00 05	04 00	44 45	01 70
	50 58	05 58	55 15	07 08
	08 07	08 08	08 07	04 07
	05 09	03 07	05 09	03 75
4.2	00 04	00 75	05 04	00 75
	08 04	05 75	04 04	07 08
	00 04	07 08	08 04	07 08
	05 09	07 05	00 08	00 09

*11 = stroke eleven (phroet)

2.3.1 Stroke distribution on *changwa ching-chab chan song*

In the table below, the distribution of each drum stroke used at the *changwa ching* and *changwa chab* of *wak 1* and *2* have been collated. The first figures in each column represent drum stroke types and the figures in brackets are the total number of strokes used in the performance.

Table 5. *phleng si nuan: dio* stroke distribution on *changwa ching-chab*

<i>wak 1</i>				<i>wak 2</i>			
D1 o	D2 +			D3 o		D4 +	
0 (2)	6.3%	0 (3)	9.4%	0 (2)	6.3%	0 (2)	6.2%
1 (2)	6.3%	1 (0)	0.0%	1 (3)	9.4%	1 (0)	0.0%
2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%
3 (0)	0.0%	3 (0)	0.0%	3 (1)	3.1%	3 (0)	0.0%
4(11)	34.4%	4 (3)	9.4%	4 (8)	25.0%	4 (1)	3.1%
5 (2)	6.3%	5 (11)	34.4%	5 (6)	18.8%	5 (3)	9.4%
6 (0)	0.0%	6 (0)	0.0%	6 (0)	0.0%	6 (0)	0.0%
7 (8)	25.0%	7 (4)	12.5%	7 (5)	15.6%	7 (2)	6.2%
8 (2)	6.3%	8 (9)	28.1%	8 (3)	9.4%	8(20)	62.5%
9 (5)	15.6%	9 (2)	6.3%	9 (4)	12.5%	9 (3)	9.4%
10(0)	0.0%	10(0)	0.0%	10(0)	0.0%	10(0)	0.0%
11(0)	0.0%	11(0)	0.0%	11(0)	0.0%	11(1)	3.1%
total 32	100%	total 32	100%	total32	100%	total 32	100%

2.3.2 Distribution of drum strokes at *changwa chab* of *wak 1*

Conclusions:

1) drum strokes used in a *dio* D2 are from high to low frequency of occurrence: 5, 8, 7, 4 and 0, 9. It is therefore interesting to find that strokes 5 and 8 which are prominently used at this position in the *nathap*, confirm the presence of the same strokes used in *nathap lak* (34.4 and 28% respectively).

2.3.3 Distribution of drum strokes at *changwa chab* of *wak 2*.

Conclusions:

1) drum strokes used in a *changwa chab*, D4, of *wak 2* are from high to low frequency of occurrence: 8, 5, 7, 9, 4, 11, 0. The stroke 8 which occurs 64.5% of the time is the most important of the *nathap* at this position.

2) the occurrence of strokes 5 and 9 can be explained by the fact that they are the drum strokes used in making stroke 8.

2.3.4 Underlying *chan song* - *nathap noeur*

In the columns one and two of the table below, the performed drum strokes at the *dio* D2 and D4 respectively are shown. The number of occurrences of the combination of the two drum strokes are given in brackets in column three. Column four shows the percentage of the number of occurrence in respect to the total number of *changwa nathap* (4 *thon* x

repeat x 4 *changwa nathap* = 32 *changwa nathap*). In the fifth column the total percentage of the occurrence of a *nathap* used have been worked out. For example, pattern (5,8) which corresponds to the underlying *nathap*: *songmaichan song* :

wak 1	wak 2
0 +	0 +
0000 000 <u>5</u>	0000 000 <u>8</u>

occurs seven times in the performance which is amount to 21% of the total of 32 *nathap*. Also *nathap* in which stroke 8 are used in the *changwa chab* of wak 2 total to 62.5%.

Table 6. *phleng si nuan*: summary of *nathap noeur*

column no.				
1	2	3	4	5
D2	D4			
+	+			
0	0	(1)	3%	[non performed cycle]
0	0	(1)	3%	total 6.3%
9	4	(1)	3%	total 3.1%
5	5	(1)	3%	
7	5	(1)	3%	
9	5	(1)	3%	total 9.4%
5	7	(1)	3%	
8	7	(1)	3%	total 6.3%
0	8	(1)	3%	
4	8	(3)	9%	
5	8	(7)	21%	
7	8	(2)	6%	
8	8	(7)	21%	total 62.5%
5	9	(2)	6%	
7	9	(1)	3%	total 9.4%
8	11	(1)	3%	total 3.1%

Conclusions

1. the most used *nathap noeur* are:

0 +	0 +	
0000 000 <u>5</u>	0000 000 <u>8</u>	21%
0000 000 <u>8</u>	0000 000 <u>8</u>	21%
0000 000 <u>4</u>	0000 000 <u>8</u>	9%
0000 000 <u>7</u>	0000 000 <u>8</u>	6%
0000 000 <u>5</u>	0000 000 <u>9</u>	6%

2.3.5 *dio* relationship in the *wak 1*

For the purpose of studying, the relationship between drum strokes at *changwa ching* and *chab* of *wak 1*, the strokes at *dio* D1 and D2, are written in columns 1 and 2 of the table below. They are classified by patterns ending with same strokes, SP at *dio* D2. The number of each patterns are written in column 3. The percentages in column 4 represent the relative percentages of each pattern within SP. For example, in SP ending with stroke 5 consisting of a total of $(1+8+2) = 11$ patterns, the pattern (4, 5) has a total 8. Thus the relative percentage of this pattern is $100\% \times 8 \div 11 = 72.7\%$. In column 5, the absolute percentages are equal to $100\% \times 8 \div 32 = 25.0\%$, where 32 is the total number of *changwa nathap* in the *phleng*. In column 6, the total absolute percentages of each set of patterns are given. For patterns ending with stroke 5, the total absolute percentages is equal to $3.1\%+25.0\%+6.3\% = 34.4\%$. Therefore, it can be said that the pattern (4,5) occurs 72.7% in the set of patterns ending with stroke 5, and 25.0% of the total *changwa nathap*. The set of patterns ending with stroke 5 forms 34.4% of the total *changwa nathap*.

Table 7. *phleng si nuan*: summary of *dio* relationship in *wak 1*

1 D1 o	2 D2 +	3	4	5	6
0	0	(2)	66.0%	6.3%	
5	0	(1)	34.0%	3.1%	9.4%
5	4	(1)	34.0%	3.1%	
7	4	(2)	66.0%	6.3%	9.4%
1	5	(1)	9.1%	3.1%	
4	5	(8)	72.7%	25.0%	
9	5	(2)	18.2%	6.3%	34.4%
1	7	(1)	25.0%	3.1%	
9	7	(3)	75.0%	9.4%	12.5%
4	8	(2)	22.2%	6.3%	
7	8	(6)	66.7%	18.8%	
8	8	(1)	11.1%	3.1%	28.1%
4	9	(1)	50.0%	3.1%	
8	9	(1)	50.0%	3.1%	6.3%
total		(32)		100%	

Conclusion

1. It is found that strokes 5 and 8 are used most at the *changwa chab* of *wak 1*. And stroke 5 is the preferred one.
2. When stroke 5 is used in the *changwa chab*, stroke 4 is the most likely the one to be used (73%) at *changwa ching*.
3. When stroke 8 is used in the *changwa chab*, stroke 7 is the most likely the one to be used (66.7%) at *changwa chab*.

2.3.6 *dio* relationship in the *wak* 2

The table below has been made with the same principle used in chapter 2.3.5, but appropriate for *dio* D3 and D4 of *wak* 2.

Table 8. *phleng si nuan*: summary of *dio* relationship in *wak* 2

1 D3 o	2 D4 +	3 4	5	6
0	0	(1)50.0%	3.1%	
5	0	(1)50.0%	3.1%	6.3%
5	4	(1)100%	3.1%	3.1%
4	5	(1)33.3%	3.1%	
7	5	(1)33.3%	3.1%	
9	5	(1)33.3%	3.1%	9.4%
4	7	(1)50.0%	3.1%	
7	7	(1)50.0%	3.1%	6.3%
0	8	(1)5.0%	3.1%	
1	8	(3)15.0%	9.4%	
3	8	(1)5.0%	3.1%	
4	8	(6)30.0%	18.8%	
5	8	(2)10.0%	6.3%	
7	8	(2)10.0%	6.3%	
8	8	(2)10.0%	6.3%	
9	8	(3)15.0%	9.4%	62.5%
5	9	(2)66.6%	6.3%	
8	9	(1)33.3%	3.1%	9.4%
7	11	(1)100%	3.1%	3.1%
total		(32)	100%	100%

Conclusion

1. Clearly stroke 8 is the most used at the *dio* D4 (62.5%), against 9.4% for stroke 5. This reinforces the practice in the *nathap lak*.
2. When the stroke 8 is used in D2, stroke 4 is most likely the one to be used (30%) at D3. Other possible strokes at *dio* D3 are equally shared between stroke 0, 1, 3, 5, 7, 8 and 9.

2.3.7 Summary of drum stroke relationships in *wak* 1 and *wak* 2

In paragraphs 2.3.5 and 2.3.6, it was found that the most frequently used patterns in *wak* 1 and *wak* 2 are SP ending with strokes 5 and 8, shown in columns 2 and 3 of table below. Therefore, only the statistics of those SP patterns have been included. In column 1, the *wak* numbers of the selected patterns are shown. In column 4, 5 and 6, the total number of occurrences of each patterns, total number of patterns in each SP patterns, and the total absolute percentages of each SP patterns are given.

Table 9. *phleng si nuan*: summary of *dio* relationship in *wak 1* and *wak 2*

1 wak	2 D1, D3 o	3 D2, D4 +	4	5	6
1	1	5	(1)		
1, 2	4	5	(9)		
2	7	5	(1)		
1, 2	9	5	(3)	(14)	21.9%
2	0	8	(1)		
2	1	8	(3)		
2	3	8	(1)		
1, 2	4	8	(8)		
2	5	8	(2)		
1, 2	7	8	(8)		
1, 2	8	8	(3)		
2	9	8	(3)	(29)	45.3%
other combination				(21)	32.8%
total				(64)	100%

Conclusion

1. It is evidently clear that:

a) Preferred patterns in the *wak 1* are:

$$\begin{array}{cc} \text{o} & + \\ 0004 & 0005 \\ 0007 & 0008 \end{array}$$

b) Preferred pattern in the *wak 2* is:

$$\begin{array}{cc} \text{o} & + \\ 0004 & 0008 \end{array}$$

Therefore, the most used *nathap noeur songmai* of *chan song* are:

$$\begin{array}{cccc} \text{o} & + & \text{o} & + \\ 0004 & 0005 & 0004 & 0008 \\ \text{and} & & 0007 & 0008 & 0004 & 0008 \end{array}$$

compared to the *nathap noeur* of *nathap lak* of Kru Somphong:

$$\begin{array}{cccc} \text{o} & + & \text{o} & + \\ 0004 & 0005 & 0004 & 0008 \\ \text{and} & & 0007 & 0008 & 0008 & 0008 \end{array}$$

The only difference between the author's *nathap noeur* and those of Kru Somphong is his preference for stroke 4 to stroke 8 in the *changwa ching* of *wak 2*.

2. The patterns which are common to *wak 1* and *wak 2* are:

$$\begin{array}{cc} 0004 & 0005, \\ 0009 & 0005, \\ \hline 0004 & 0008, \\ 0007 & 0008, \\ 0008 & 0008 \end{array}$$

2.3.8 Distribution of drum strokes at *changwa kroeng* on the *chan song*

In the table below, drum strokes used at the four *kroeng* positions of *nathap* have been collated. As before, in each column the first numbers represent stroke numbers, the second numbers in brackets are the number of occurrences and the third are the percentage of occurrences. These occurrences of drum strokes have been counted without referring to the drum strokes played in *changwa dio*. (0000 0000 0000 0000)

Table 10. *phleng si nuan*: summary of drum strokes at *changwa kroeng* positions

<i>wak 1</i>				<i>wak 2</i>			
K1-1		K2-1		K3-1		K4-1	
0 (23)	71.9%	0 (9)	28.1%	0 (6)	18.8%	0 (8)	25.0%
1 (0)	0.0%	1 (2)	6.3%	1 (4)	12.5%	1 (3)	9.4%
2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%
3 (0)	0.0%	3 (3)	9.4%	3 (2)	6.3%	3 (2)	6.3%
4 (2)	6.3%	4 (1)	3.1%	4 (4)	12.5%	4 (2)	6.3%
5 (3)	9.4%	5 (5)	15.6%	5 (6)	18.8%	5 (3)	9.4%
6 (0)	0.0%	6 (0)	0.0%	6 (1)	3.1%	6 (0)	0.0%
7 (1)	3.1%	7 (8)	25.0%	7 (1)	3.1%	7(13)	40.6%
8 (3)	9.4%	8 (4)	12.5%	8 (7)	21.9%	8 (1)	3.1%
9 (0)	0.0%	9 (0)	0.0%	9 (1)	3.1%	9 (0)	0.0%
10(0)	0.0%	10(0)	0.0%	10(0)	0.0%	10(0)	0.0%
11(0)	0.0%	11(0)	0.0%	11(0)	0.0%	11(0)	0.0%
total 32	100%	total 32	100%	total 32	100%	total 32	100%

Conclusion

1. at the *kroeng* position K1-1, the tendency is not to use any decoration at all (0 = 71.9%). If decoration is used then, strokes 5 and 8 are equally used (9.4%). It is to be noted also that stroke 7 is hardly used at all.
2. Now, at the *kroeng* position at K2-1 (*changwa dio chab*), either no decoration or stroke 7 are used (28.1 and 25.0% respectively). Next to these two stroke, stroke 5 or 8 are often used. This can be explained by the fact that the *dio* stroke of *wak 1* tends to be the stroke 8 which will be apparent in the next analysis.
3. Again at this *kroeng* position, either no decoration is used or strokes 8 and 5 are the predominant ones (21.9 and 18.8 % respectively). Strokes 4 and 1 trail at 12.5%. Again stroke 7 is hardly used.
4. As *kroeng* K4-1 is the most important position of the *nathap*, it is not surprising to find that strokes 7 are used up to 40.0% of the time, probably for decorating stroke 8 at *changwa dio*. However, no decoration is also preferred. Strokes 1 and 5 are sometimes used.
5. It is important to notice that the stroke 7 is most used at K2-1 and K4-1, whereas it is barely used at all at K1-1 and K3-1.

2.3.9 Distribution of *kroeng* strokes in relation to *dio* strokes.

In the last section, we have studied the distribution of *kroeng* strokes without reference to *dio* strokes. Now the patterns formed by *kroeng* and *dio* strokes in *wak 1* and 2

are considered.

In column 1, patterns of *kroeng* and *dio* strokes which have been used in the performance are shown. The number of occurrences in each *dio* of the *nathap* are shown in columns 2, 3, 4 and 5. And, the total number of occurrences of the patterns in the whole piece are shown in column 6, with the corresponding percentages in column 8. Whereas in column 7, the relative percentages of patterns ending with the same strokes in *dio* positions.

Table 11. *phleng si nuan*: summary of *kroeng* strokes in relation to *dio* strokes

PATTERN		No. of pattern								total	CW %	total%
Ki-1	Ki-2	K1-1	K2-2	K2-1	K2-2	K3-1	K3-2	K4-1	K4-2			
0	0	2		2		2		1		7	77.8	5.5
1	0	0		0		0		1		1	11.1	0.8
4	0	0		1		0		0		1	11.1	0.8
0	1	2		0		0		0		2	40.0	1.6
5	1	0		0		2		0		2	40.0	1.6
6	1	0		0		1		0		1	20.0	0.8
1	3	0		0		1		0		1	100	0.8
0	4	8		1		0		0		9	39.1	7.0
1	4	0		1		1		1		3	13.0	2.3
4	4	1		0		1		0		2	8.7	1.6
5	4	0		1		3		0		4	17.4	3.1
8	4	2		0		3		0		5	21.7	3.9
0	5	1		4		2		1		8	36.4	6.3
3	5	0		1		0		1		2	9.1	1.6
4	5	1		0		2		0		3	13.6	2.3
5	5	0		1		1		1		3	13.6	2.3
7	5	0		5		1		0		6	27.3	4.7
0	7	7		0		0		0		7	35.0	5.5
1	7	0		1		1		0		2	10.0	1.6
3	7	0		2		0		0		2	10.0	1.6
4	7	0		0		0		1		1	5.0	0.8
7	7	0		0		0		1		1	5.0	0.8
8	7	1		1		3		0		5	25.0	3.9
9	7	0		0		1		0		1	5.0	0.8
0	8	2		2		2		5		11	32.4	8.6
1	8	0		0		0		1		1	2.9	0.8
5	8	0		2		0		1		3	8.8	2.3
7	8	0		3		0		12		15	44.1	11.7
8	8	0		2		1		1		4	11.8	3.1
0	9	1		0		0		1		2	14.3	1.6
1	9	0		0		1		0		1	7.1	0.8
3	9	0		0		2		0		2	14.3	1.6
4	9	0		0		0		1		1	7.1	0.8
5	9	3		1		1		1		6	42.9	4.7
7	9	1		0		0		0		1	7.1	0.8
8	9	0		1		0		0		1	7.1	0.8
3	11	0		0		0		1		1	100	0.8
TOTAL		32		32		32		32		128	-	100

Conclusion

1. Examination of percentages of patterns used, in column 8, reveals that a great variety of combinations of strokes in *kroeng* and *dio* positions occurred. But it is possible to say that the pattern using stroke 7 and 8 at *kroeng* and *dio* position respectively (i.e. 0708) is the most often used (11.7%).

2. Next, patterns 0008, 0004, 0005 and 0007 are frequently used. Thus, the preference for a non decorated stroke on the *changwa dio* is quite clear.

3. If decorations are needed, patterns 0705, 0509, 0804, 0807 are used.

2.3.10 Distribution of strokes at *siew* and *kroeng siew* positions

The examination of the performed *nathap* used in *phleng si nuan* reveals the following patterns of decorated *dio* up to *siew* and *kroeng siew* levels. They are classified below by their ending strokes in *dio* positions. The total numbers and percentages of occurrences are related to the total number of *changwa nathap* (32) of *phleng si nuan*.

Table 14. *phleng si nuan*: summary of *siew* and *kroeng siew* decorations

	D1	D2	D3	D4
	-	-	-	0170
	0454	5154	00504	7154
	-	5574	0154	-
	04055	0075	4445	0075
	-	0375	7475	0375
	-	05575	5515	7515
	-	-	5745	-
	-	5107	5137	5747
	-	07857	0947	-
	5058	05508	-	0078
	0078	0558	-	0578
	-	7708	-	-
	0759	7579	0159	0439
	0039	0879	7399	5559
<u>Total</u>	(6)	(12)	(10)	(10)
<u>Percentage</u>	18.8%	37.5%	31.3%	31.3%

Conclusion:

1. Out of 128 *dio* in the whole piece (32 *changwa* x4 *dio* = 128 *dio*), only 38 contain *siew* decorations ranging from 18.8% to 37.5 % in each *dio*. The total decorated *dio* amount to 30%.

2. the strokes which are used in various *siew* positions are as follows:

S1-1: 0, -, -, -, 5, -, -	(2)
S1-3: -, -, -, 3, -, 5, -, 7	(3)
S2-1: 0, -, -, -, 5, -, 7	(3)
S2-3: 0, -, -, -, 5, -, 7	(3)
S3-1: 0, -, -, -, 4, 5, -, 7	(4)
S3-3: -, 1, -, 3, 4, 5, -, 7, -, 9	(6)
S4-1: 0, -, -, -, 5, -, 7	(3)
S4-3: -, 1, -, 3, 4, 5, -, 7	(5)

- a) the most decorated *dio* is the D4 where up to 6 possible drum ending strokes (included 0) may be selected for use.
- b) Least decoration by far is on D1 which is expected in end-accented system: gives time to "plan" the next cycle's importance.
- c) *siew* S2-1, S2-3 and S4-1 have very restricted use of decorated strokes (i.e. 5 and 7)
- d) S2-1 and S4-1 seem to have same drum strokes (0,5,7). Perhaps this is due to the fact that they both occur before the *changwa chab*.
- e) It is interesting to observe that stroke 3 is used for the first time at position S13, S3-3 and S4-3 alone throughout the entire piece.
- f) the *siew* S1-1 appears not to favour any decoration.
- g) Strokes 2, 6, and 8 are not used
- h) Strokes 1, 3, 4 and 9 are seldom used.
- i) Strokes 5, 8 and 7 are used everywhere.

Chapter 3

ANALYSIS OF NATHAP SONGMAI (TAPHON) IN PHLENG KHAEK BORRATHET CHAN SONG

3.1 Introduction

As a comparison to *phleng si nuan*, we are now going to analyse the *chan song* of *khaek borrathet thao*. The aims of the analysis are as mentioned in the introduction of *phleng si nuan* (§ 2.1). It is hoped that the findings from this analysis will confirm those found in *phleng si nuan*. If it is so, the results from both pieces can be used to further the understanding of *nathap chan sam* and *chan dio*. Therefore, in this step, it is required to analyse only the *chan song* of the *thao*.

3.2 Form and structure of *phleng khaek borrathet*

khaek borrathet is a *phleng thao*. This means that it consists of 3 *chan*: *chan sam*, *chan song* and *chan dio* which are to be played in this order. According to kru Montri Tramote (1980:288), this piece was composed from *phleng reo (chan dio)* of the same name from a series of *phleng ruang*. Therefore, it is a suitable example for the derivation of *chan sam* and *chan song* from a *chan dio* theme. As to the *nathap* of this piece, kru Montri tells us that it is in *nathap songmai*. To the author's knowledge, most *pi phat* drum players always use *nathap songmai* for this piece. However, It must be quoted that Dr.Somsak Ketukaenchan in his Ph.D. dissertation (1990) refers to it in *nathap propkai*.

phleng khaek borrathet thao, contrary to *phleng si nuan*, has a very simple melodic theme and rhythm. Together with the vocal parts, it is performed solely as a concert piece. It can be played both by *pi phat* and *mahori* ensembles. It has 2 *thon* in each *chan*. Each *thon* is made up of 4 *changwa nathap songmai*.

Again, for the purpose of this study, the *taphon* part was played in the way of an average concert performance.

3.3 Analysis of drum stroke distribution and frequency of occurrence

3.3 a) *phleng khaek borrahet chan song nathap songmai (taphon)*

Thai klong phayang: the performed nathap

thon 1 - first (4 changwa nathap)

0	+	0	+
- - - tub	- - - phring	- - - phring	- - - phring
- phring - theng	- tha- tub	- ting - phroeng	tingtubthaphring
- - - pa	- - tubting	- ting - pa	- tub - phring
- - - pa	- tub - ting	- ting - pa	- patubphring

thon 1 - repeat (4 changwa nathap)

0	+	0	+
- - - pa	- tub - phring	- - - pa	- tub- -
phring - tingtheng	tingtubthengting	.tubthengtingtub	thengting - phring
- .thengtubting	- .tingthengtub -	thengtubtingting	ting - .tingthengting
tha - tingthengting	tingtingpating	tingthengtingtheng	- pa - ting

thon 2- first (4 changwa nathap)

0	+	0	+
- - phringphring	- - phringphring	- phringthengting	- pa - -
tubpatubtub	tingtingthengting	- - thengtheng	patubphringting
- - thoettub	- patub -	tingthengtingtheng	- tub - ting
- ting - tub	- talingtingting	tubthatingphroeng	- tub - phring

thon 2 - repeat (4 changwa nathap)

0	+	0	+
- ting - pa	- - - tub	- ting- pa	- tub- phring
- patubphroeng	- tubtingphroeng	- patuedting	tingthatubphring
- - tubphring	- - tubphring	- phringtubphring	phring - tubphring
- phring - pa	- tub - phring	- ting - pa	- tub - phring

3.3 b) phleng khaek borathet chan song nathap songmai (taphon)
lekha sangkeet : the performed nathap

<i>thon</i>	<u>wak 1</u>		<u>wak 2</u>	
	D1	D2	D3	D4
<i>ching</i>	o	+	o	+
1.1	00 07	00 08	00 08	00 08
	08 01	03 07	05 09	57 38
	00 04	00 75	05 04	07 08
	00 04	07 05	05 04	04 78
1.2	00 04	07 08	00 04	07 00
	08 51	57 15	07 57	15 08
	00 75	05 70	71 55	50 51
	30 51	55 45	51 51	04 05
2.1	00 88	00 88	08 15	04 00
	74 77	55 15	00 11	47 85
	00 27	04 70	51 51	07 05
	05 07	05 55	73 59	07 08
2.2	05 04	00 07	05 04	07 08
	04 79	07 59	04 65	53 78
	00 78	00 78	08 78	80 78
	08 04	07 08	05 04	07 08

3.3.1 Stroke distribution on changwa ching-chab chan song

In the table below, the distribution of each drum strokes used at the *dio* D1 and D2 has been collated. The first figure in each column represents drum stroke types and the figures in brackets are the total number of strokes used in the performance.

Table 13. *phleng khaek borathet chan song*: summary of drum strokes at *dio* positions

<i>wak 1</i>				<i>wak 2</i>			
D1		D2		D3		D4	
o	+	o	+	o	+	o	+
0 (0)	0.0%	0 (2)	12.5%	0 (0)	0.0%	0(2)	12.5%
1 (2)	12.5%	1 (0)	0.0%	1 (3)	18.8%	1(0)	0.0%
2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%	2(0)	0.0%
3 (0)	0.0%	3 (0)	0.0%	3 (0)	0.0%	3(0)	0.0%
4 (5)	31.2%	4 (0)	0.0%	4 (5)	31.2%	4(0)	0.0%
5 (2)	12.5%	5 (6)	37.5%	5 (3)	18.8%	5(4)	25.0%
6 (0)	0.0%	6 (0)	0.0%	6 (0)	0.0%	6(0)	0.0%
7 (4)	25.0%	7 (2)	12.5%	7 (1)	6.2%	7(0)	0.0%
8 (2)	12.5%	8 (5)	31.2%	8 (2)	12.5%	8(10)	62.5%
9 (1)	6.2%	9 (1)	6.2%	9 (2)	12.5%	9(0)	0.0%
10(0)	0.0%	10(0)	0.0%	10(0)	0.0%	10(0)	0.0%
11(0)	0.0%	11(0)	0.0%	11(0)	0.0%	11(0)	0.0%
total 16	100%	total 16	100%	total 16	100%	total 16	100%

3.3.2 Distribution of drum stroke at *changwa chab* of *wak 1*.

Conclusions:

- 1) the most used strokes in the *dio* D2 are 5 and 8 which are equivalent to 37.5% and 31.2% respectively. Again, these occurrences agree with the presence of these strokes in *nathap lak*.
- 2) Strokes 7 and 9 are also used at this location up to 12.5% and 6.2% respectively.

3.3.3 Distribution of drum stroke at *changwa chab* of *wak 2*.

Conclusions:

- 1) It is clear that in this *wak* the strokes 8 and 5 are the most used, apart from stroke 0. The percentages are 62.5%, 25% and 12.5% respectively.
- 2) It must be pointed out that no other stroke numbers have been used.
- 3) The stroke 5 used at this position is of particular interest, in so far it is used in place of the stroke 8. The reason, as it has been said before, is the fact that stroke 5 is a part of the making of the stroke 8.

3.3.4 Underlying *chan song* - *nathap noeur*

In columns one and two of the table below, the performed drum strokes at the *dio* D2 and D4 respectively are shown. The number of occurrences of the combination of the two drum strokes are given in brackets on column three. Column four shows the percentage of the number of occurrences in respect to the total number of *changwa nathap* (2 *thon* x repeat x 4 *changwa nathap* = 16 *changwa nathap*). In the fifth column the total percentage of the occurrence of a *nathap* used have been worked out. For example, the pattern (5,8) which corresponds to the underlying *nathap songmai chan song*:

<i>wak 1</i>		<i>wak 2</i>	
o	+	o	+
0000	0005	0000	0008

occurs four times in the performance which is amounts to 25% of the total of 16 *nathap*. Also *nathap* in which stroke 8 are used in the *changwa chab* of *wak 2* total 62.5%.

Table 14. *phleng khaek borrahet chan song*: summary of *nathap noeur*

column no.				
1	2	3	4	5
D2	D4			
+	+			
8	0	(2)	12.5%	total 12.5%
0	5	(2)	12.5%	
5	5	(2)	12.5%	total 25.0%
5	8	(4)	25.0%	
7	8	(2)	12.5%	
8	8	(3)	18.8%	
9	8	(1)	6.2%	total 62.5%
total		(16)	100%	100%

Conclusions

1) The most used *nathap noeur* are as shown below:

$\overset{0}{0000}$	$\overset{+}{0005}$	$\overset{0}{0000}$	$\overset{+}{0008}$	25.0%
$\overset{0}{0000}$	$\overset{+}{0008}$	$\overset{0}{0000}$	$\overset{+}{0008}$	18.8%

which are exactly the *nathap lak* inclusive of its alternative.

2) It is found also that the *nathap noeur* below are of interest:

$\overset{0}{0000}$	$\overset{+}{0008}$	$\overset{0}{0000}$	$\overset{+}{0000}$	12.5%
$\overset{0}{0000}$	$\overset{+}{0000}$	$\overset{0}{0000}$	$\overset{+}{0005}$	12.5%
$\overset{0}{0000}$	$\overset{+}{0005}$	$\overset{0}{0000}$	$\overset{+}{0005}$	12.5%
$\overset{0}{0000}$	$\overset{+}{0007}$	$\overset{0}{0000}$	$\overset{+}{0008}$	12.5%

3.3.5 *dio* relationship in the *wak 1*

The table below has been constructed in the same way as that of table 7 in chapter 2.3.5 where explanations and examples can be found.

Table 15. *phleng khaek borrahet chan song*: summary of *dio* relationship in *wak 1*

column no.					
1	2	3	4	5	6
D1	D2				
+	+				
5	0	(1)	50%	6.2%	
7	0	(1)	50%	6.2%	12.4%
1	5	(1)	20.0%	6.2%	
4	5	(2)	40.0%	12.5%	
5	5	(1)	20.0%	6.2%	
7	5	(1)	20.0%	6.2%	31.1%
1	7	(1)	50.0%	6.2%	
4	7	(1)	50.0%	6.2%	12.4%
4	8	(2)	40.0%	12.5%	
7	8	(1)	20.0%	6.2%	
8	8	(2)	40.0%	12.5%	31.2%
9	9	(1)	100%	6.2%	6.2%
total		(16)		100%	

conclusion

1) It can be seen that the strokes 5 and 8 are equally used at *dio* D2 (31.1% and 31.2% respectively). The preferred companion stroke of stroke 5 is 4 giving rise to 40.0% of occurrence of *nathap* 0004 0005.

2) where stroke 8 is used at D2, the likely strokes at D1 are equally strokes 4 and 8 which occurred 40.0% of the time. The resulting *nathap* are 0004 0008 and 0008 0008.

3.3.6 *dio* relationship in the *wak 2*

For details, the reader is referred to the explanations and examples given in chapter 2.3.5.

Table 16. *phleng khaek borrahet chan song*: summary of *dio* relationship in *wak 2*

column no.					
1	2	3	4	5	6
D3	D4				
+	+				
4	0	(1)	50.0%	6.2%	
5	0	(1)	50.0%	6.2%	12.4%
1	5	(3)	75.0%	18.8%	
5	5	(1)	25.0%	6.2%	25.0%
4	8	(4)	40.0%	25.0%	
5	8	(1)	10.0%	6.2%	
7	8	(1)	10.0%	6.2%	
8	8	(2)	20.0%	12.5%	
9	8	(2)	20.0%	12.5%	62.4%
total		(16)		100%	100%

conclusion

1) It not surprising to find again that stroke 8 is the preferred one the *dio* D4 (62.4%). Stroke 5 came second at 25.0%.

2) The companion strokes of stroke 8 are 4, 8, 9 which occur in 40.0 %, 20.0% and 20.0% of the cases. The *nathap* arising from this combination are 0004 0008, 0008 0008 and 0009 0008.

3) When stroke 5 is used at *changwa chab*, the most likely stroke at *changwa ching* is stroke 1 (75% of the cases). Stroke 5 is also used at D3 for the remaining cases. Thus the possible *nathap* are 0001 0005 and 0005 0005.

3.3.7 Summary of *dio* relationship in *wak 1* and *wak 2*

For detailed explanations of table below, the reader is referred to those in chapter 2.3.7.

Table 17. *phleng khaek borrahet chan song*: summary of *dio* relationship in *wak 1* and *wak 2*

1 wak	2 D1, D3 o	3 D2, D4 +	4	5	6
1, 2	1	5	(4)		
1	4	5	(2)		
1, 2	5	5	(2)		
1	7	5	(2)	(10)	31.3%
1, 2	4	8	(6)		
2	5	8	(1)		
1, 2	7	8	(2)		
1, 2	8	8	(4)		
2	9	8	(2)	(15)	46.9%
others				(7)	21.8%
total				(32)	100%

conclusion

1) Examination of the table above reveals that the most frequently used patterns are:

a) in <i>wak 1</i>	^o 000 <u>4</u>	⁺ 000 <u>5</u>	6.3%
	000 <u>7</u>	000 <u>5</u>	6.3%
	000 <u>4</u>	000 <u>8</u>	6.3%
b) in <i>wak 2</i>	000 <u>1</u>	000 <u>5</u>	9.4%
	000 <u>4</u>	000 <u>8</u>	12.5%
	000 <u>8</u>	000 <u>8</u>	9.4%
	000 <u>9</u>	000 <u>8</u>	6.3%

As can be seen, no patterns can be considered to be really a dominant one due to the fact that many are played in this particular piece.

2) The permutation of the patterns above will give rise to the following *nathap noeur songmai* of *chan song*:

0	+	0	+	
0004	0005	0001	0005	
		0004	0008	*
		0008	0008	
		0009	0008	
0	+	0	+	
0007	0005	0001	0005	
		0004	0008	*
		0008	0008	
		0009	0008	
0	+	0	+	
0004	0008	0001	0005	
		0004	0008	
		0008	0008	
		0009	0008	

compared to the *nathap noeur* of *nathap lak* of kru Somphong:

0	+	0	+
0004	0005	0004	0008
0007	0008	0008	0008

and

shown with asterisk in the possible *nathap noeur* above. It must be said, however, that the *nathap noeur* 0007 0008 0008 0008 has been used only once in this performance.

3. The common patterns found in *wak* 1 and *wak* 2 are:

0005	0005,

0004	0008,
0007	0008,
0008	0008

3.3.8 Distribution of drum strokes at *changwa kroeng* in *chan song*

In the table below, drum strokes used at the four *kroeng* positions of *nathap* have been collated. As before, in each column the first numbers represent stroke numbers, the second numbers in brackets are the number of occurrences and the third are the percentage of occurrences. These occurrences of drum strokes have been counted without referring to the drum strokes played in *changwa dio*. (0000 0000 0000 0000)

Table 18. *phleng khaek borrahet chan song*: summary of drum strokes at *changwa kroeng* positions

<i>wak 1</i>				<i>wak 2</i>			
K1-1		K2-1		K3-1		K4-1	
0 (8)	50.0%	0 (5)	31.2%	0 (3)	18.8%	0 (1)	6.2%
1 (1)	6.2%	1 (0)	0.0%	1 (3)	18.8%	1 (0)	0.0%
2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%	2 (0)	0.0%
3 (0)	0.0%	3 (1)	6.2%	3 (1)	6.2%	3 (1)	6.2%
4 (2)	12.5%	4 (1)	6.2%	4 (1)	6.2%	4 (3)	18.8%
5 (2)	12.5%	5 (4)	25.0%	5 (5)	31.2%	5 (2)	12.5%
6 (0)	0.0%	6 (0)	0.0%	6 (0)	0.0%	6 (0)	0.0%
7 (0)	0.0%	7 (5)	31.2%	7 (1)	6.2%	7 (6)	37.5%
8 (2)	12.5%	8 (0)	0.0%	8 (2)	12.5%	8 (0)	0.0%
9 (0)	0.0%	9 (0)	0.0%	9 (0)	0.0%	9 (0)	0.0%
10(0)	0.0%	10(0)	0.0%	10(0)	0.0%	10(0)	0.0%
11(0)	0.0%	11(0)	0.0%	11(0)	0.0%	11(0)	0.0%
total 16	100%	total 16	100%	total 16	100%	total 16	100%

conclusion

- 1) at the *kroeng* position K1-1, the majority of cases do not use any decoration at all (0 = 50%). In the remaining cases the occurrences of stroke 4,5 and 8 are equally possible.
- 2) Whereas at the *kroeng* position K2-1, strokes 0, 7 and 5 (31.2%, 31.2% and 25.0% respectively) are used. Next to these strokes, 3 and 4 are also used (6.2% and 6.2%).
- 3) In position K3-1 the distribution of strokes is 5, 0, 1 and 8 (31.2%, 18.8%, 18.8% and 12.5% respectively).
- 4) In position K4-1, the most used strokes are 7, 4, 5 (37.5%, 18.8% and 12.5% respectively). Strokes 0 and 3 are also used (6.2% both).
- 5) Therefore it can be concluded that stroke 7 is the most used in K2-1 and K4-1 position, followed by stroke 5 as an average used of all *kroeng* positions. Stroke 7 is rarely used at K1-1 and K3-1.

3.3.9 Distribution of *kroeng* strokes in relation to the *dio* strokes

The distribution of *kroeng* strokes is studied here in the similar way to that of *phleng si nuan* in chapter 2.3.9. where detailed explanation of the table below has been mentioned.

Table 19. *phleng khaek borraeth chan song*: summary of *kroeng* strokes in relation to the *dio* strokes

PATTERN		No. of pattern								total	CW %	total%
Ki-1	Ki -2	K1-1	K2-2	K2-1	K2-2	K3-1	K3-2	K4-1	K4-2			
4	0	0		1		0		1		2	50.0	3.1
5	0	0		1		0		0		1	25.0	1.6
7	0	0		0		0		1		1	25.0	1.6
0	1	1		0		1		0		2	40.0	3.1
1	1	0		0		2		0		2	40.0	3.1
8	1	1		0		0		0		1	20.0	1.6
0	4	3		0		1		0		4	66.7	6.2
5	4	1		0		4		0		5	83.3	7.8
8	4	1		0		0		0		1	16.7	1.6
0	5	0		1		0		0		1	6.7	1.6
1	5	1		0		0		0		1	6.7	1.6
4	5	0		0		1		1		2	13.3	3.1
5	5	1		3		0		1		5	33.3	7.8
7	5	0		2		1		2		5	33.3	7.8
8	5	0		0		1		0		1	6.7	1.6
0	7	2		1		0		0		3	42.8	4.7
1	7	0		0		1		0		1	14.3	1.6
3	7	0		1		0		0		1	14.3	1.6
4	7	1		0		0		0		1	14.3	1.6
5	7	1		0		0		0		1	14.3	1.6
0	8	2		3		1		2		8	42.1	12.5
3	8	0		0		0		1		1	5.3	1.6
4	8	0		0		0		1		1	5.3	1.6
5	8	0		0		0		1		1	5.3	1.6
7	8	0		2		0		5		7	36.8	10.9
8	8	0		0		1		0		1	5.3	1.6
3	9	0		0		1		0		1	25.0	1.6
4	9	1		0		0		0		1	25.0	1.6
5	9	0		0		1		0		1	25.0	1.6
7	9	0		1		0		0		1	25.0	1.6
TOTAL		16		16		16		16		64	-	100

conclusion

1) From the table above, it is clear that the combination of stroke 0 and 8 at *kroeng* and *dio* position respectively (i.e. 0008) is the top favourite used (12.5%). The next most frequently used is pattern 0708 (10.9%). There are also patterns 0504, 0505, 0705 which all occur at 7.8%.

2) If the decoration is needed, patterns 0400, 0101, 0405 are used.

3) Non-decorated patterns are also often used e.g. 0008, 0004, 0007.

3.3.10 Distribution of strokes at *siew* and *kroeng siew* positions

The examination of the performed *nathap* used in *phleng khaek borrahet chan song* reveals the following patterns of decorated *dio* up to *siew* and *kroeng siew* levels. They are classified below by their ending strokes in *dio* positions. The total numbers and percentages of occurrences are related to the total number of *changwa nathap* (16) of the *phleng*.

Table 20. *phleng khaek borrahet chan song*: summary of *siew* and *kroeng siew* decorations

	D1	D2	D3	D4
-		05170	-	0700
-		0470	-	0400
8051	-		0011	-
-	-		5151	-
01075	0075		0465	4785
30515	05555		0815	50515
-	5545		1755	
-	30515		-	
-	5515		-	
7477	-		07157	-
0027	-		-	-
0078	0078		0878	0478
0088	0088		-	1508
-	-		-	5378
-	-		-	5738
-	-		-	8078
0479	0759		-	-
-	7359		-	-
total	(8)	(11)	(7)	(9)
Percentage	50.0%	68.8%	43.8%	56.3%

conclusion

1) from 64 *dio* of the *phleng* (16 *changwa* x4 *dio* = 64 *dio*), it is interesting to see that it is possible to make *siew* up to 35 *dio*. Decorations varied from 43.8% to 68.8% in each *dio*. The total decorated *dio* amount to 54.7%. The *changwa ching* of both *wak* are less decorated than *changwa chab*.

2) the most elaborated *dio* is D2 (11 patterns) and the least is D3 (7 patterns)

3) the strokes which are used in various *siew* positions are as follows:

S1-1: 0, -, -, 3, -, -, -, 7 (3)

S1-3: 0, 1, 2, -, -, 5, -, 7, 8 (6)

S2-1: 0, -, -, 3, -, 5, -, 7 (4)

S2-3: 0, 1, -, -, 4, 5, -, 7, 8 (6)

S3-1: 0, 1, -, -, -, 5 (3)

S3-3: 0, 1, -, -, -, 5, 6, 7 (5)

S4-1: 0, 1, -, -, 4, 5, -, -, 8 (5)

S4-3: 0, 1, -, 3, -, -, -, 7, 8 (5)

- a) Stroke 9 is not used.
- b) Strokes 2, 3, 4 and 6 are seldom used.
- c) Strokes 1, 5, 7 and 8 are used everywhere.

Chapter 4

COMBINED RESULTS FROM PHLENG SI NUAN AND KHAEK BORRATHET CHAN SONG

4.1 Introduction

So far we have carried out the analysis for the *nathap songmai chan song* of both *phleng si nuan* and *khaek borrathet*. As already mentioned in chapters 2.2 and 3.2, although they have a common *nathap*, they represent in fact different types of *phleng* on the following counts:

a) different form: only the *chan song* of *phleng si nuan* is performed here (in fact the *thao* version of this *phleng* also exists) whereas the *chan song* of *khaek borrathet* is performed within the context of *thao* environment.

b) different length: Although both *phleng* have 4 *changwa nathap* in each *thon*, however *phleng si nuan* has twice the number of *thon* to those of *khaek borrathet*. Therefore the former has twice the length of the latter.

c) different character: in the opinion of the author, *phleng khaek borrathet* has a more serious character and strict structure than those of *phleng si nuan*.

It follows therefore that we shall carry out two tasks:

- 1) show the different characteristic of the *nathap* used in each *phleng*,
- 2) show the common denominators of the *nathap* used in both performances.

4.2 Relationship between *dio* in *wak 1*

The table below is the collection of the contents of tables 7 and 15 (chapters 2.3.5 and 3.3.5 respectively). Furthermore, the total number and relative, absolute and total percentages are also included. The bold type represents the highest occurrence of a particular *nathap*.

Table 21. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of *dio* relationship in *wak 1*

<i>ching</i> D1	<i>chab</i> D2	<i>si</i> <i>nuan</i>	<i>khaek</i> <i>borrahet</i>	combined			
				number	relative %	absolute %	total %
0	0	(2)	-	(2)	40.0%	4.2%	
5	0	(1)	(1)	(2)	40.0%	4.2%	
7	0	-	(1)	(1)	20.0%	2.1%	10.5%
5	4	(1)	-	(1)	34.0%	2.1%	
7	4	(2)	-	(2)	66.0%	4.2%	6.3%
1	5	(1)	(1)	(2)	12.5%	4.2%	
4	5	(8)	(2)	(10)	62.3%	20.8%	
5	5	-	(1)	(1)	6.3%	2.1%	
7	5	-	(1)	(1)	6.3%	2.1%	
9	5	(2)	-	(2)	12.5%	4.2%	33.4%
1	7	(1)	(1)	(2)	33.3%	4.2%	
4	7	-	(1)	(1)	16.7%	2.1%	
9	7	(3)	-	(3)	50.0%	6.3%	12.6%
4	8	(2)	(2)	(4)	28.6%	8.3%	
7	8	(6)	(1)	(7)	50.0%	14.6%	
8	8	(1)	(2)	(3)	21.4%	6.3%	29.2%
4	9	(1)	-	(1)	33.3%	2.1%	
8	9	(1)	-	(1)	33.3%	2.1%	
9	9	-	(1)	(1)	33.3%	2.1%	6.3%
total (48)						100%	100%

conclusion

1) It is found that in *phleng si nuan*, a total of 14 patterns have been used in the performance with strokes 0, 4, 5, 7, 8, 9 occurring at *dio* positions of *wak 1*. However, only a total of 12 patterns have been used in the similar positions in *phleng khaek borrahet*.

2) It is clear that, in *wak 1*, stroke 5 in *dio* D2 position occurs more frequently than stroke 8 (33.4% and 29.2% respectively). The patterns formed with other strokes at *dio* D2 position contribute to a total absolute percentage of 37.4%.

3) In patterns with stroke 5 in *dio* position D2, the pattern 0004 0005 was found to be the most frequently used in *phleng si nuan*. However, there were no marked preference for any given patterns in *phleng khaek borrahet*. But in the combined result, the conclusion found for *phleng si nuan* over-rules, with the pattern 0004 0005 contributing to 20.8% absolute percentage.

4) In patterns with stroke 8 in *dio* position D2, again, in *phleng si nuan*, the pattern 0007 0008 was a clear winner. However, in *phleng khaek borrahet*, the patterns 0004 0008 and 0008 0008 were the most popular. However, in the combined result, the pattern favoured by *phleng si nuan*, 0007 0008 also govern with the final absolute percentage of 14.6%.

5) Therefore the most used patterns are

$\begin{array}{cc} \text{0} & \text{+} \\ \text{0004} & \text{0005} \\ \text{0007} & \text{0008} \end{array}$

which amount to an absolute percentage of 35.4%.

6) The possible patterns ending with stroke 5 are shown below in the order of importance in the combined result. It is clear that it is governed by the result from *phleng si nuan*:

Table 22. combined *phleng si nuan* and *phleng khaek borraethet chan song: dio* patterns ending with stroke 5

combined results	Patterns	<i>si nuan</i>	<i>khaek borraethet</i>
	$\begin{array}{cc} \text{0} & \text{+} \\ \text{0004} & \text{0005} \\ \text{0007} & \text{0008} \end{array}$		
1st	0004	1st	1st
2nd	0009	2nd	-
3rd	0001	3rd	2nd
4th	0005	-	2nd
5th	0007	-	2nd

7) whereas patterns ending with stroke 8, classified by the combined results are shown below. Again, the order of preference is dictated by that of *phleng si nuan*.

Table 23. combined *phleng si nuan* and *phleng khaek borraethet chan song: dio* patterns ending with stroke 8

combined results	Patterns	<i>si nuan</i>	<i>khaek borraethet</i>
	$\begin{array}{cc} \text{0} & \text{+} \\ \text{0007} & \text{0008} \\ \text{0004} & \text{0008} \\ \text{0008} & \text{0008} \end{array}$		
1st	0007	1st	3rd
2nd	0004	2nd	1st
3rd	0008	3rd	1st

8) see also note 6 in chapter 4.3.

4.3 Relationship between *dio* in the *wak 2*

The table below is the collection of the contents of tables 8 and 16 (chapters 2.3.6 and 3.3.6 respectively). Furthermore, the total number and relative, absolute and total percentages are also included. The bold characters represent the highest occurrence of a particular *nathap*.

Table 24. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of *dio* relationship in *wak 2*

ching D3	chab D4	si nuan	khaek borrahet	combined			
				number	relative %	absolute %	total %
0	0	(1)	-	(1)	25.0%	2.1%	
4	0	-	(1)	(1)	25.0%	2.1%	
5	0	(1)	(1)	(2)	50.0%	4.2%	8.4%
5	4	(1)	-	(1)	100%	2.1%	2.1%
1	5	-	(3)	(3)	42.9%	6.3%	
4	5	(1)	-	(1)	14.3%	2.1%	
5	5	-	(1)	(1)	14.3%	2.1%	
7	5	(1)	-	(1)	14.3%	2.1%	
9	5	(1)	-	(1)	14.3%	2.1%	14.7%
4	7	(1)	-	(1)	50.0%	2.1%	
7	7	(1)	-	(1)	50.0%	2.1%	4.2%
0	8	(1)	-	(1)	3.3%	2.1%	
1	8	(3)	-	(3)	10.0%	6.3%	
3	8	(1)	-	(1)	3.3%	2.1%	
4	8	(6)	(4)	(10)	33.3%	20.8%	
5	8	(2)	(1)	(3)	10.0%	6.3%	
7	8	(2)	(1)	(3)	10.0%	6.3%	
8	8	(2)	(2)	(4)	13.3%	8.3%	
9	8	(3)	(2)	(5)	16.7%	10.4%	62.6%
5	9	(2)	-	(2)	66.7%	4.2%	
8	9	(1)	-	(1)	33.3%	2.1%	6.3%
7	11	(1)	-	(1)	100%	2.1%	2.1%
total				(48)		100%	100%

conclusion

1) It is interesting to find in this case that a total of 18 patterns have been used in *phleng si nuan* against 9 patterns in *phleng khaek borrahet*. The *wak* ending strokes are 8, 5, 0, 9, 7, 4 and 11.

2) In the patterns ending with stroke 5 in *dio* position D2, the pattern 0001 0005 is the most used (42.9%). This pattern is also the favourite pattern used in *phleng khaek borrahet*. However, in *phleng si nuan* no clear preference is found due to the fact that patterns ending with stroke 5 rarely occurred in this *phleng*.

3) In the pattern ending with stroke 8 in *dio* position D2, the pattern 0004 0008 occurs in 33.3% of the cases out of a total relative percentage of 62.6%. This pattern is the preferred one in the performance of both *phleng*. However, the patterns below are also important:

0	+	
0009	0008	16.7%
0008	0008	13.3%
0001	0008	10.0%
0005	0008	10.0%
0007	0008	10.0%

4) It is clear that the *wak 2* patterns ending with stroke 8 remains the most predominant. The table below shows the possible patterns in the final order of importance:

Table 25. combined *phleng si nuan* and *phleng khaek borrahet chan song: dio* patterns ending with stroke 8

combined results	Patterns		<i>si nuan</i>	<i>khaek borrahet</i>
	o	+		
1st	0004	0008	1st	1st
2nd	0009	0008	2nd	2nd
3rd	0008	0008	3rd	2nd
4th	0001	0008	2nd	-
4th	0005	0008	3rd	3rd
4th	0007	0008	3rd	3rd

5) The pattern ended by stroke 5 on *dio D4* is the preferred pattern in this *wak*. However the two *phleng* do not use the same patterns. Furthermore, the patterns ending with stroke 5 amount only to a combined total percentage of 14.7%. In *phleng si nuan* the strokes used in *dio D3* are 4, 7 and 9, whereas in *phleng khaek borrahet* only strokes 1 and 5 are used. Therefore, the usage of these patterns is mutually excluded.

Table 26. combined *phleng si nuan* and *phleng khaek borrahet chan song: dio* patterns ending with stroke 5

combined results	Patterns		<i>si nuan</i>	<i>khaek borrahet</i>
	o	+		
1st	0001	0005	-	1st
2nd	0004	0005	1st	-
2nd	0007	0005	1st	-
2nd	0009	0005	1st	-
2nd	0005	0005	-	2nd

6) As can be seen in chapter 2.3.7 (2) and 3.3.7 (3), some of the patterns shown in table below were used interchangeably in both *wak 1* and *wak 2*, (✓), in each or both of the *phleng* and some were used exclusively in one *phleng* or the other. Some patterns were not interchangeable (-), and some were not used at all (*) in a particular *phleng*.

Table 27. combined *phleng si nuan* and *phleng khaek borrahet chan song: summary of interchangeable dio* patterns

Patterns		<i>si nuan</i>	<i>khaek borrahet</i>
o	+		
0001	0005	-	-
0004	0005	✓	-
0005	0005	*	✓
0007	0005	*	-
0009	0005	-	*
0004	0008	✓	✓
0007	0008	✓	✓
0008	0008	✓	✓

4.4 Underlying *nathap noeur chan song*

The table below gives the compilation of tables 6 and 14 (chapters 2.3.4 and 3.3.4 respectively). In columns 1 and 2, the performed drum strokes at the *dio* D2 and D4 are shown respectively. Therefore numbers under column 1 and 2 represent *nathap noeur*, e.g. 5 8 means 0000 0005 0000 0008. The number of occurrence of any given *nathap* are shown in brackets under columns 3 and 4 for *phleng si nuan* and *khaek borrahet* respectively. Column 5 represents the combined total of the occurrence of the *nathap* for both *phleng*. Column 6 is the combined absolute percentages for each *nathap* (i.e. absolute percentage = 100% x (column 5) ÷ (32+16)). Under column 7, the total percentages for the occurrence of *nathap* ending with a given stroke in *wak 2* are given.

Table 28. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of underlying *nathap noeur*

D2 1	D4 2	<i>si nuan</i> 3	<i>khaek borrahet</i> 4	combined		
				number 5	absolute % 6	total % 7
0	0	(2)	-	(2)	4.2%	
8	0	-	(2)	(2)	4.2%	8.3%
9	4	(1)	-	(1)	2.1%	2.1%
0	5	-	(2)	(2)	4.2%	
5	5	(1)	(2)	(3)	6.3%	
7	5	(1)	-	(1)	2.1%	
9	5	(1)	-	(1)	2.1%	14.6%
5	7	(1)	-	(1)	2.1%	
8	7	(1)	-	(1)	2.1%	4.2%
0	8	(1)	-	(1)	2.1%	
4	8	(3)	-	(3)	6.2%	
5	8	(7)	(4)	(11)	22.9%	
7	8	(2)	(2)	(4)	8.3%	
8	8	(7)	(3)	(10)	20.8%	
9	8	-	(1)	(1)	2.1%	62.5%
5	9	(2)	-	(2)	4.2%	
7	9	(1)	-	(1)	2.1%	6.2%
8	11	(1)	-	(1)	2.1%	2.1%
total (48)				100%	100%	

conclusion

1) It can be seen from the table 28 that the total number of *nathap noeur* used in *phleng si nuan* is twice as many as in *phleng khaek borrahet* (15 against 7).

2) *nathap noeur* ending with stroke 8 amount to 62.5% and those with stroke 5, 14.6%. The use of the *nathap noeur* ending with stroke 5 in *khaek borrahet* is restricted to 0000 0000 0000 0005 and 0000 0005 0000 0005 only, whereas in *phleng si nuan* its use is

widespread. The table below summarises the *nathap noeur* found from the two *phleng* studied.

Table 29. combined *phleng si nuan* and *phleng khaek borrathet chan song*: summary of *nathap noeur* patterns

<i>nathap noeur</i>				<i>si nuan</i>	<i>khaek borrathet</i>
o	+	o	+		
0000	0005	0000	0008	21.0%	25.0%
0000	0008	0000	0008	21.0%	18.8%
0000	0004	0000	0008	9.0%	-
0000	0007	0000	0008	6.0%	12.5%
0000	0000	0000	0005	-	12.5%
0000	0005	0000	0005	3.0%	12.5%
0000	0008	0000	0000	-	12.5%
0000	0005	0000	0009	6.0%	-

4.5 Distribution of *kroeng* strokes in relation to the *dio* strokes

In the table below, the patterns formed by drum strokes at *kroeng* and *dio* positions (0000) in both *phleng si nuan* and *khaek borrathet chan song* have been compiled and classified by the drum strokes used in *dio* positions. Patterns from both *wak* are combined together. The percentages of occurrence are based on the combined total of *dio* (192) of the two *phleng*. The figures in bold represent the most frequent occurrences in each set of patterns. Therefore, the bold figures in the total column indicate the preferred patterns in each set.

Table 30. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of *kroeng* patterns

PATTERN		Number of pattern			
Ki 1	Ki 2	<i>si nuan</i>	<i>khaek borrahet</i>	total	%
0	0	7	-	7	6.8%
1	0	1	-	1	
4	0	1	2	3	
5	0	-	1	1	
7	0	-	1	1	
0	1	2	2	4	5.2%
1	1	-	2	2	
5	1	2	-	2	
6	1	1	-	1	
8	1	-	1	1	
1	3	1	-	1	1.0%
0	4	9	4	13	17.2%
1	4	3	-	3	
4	4	2	-	2	
5	4	4	5	9	
8	4	5	1	6	
0	5	8	1	9	19.3%
1	5	-	1	1	
3	5	2	-	2	
4	5	3	2	5	
5	5	3	5	8	
7	5	6	5	11	
8	5	-	1	1	
0	7	7	3	10	13.5%
1	7	2	1	3	
3	7	2	1	3	
4	7	1	1	2	
5	7	-	1	1	
7	7	1	-	1	
8	7	5	-	5	
9	7	1	-	1	
0	8	11	8	19		27.6%
1	8	1	-	1	
3	8	-	1	1	
4	8	-	1	1	
5	8	3	1	4	
7	8	15	7	22	
8	8	4	1	5	
0	9	2	-	2	9.4%
1	9	1	-	1	
3	9	2	1	3	
4	9	1	1	2	
5	9	6	1	7	
7	9	1	1	2	
8	9	1	-	1	
3	11	1	-	1		1.0%
TOTAL		128	64	192	100%

conclusion

1) the distribution of *kroeng* strokes in relation to the *dio* strokes is very widespread. However, 8 of them, shown in the table below are of particular interest. The pattern 0708 is

clearly the most widely used in both pieces.

Table 31. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of selected *kroeng* patterns

Patterns	<i>si nuan</i>	<i>khaek borrahet</i>	combined(out of 192)
0708	11.1%	10.9%	11%
0504	3.1%	7.8%	5%
0505	2.3%	7.8%	4%
0705	4.7%	7.8%	6%
0509	4.7%	1.6%	3%
0804	3.9%	1.6%	3%
0807	3.9%	-	3%
0405	2.3%	3.12%	3%

2) Numbers of occurrence of patterns ending with various strokes at *dio* positions are shown in the table below. It can be seen that, in *phleng si nuan* with strokes 7 and 9 at *dio* position up to 7 patterns have been performed, whereas in *phleng khaek borrahet* the numbers of patterns ending on strokes 5 and 8 are 6. But in the combined occurrence up to 8 patterns can be built on stroke 7 in *dio* position. Furthermore, patterns ending with strokes 4, 5, 8 and 9 are also very productive.

Table 32. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of *kroeng* patterns found at *dio* positions

<i>dio</i>	<i>si nuan</i>	<i>khaek borrahet</i>	combined
4	(5)	(3)	(5)
5	(5)	(6)	(7)
7	(7)	(5)	(8)
8	(5)	(6)	(7)
9	(7)	(4)	(7)

4.6 Distribution of strokes at *siew* and *kroeng siew* positions

The *dio* patterns decorated to *siew* and *kroeng siew* levels have been compiled from both *phleng*. It is to be noted that the number of times that a pattern occurs at a given *dio* position is not shown. The percentages of occurrences are based on the total number of *dio* of two *phleng* (192 *dio*). Therefore, they represent the variety of drum patterns which has been used in the performances.

Table 33. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of drum strokes at *siew* and *kroeng siew* levels

	D1	D2	D3	D4
-		0470	-	0170
-		05170	-	0700
-		-	-	0400
8051	-		0011	-
-	-		5151	-
0454	5154	0154	7154	
-	5574	00504	-	
01075	0075	4445	0075	
04055	0375	7475	0375	
30515	05555	5515	4785	
-	05575	5745	50515	
-	30515	0465	7515	
-	5515	0815	-	
-	5545	1755	-	
0027	07857	07157	5747	
7477	5107	0947	-	
-	-	5137	-	
0078	0078	0878	0078	
0088	0088	-	0478	
5058	0558	-	0578	
-	05508	-	1508	
-	7708	-	5378	
-	-	-	5738	
-	-	-	8078	
0039	0759	0159	0439	
0479	0879	7399	5559	
0759	7359	-	-	
-	7579	-	-	
Total	(13)	(22)	(17)	(19)
Percentage	27.1%	45.8%	35.4%	39.6%

Conclusion

- 1) Out of 192 *dio* (*si nuan* 128 *dio* + *khaek borrahet* 64 *dio* = 192 *dio*), 71 *dio* are decorated at *siew* and *kroeng siew* levels (i.e. 37%).
- 2) The percentages of decorated *dio* in *phleng si nuan* and *khaek borrahet* and the combined percentages indicated that in general *phleng khaek borrahet* is more decorated than *phleng si nuan*. In both *phleng*, the *dio* D2 is the most decorated one and the *dio* D1 is the least decorated *dio*.

Table 34. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of decorated *dio* to *siew* and *kroeng siew* patterns

<i>phleng</i>	D1	D2	D3	D4
<i>si nuan</i>	18.8%	37.5%	31.3%	31.3%
<i>khaek borrahet</i>	50.0%	68.8%	43.8%	56.3%
combined	27.1%	45.8%	35.4%	39.6%

3) The strokes which are used in various *siew* and *kroeng siew* positions are as follows:

S1-1: 0, -, -, 3, -, 5, -, 7, -, -	(5)
S1-3: 0, 1, 2, 3, -, 5, -, 7, 8, -	(7)
S2-1: 0, -, -, 3, -, 5, -, 7, -, -	(4)
S2-3: 0, 1, -, -, 4, 5, -, 7, 8, -	(6)
S3-1: 0, 1, -, -, 4, 5, -, 7, -, -	(5)
S3-3: 0, 1, -, 3, 4, 5, 6, 7, -, 9	(8)
S4-1: 0, 1, -, -, 4, 5, -, 7, 8, -	(6)
S4-3: 0, 1, -, 3, 4, 5, -, 7, 8, -	(7)

Table 35. combined *phleng si nuan* and *phleng khaek borrathet chan song*: summary of strokes used at *siew* and *kroeng siew* positions

Occurrences	<i>si nuan</i>	<i>khaek borrathet</i>	combined
often used	5, 7, 8	1, 5, 7, 8	5, 7, 8
seldom used	1, 3, 4, 9	2, 3, 4, 6	1, 2, 3, 4, 6, 9
not used	2, 6,	9	-

4) It appears that there are no general rules governing the usage of *siew* strokes. For example, stroke 8 is not used at all at *siew* position of *phleng si nuan*, whereas it is used very often in *phleng khaek borrathet*. Each *phleng* seems to favour a different set of strokes at different *siew* positions.

5) Based on points 3 to 4 above, it is more useful to consider *siew* and *kroeng siew* patterns shown in chapters 2.3.10 and 3.3.10 as a collection of acceptable decorated patterns of *dio* at *kroeng*, *siew* and *kroeng siew* levels, from which decorations can be selected for different pieces..

4.7 Derivation of *nathap roon 1* from *nathap noeur*

Referring to table 5, p.92 and table 6, p.104, the order of occurrences of drum strokes at *dio* D2 and D4 are as follows:

<i>si nuan</i> , D2	5	8	7	4=0	9
<i>khaek borrathet</i> , D2	5	8	7=0	9	
<i>si nuan</i> , D4	8	5=9	7=0	4=11	
<i>khaek borrathet</i> , D4	8	5	0		

It was found also that in both *phleng*, the percentages of occurrences of these strokes are as shown in the table below:

Table 36. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of percentages of selected strokes used in *nathap noeur* patterns

<i>phleng</i>	<i>dio</i>	Strokes		
		8	5	others (4, 7, 9, etc.)
<i>si nuan</i>	D2	28.1%	34.4%	37.5%
	D4	62.5%	9.4%	28.1%
<i>khaek borrahet</i>	D2	31.2%	37.5%	31.3%
	D4	62.5%	25.0%	12.5%

Therefore, only *nathap noeur* terminating with stroke 5 and 8 at *dio* D2 and D4 positions needs to be considered. Moreover, the occurrences of these strokes will be studied separately in relation to strokes used in *dio* D1 and D3.

It is suggested that the stroke patterns common to both *phleng* are likely to be more characteristic of *nathap songmai chan song* in general than are those unique to one *phleng* or the other.

1) Selecting only two of the underlying *nathap noeur* found in table 28, p.118 :

^o	+	^o	+
0000	000 <u>5</u>	0000	000 <u>8</u>
0000	000 <u>8</u>	0000	000 <u>8</u>

and *dio* relationship in *wak* 1 ending with 5 and 8 in table 21, p.114:

^o	+
0000	000 <u>5</u>
0004	000 <u>5</u>
0005	000 <u>5</u>
0007	000 <u>5</u>
0009	000 <u>5</u>
0001	000 <u>5</u>
0000	000 <u>8</u>
0007	000 <u>8</u>
0004	000 <u>8</u>
0008	000 <u>8</u>

and *dio* relationship in *wak* 2 ending with 8 in table 24, p.116:

^o	+
0004	000 <u>8</u>
0009	000 <u>8</u>
0001	000 <u>8</u>
0008	000 <u>8</u>
0007	000 <u>8</u>
0005	000 <u>8</u>
0000	000 <u>8</u>

It is possible to derive, by a process of permutation, 70 *nathap roon 1* shown in the table below. To the author's opinion, these combinations are all qualified in practice and the drummer may be required to decorate the *nathap roon 1* or even further with appropriate strokes.

Table 37. combined *phleng si nuan* and *phleng khaek borrather chan song*: derived *nathap roon 1*

<i>nathap</i> No.	<i>nathap roon 1</i>				
	<i>wak 1</i>		<i>wak 2</i>		
	o	+	o	+	
1	0000	0005	0000	0008	= <i>nathap noeur</i>
2	0000	0005	0004	0008	
3	0000	0005	0009	0008	
4	0000	0005	0001	0008	
5	0000	0005	0008	0008	
6	0000	0005	0005	0008	
7	0000	0005	0007	0008	
8	0004	0005	0000	0008	= learned <i>nathap lak</i>
9	0004	0005	0004	0008	
10	0004	0005	0009	0008	
11	0004	0005	0001	0008	
12	0004	0005	0008	0008	
13	0004	0005	0005	0008	
14	0004	0005	0007	0008	
15	0009	0005	0000	0008	
16	0009	0005	0004	0008	
17	0009	0005	0009	0008	
18	0009	0005	0001	0008	
19	0009	0005	0008	0008	
20	0009	0005	0005	0008	
21	0009	0005	0007	0008	
22	0001	0005	0000	0008	
23	0001	0005	0004	0008	
24	0001	0005	0009	0008	
25	0001	0005	0001	0008	
26	0001	0005	0008	0008	
27	0001	0005	0005	0008	
28	0001	0005	0007	0008	
29	0005	0005	0000	0008	
30	0005	0005	0004	0008	
31	0005	0005	0009	0008	
32	0005	0005	0001	0008	
33	0005	0005	0008	0008	
34	0005	0005	0005	0008	
35	0005	0005	0007	0008	

36	0007	0005	0000	0008	
37	0007	0005	0004	0008	
38	0007	0005	0009	0008	
39	0007	0005	0001	0008	
40	0007	0005	0008	0008	
41	0007	0005	0005	0008	
42	0007	0005	0007	0008	

43	0000	0008	0000	0008	= <i>nathap noeur</i>
44	0000	0008	0004	0008	
45	0000	0008	0009	0008	
46	0000	0008	0001	0008	
47	0000	0008	0008	0008	
48	0000	0008	0005	0008	
49	0000	0008	0007	0008	

50	0007	0008	0000	0008	
51	0007	0008	0004	0008	
52	0007	0008	0009	0008	
53	0007	0008	0001	0008	
54	0007	0008	0008	0008	= learned <i>nathap lak</i>
55	0007	0008	0005	0008	
56	0007	0008	0007	0008	

57	0004	0008	0000	0008	
58	0004	0008	0004	0008	
59	0004	0008	0009	0008	
60	0004	0008	0001	0008	
61	0004	0008	0008	0008	
62	0004	0008	0005	0008	
63	0004	0008	0007	0008	

64	0008	0008	0000	0008	
65	0008	0008	0004	0008	
66	0008	0008	0009	0008	
67	0008	0008	0001	0008	
68	0008	0008	0008	0008	
69	0008	0008	0005	0008	
70	0008	0008	0007	0008	

2) It can be seen that both learned *nathap lak* (as taught to the author) are found among the derived *nathap*. Moreover, the learned *nathap lak* are in fact *nathap roon 1*.

3) Furthermore, it is clearly seen that the the process of derivation is by no mean exhausted even at this level of decoration. A higher *roon*, the possibilities are practically limitless.

4) In the performance of *phleng si nuan* and *khaek borrahet chan song*, 9 of these *nathap roon 1* can be found in various locations:

Table 38. combined *phleng si nuan* and *phleng khaek borrahet chan song*: summary of *nathap roon 1* found from the performed *nathap*

<i>nathap</i> no.	<i>nathap roon 1</i> pattern	position to be found	
		<i>si nuan</i>	<i>khaek borrahet</i>
9	0004 0005 0004 0008	<i>thon 1.2 nathap 1</i> | <i>thon 2.2 nathap 2</i> | <i>thon 3.2 nathap 3</i> | <i>thon 4.2 nathap 2</i> |	<i>thon 1.1 nathap 3</i> <i>thon 1.1 nathap 4</i> - -
17	0009 0005 0009 0008	<i>thon 1.2 nathap 4</i> |	-
24	0001 0005 0009 0008	<i>thon 2.1 nathap 4</i> |	-
38	0007 0005 0009 0008	-	<i>thon 2.1 nathap 4</i>
54	0007 0008 0008 0008	<i>thon 3.1 nathap 4</i> |	<i>thon 1.1 nathap 1</i>
56	0007 0008 0007 0008	<i>thon 3.1 nathap 1</i> |	-
58	0004 0008 0008 0008	<i>thon 2.1 nathap 3</i> | <i>thon 4.2 nathap 3</i> |	<i>thon 2.2 nathap 4</i> -
68	0008 0008 0008 0008	-	<i>thon 2.2 nathap 3</i>
69	0008 0008 0005 0008	<i>thon 4.1 nathap 1</i> |	-

5) In oral tradition, such as Thai way of music teaching, it is common to find that the same teacher may teach different *nathap lak* of a given *nathap* to different pupils at different times. Sometimes, he even teaches a different ones in the same day. This is explained, as can be seen in the list above, that the possible *nathap lak* at his disposal is limitless.

6) The method of derivation, as exemplified above, can be of course applied to the creation and derivation of other new *nathap* although from a *songmai*, *propkai* or other *nathap*. As it stands, there is only one version of *nathap songmai* for hundreds of *phleng thao* in existence. Perhaps, many more versions of *nathap songmai* may be created or have been created in practice. They can be classified by their specific usage of drum strokes and their positions in the *nathap*.

Chapter 5

ANALYSIS OF MACRO STRUCTURE OF NATHAP SONGMAI (TAPHON) IN PHLENG SI NUAN AND PHLENG KHAEK BORRATHET THAO

5.1 Introduction

In chapters 2, 3 and 4 we have studied the micro structure of *nathap songmai chan song* in *phleng si nuan* and *khaek borrathet*. Here we are going to analyse the *nathap* structure in the context of *phleng thao*. Many findings in the analysis of the *nathap chan song* have led us to conclude that only the macro structure of the *nathap thao* needs to be analysed.

First, the *nathap roon 1* will be produced from the performed *nathap*. Then the *kroeng, siew* and *kroeng siew* patterns will be identified and analysed. Last, the *klong phayang* will be collected under various *dio* strokes and their Western notations will be made.

The discussions on the results found in this chapter will be treated in chapter 7.

5.2 Expanded lekha sangkeet of the performed nathap

As has been discussed in chapter 1.1.4, the expanded *lekha sangkeet* is a more convenient notation for a comparative analysis of various *chan* in *phleng thao*. In this form of *lekha sangkeet*, a full cycle *nathap* in each *chan* will be represented by 32 *kroeng siew* note durations. Each *nathap songmai* cycle, by tradition, is composed of 4 *dio*, D1, D2, D3 and D4. *dio* D1 and D2 form *wak*, W1, and *dio* D3 and D4, are *wak* W2. Therefore, each *dio* is made up of 8 *kroeng siew*, normally written in 2 groups of 4 (0000 0000). In the notation, a bar (|) is used to mark the division between the *wak*. As a rule in Thai music playing, each *thon* is repeated once. The notation has been carried out for both the first time and the repeats of the *thon*, labeled as 1.1, 1.2, 2.1, 2.2, ..., 4.1, 4.2 etc.

(a) Structure of *phleng si nuan chan song*

phleng si nuan chan song has 4 *thon*. Each *thon* consists of 4 *changwa nathap* (or 4 *nathap*). Therefore, there are in total 32 *changwa nathap* (32 cycles). As each cycle is formed of 4 *dio*, therefore, the whole *phleng* contains a total of 128 *dio*.

(b) Structure of *phleng khaek borrathet thao*

phleng khaek borrathet thao consists of three *chan*. Each *chan* is composed of 2 *thon* with 4 *changwa nathap* each. Therefore, in each *chan*, there are a total of 16 *changwa nathap* of 4 *dio* each which give rise to a total of 64 *dio*.

5.2.1 *phleng si nuan chan song nathap songmai (taphon)*
Expanded lekha sangkeet : the performed nathap

<i>thon</i> <i>dio</i>	<i>wak 1</i>				<i>wak 2</i>			
	D1		D2		D3		D4	
<i>ching</i>	o		+		o		+	
1.1	0000	0000	0000	0000	0000	0000	0000	0000
	0000	0000	0000	0000	0000	0000	0000	0008
	0000	0007	0000	0008	0000	0008	0000	0008
	0000	0007	0055	0508	0001	0509	0007	0008
1.2	0000	0004	0000	0705	0000	0504	0007	0008
	0000	0004	0007	0005	0001	0003	0007	0008
	0000	0004	0007	0005	0001	0504	0507	0407
	0000	0309	0007	0905	0003	0009	0007	0008
2.1	0000	0007	0707	0008	0008	0007	0003	00011
	0000	0007	0000	0004	0000	0005	0000	0008
	0008	0004	0007	0008	0008	0004	0007	0008
	0000	0001	0003	0705	0703	0709	0007	0008
2.2	0000	0007	0501	0504	0005	0001	0000	0708
	0000	0004	0000	0705	0005	0004	0007	0008
	0004	0504	0705	0709	0507	0405	0701	0504
	0005	0009	0003	0007	0000	0005	0505	0509
3.1	0000	0007	0000	0008	0008	0007	0008	0008
	0000	0001	0501	0007	0005	0001	0007	0008
	0007	0509	0078	0507	0501	0307	0005	0708
	0000	0007	0008	0008	0008	0008	0001	0008
3.2	0000	0004	0000	0705	0704	0705	0004	0309
	0000	0708	0008	0709	0009	0407	0705	0105
	0000	0004	0007	0005	0008	0004	0000	0708
	0004	0055	0505	0704	0006	0001	0007	0008
4.1	0000	0005	0004	0000	0404	0405	0001	0700
	0500	0508	0005	0508	0505	0105	0007	0008
	0008	0007	0008	0008	0008	0007	0004	0007
	0005	0009	0003	0007	0005	0009	0003	0705
4.2	0000	0004	0000	0705	0005	0004	0000	0705
	0008	0004	0055	0705	0004	0004	0007	0008
	0000	0004	0007	0008	0008	0004	0007	0008
	0005	0009	0007	0005	0000	0008	0000	0009

*11 = stroke eleven (phroect)

5.2.2 *phleng khaek borrahet chan sam nathap songmai (taphon)*
klong phayang : the performed nathap

chan sam

thon 1 - first (4 changwa nathap)

	0		+
- - - -	- - - -	- - - -	- - - -
- - - -	- - - -	- - - -	- - - -
- - - -	- - - -	- - - -	- - - -
- - - -	- - - pa	- - - tub	- - - phring
- - - phring	- - - phring	- - - pa	- - - tub
- - - -	- - - pa	- - - tub	- - - phring
- - - phring	- phring- phring	- phring - phring	- pa - tub
- - - -	- - - pa	- thengtingpa	- tub - phring

thon 1 - repeat (4 changwa nathap)

	0		+
- - - phring	- - - phring	- - - pa	- pa - tub
- - - -	- ting - ting	- pa - tub	- - tubphroeng
- - - phring	- na - phring	- - - pa	- - - tub
- ting - phroeng	- patubphroeng	- ting - phroeng	- thatubphring
- - - ting	- na - phring	- - - pa	- - - tub
- ting - pa	- tub - phring	- ting - pa	tingpatubphring
- - - phring	- phring - phring	- - - pa	- - - tub
- - - theng	thetubthatring	- thathedphroeng	- tub - phring

thon 2 - first (4 changwa nathap)

	0		+
- ting - ting	- na - phring	- - - pa	- pa - tub
patub - pa	- pa - tub	- ting - phroeng	- thatubphring
- - - phring	phringphringphringphring	- phring - theng	- tha - tub
- - tubtheng	tingpa - tub	tingthengtingtheng	- tub - phring
- - - -	phringtubphringphring	- - phringphring	- patub -
tingpatubtheng	tingpatub -	tingthengtingtheng	- tub - phring
- thengtingtub	- thengtingtub	- thengtingtheng	- pa - tub
- - - -	tubtubpatub	patub - phroeng	- tub - phring

thon 2 - repeat (4 changwa nathap)

	0		+
- ting - tub	- - - pa	- - - pa	- pa - tub
- - - -	- - - pa	- pa - pa	- tub - phring
- - - phring	- - - phring	- phring - phring	- pa - tub
- - - theng	tingtubpatub	- ting - theng	- tub - ting
- - - phring	- - - phring	- - - pa	- - - tub
- - - ting	- ting - theng	- ting - tub	- patub -
ting - - phring	- - - phring	- phring - phroeng	- pa - tub
- pa - theng	- pa - tub	- ting - phroeng	tingtubthaphring

5.2.3 *phleng khaek borrahet chan sam nathap songmai (taphon)*
Expanded lekha sangkeet : the performed nathap

<i>thon</i> <i>dio</i>	<i>wak 1</i>				<i>wak 2</i>			
	D1		D2		D3		D4	
<i>ching</i>	o		+		o		+	
1.1	0000	0000	0000	0000	0000	0000	0000	0000
	0000	0000	0000	0000	0000	0004	0007	0008
	0008	0008	0004	0007	0000	0004	0007	0008
	0008	0808	0808	0407	0000	0004	0154	0708
1.2	0008	0008	0004	0407	0000	0505	0407	0079
	0008	0008	0004	0007	0509	0479	0509	0378
	0005	0008	0004	0007	0504	0708	0504	5478
	0008	0808	0004	0007	0001	3735	0339	0708
2.1	0505	0008	0004	0407	4704	0407	0509	0378
	0008	8888	0801	0307	0071	5407	5151	0708
	0000	8788	0088	0470	5471	5470	5151	0708
	0157	0157	0151	0407	0000	7747	4709	0708
2.2	0507	0004	0004	0407	0000	0004	0404	0708
	0008	0008	0808	0407	0001	5747	0501	0705
	0008	0008	0004	0007	0005	0501	0507	0470
	5008	0008	0809	0407	0401	0407	0509	5738

5.2.4 *phleng khaek borrahet chan song nathap songmai (taphon)*
Expanded *lekha sangkeet* : the performed *nathap*

<i>thon</i> <i>dio</i>	<i>wak 1</i>				<i>wak 2</i>			
	D1		D2		D3		D4	
<i>ching</i>	o		+		o		+	
1.1	0000	0007	0000	0008	0000	0008	0000	0008
	0008	0001	0003	0007	0005	0009	0507	0308
	0000	0004	0000	0705	0005	0004	0007	0008
	0000	0004	0007	0005	0005	0004	0004	0708
1.2	0000	0004	0007	0008	0000	0004	0007	0000
	0008	0501	0507	0105	0071	0507	0105	0008
	0001	0705	0501	0700	0701	0505	0500	5105
	0300	5105	0505	0405	0501	0501	0004	0005
2.1	0000	0808	0000	0808	0008	0105	0004	0000
	0704	0707	0505	0105	0000	0101	0407	0805
	0000	0207	0004	0700	0501	0501	0007	0005
	0005	0007	0055	0505	0703	0509	0007	0008
2.2	0005	0004	0000	0007	0005	0004	0007	0008
	0004	0709	0007	0509	0004	0605	0503	0708
	0000	0708	0000	0708	0008	0708	0800	0708
	0008	0004	0007	0008	0005	0004	0007	0008

5.2.5 phleng khaek borrahet chan dio nathap songmai (taphon)
klong phayang : the performed nathap

thon 1 - first (4 changwa nathap)

0 +	0 +
- - - tub	- phring - phring
- tha - tub	- phring - phring
- ting - tub	- talingtingting
- thengthatub	- phring - phring

thon 1 - repeat (4 changwa nathap)

0 +	0 +
- thatub -	thalatingting -
thatingtingtheng	tingtingthengting
.thengtingtheng.thengtingtheng.thengtingtheng.thengtingtheng	.thengtingtheng.tingpating
tingthengtingtheng	thatubtingphring

thon 2- first (4 changwa nathap)

0 +	0 +
- tingtubtuedting	thengtubtingting
patubtingtheng	tingtubthatting
thengthatub	thengpatubting
.nathengtingtheng	natubnaphring

thon 2 - repeat (4 changwa nathap)

0 +	0 +
.tingthattingting	- thengtalingting
.tubthengtalingting	tubthatubphring
- phring - pa	- tub - phring
- phring - tub	- phring - phring

5.2.6 *phleng khaek borrahet chan dio nathap songmai (taphon)*
Expanded lekha sangkeet : the performed nathap

<i>thon</i>	<i>wak 1</i>		<i>wak 2</i>	
	D1	D2	D3	D4
<i>ching</i>	o	+	o	+
	0000 0000	0000 0000	0000 0000	0000 0000
1.1	0000 0000	0000 0007	0000 0008	0000 0008
	0000 0003	0000 0007	0000 0008	0000 0008
	0000 0005	0000 0007	0000 0505	0005 0005
	0000 0001	0003 0007	0000 0008	0000 0008
1.2	0000 0003	0007 0000	0003 0505	0005 0000
	0003 0005	0005 0001	0005 0005	0001 0005
	0151 0151	0151 0151	0151 0005	0004 0005
	0005 0001	0005 0001	0003 0007	0005 0008
2.1	0000 0507	0006 0005	0001 0007	0005 0005
	0004 0007	0005 0001	0005 0007	0003 0005
	0000 0001	0003 0007	0001 0004	0007 0005
	0007 0001	0005 0001	0007 0007	0007 0008
2.2	0005 0003	0005 0005	0000 0001	0505 0005
	0007 0001	0505 0005	0007 0003	0007 0008
	0000 0008	0000 0004	0000 0007	0000 0008
	0000 0008	0000 0007	0000 0008	0000 0008

5.3 nathap noeur, nathap lak and nathap roon 1 from the performed nathap

The examination of the performed *nathap* reveals that they are very heavily decorated. Therefore, in order to facilitate the analysis, we have reduced the *lekha sangkeet* of the performed *nathap* into more basic levels. First, the performed *nathap* are reduced to the *nathap roon 1* where only the strokes at *dio* positions have been retained. At this level, the learned *nathap lak* are normally uncovered. However, when reduced down further to *nathap noeur* levels where the *dio* strokes at D1 and D3 are removed, the underlying *nathap noeur* will be found.

It should be noted in here that *nathap noeur* and *nathap lak* are regarded to be the essence of the development of *sai*-making in any levels. In his performance, the author uses these *nathap roon* as the basis in his mind for interpreting the *phleng*. It is necessary to state also that the *nathap roon* are not just any 'artificial *nathap*' which occurred during the performance, but they are in fact the inner structure of *sai* which the drummer must realise and interpret them with care.

In the expanded *lekha sangkeet*, the *nathap lak* and *nathap noeur* of *nathap songmai thao* are as follows:

chan sam

<i>nathap lak</i> :	0000	⁰ <u>0008</u>	0000	⁺ <u>0007</u>	0000	⁰ <u>0004</u>	0000	⁺ <u>0008</u>
<i>nathap noeur</i> :	0000	⁰ 0000	0000	⁺ <u>0007</u>	0000	⁰ 0000	0000	⁺ <u>0008</u>

chan song (has 2 *nathap lak* versions)

<i>nathap lak</i> 1:	0000	⁰ <u>0007</u>	0000	⁺ <u>0008</u>	0000	⁰ <u>0008</u>	0000	⁺ <u>0008</u>
<i>nathap noeur</i> 1:	0000	⁰ 0000	0000	⁺ <u>0008</u>	0000	⁰ 0000	0000	⁺ <u>0008</u>
<i>nathap lak</i> 2:	0000	⁰ <u>0004</u>	0000	⁺ <u>0005</u>	0000	⁰ <u>0004</u>	0000	⁺ <u>0008</u>
<i>nathap noeur</i> 2:	0000	⁰ 0000	0000	⁺ <u>0005</u>	0000	⁰ 0000	0000	⁺ <u>0008</u>

chan dio

<i>nathap lak</i> :	0000	⁰ <u>0000</u>	0000	⁺ <u>0007</u>	0000	⁰ <u>0008</u>	0000	⁺ <u>0008</u>
<i>nathap noeur</i> :	0000	⁰ 0000	0000	⁺ <u>0007</u>	0000	⁰ 0000	0000	⁺ <u>0008</u>

The *nathap roon 1* has been extracted from the performed *nathap* for both *phleng*. The *nathap noeur* and *nathap lak* will be identified and counted. Other *nathap* which depart from the *nathap noeur* and *nathap lak* will be also numbered and counted. Their percentages of occurrences represent both the degrees of deviation from *nathap noeur* and *nathap lak* as well as the possible variations of *nathap lak songmai*. The percentages are based on the total number of *changwa nathap* of each *phleng*.

In the following, the *nathap roon 1* are carried out for *phleng si nuan chan song* and *khaek borrhathet thao*.

5.3.1 *phleng si nuan chan song nathap songmai (taphon)*Expanded *lekha sangkeet* : *nathap roon 1* from the performed *nathap*

<i>thon</i>	<i>wak 1</i>				<i>wak 2</i>				<i>nathap</i> number		
	D1		D2		D3		D4		<i>lak</i>	<i>noeur</i>	
<i>ching</i>	o		+		o		+				
1.1	0000	0000	0000	0000	|	0000	0000	0000	3	3	
	0000	0000	0000	0000	|	0000	0000	0008	4	4	
	0000	0007	0000	0008	|	0000	0008	0000	* <i>nathap lak</i> 1	1	
	0000	0007	0000	0008	|	0000	0009	0000	5	1	
1.2	0000	0004	0000	0005	|	0000	0004	0000	* <i>nathap lak</i> 2	2	
	0000	0004	0000	0005	|	0000	0003	0000	6	2	
	0000	0004	0000	0005	|	0000	0004	0000	7	5	
	0000	0009	0000	0005	|	0000	0009	0000	8	2	
2.1	0000	0007	0000	0008	|	0000	0007	0000	00011	*11 = eleven (phroet) 9	6
	0000	0007	0000	0004	|	0000	0005	0000	10	7	
	0000	0004	0000	0008	|	0000	0004	0000	11	1	
	0000	0001	0000	0005	|	0000	0009	0000	12	2	
2.2	0000	0007	0000	0004	|	0000	0001	0000	13	7	
	0000	0004	0000	0005	|	0000	0004	0000	* <i>nathap lak</i> 2	2	
	0000	0004	0000	0009	|	0000	0005	0000	14	8	
	0000	0009	0000	0007	|	0000	0005	0000	15	9	
3.1	0000	0007	0000	0008	|	0000	0007	0000	16	1	
	0000	0001	0000	0007	|	0000	0001	0000	17	10	
	0000	0009	0000	0007	|	0000	0007	0000	18	10	
	0000	0007	0000	0008	|	0000	0008	0000	* <i>nathap lak</i> 1	1	
3.2	0000	0004	0000	0005	|	0000	0005	0000	19	11	
	0000	0008	0000	0009	|	0000	0007	0000	20	12	
	0000	0004	0000	0005	|	0000	0004	0000	* <i>nathap lak</i> 2	2	
	0000	0005	0000	0004	|	0000	0001	0000	21	7	
4.1	0000	0005	0000	0000	|	0000	0005	0000	22	3	
	0000	0008	0000	0008	|	0000	0005	0000	23	1	
	0000	0007	0000	0008	|	0000	0007	0000	24	13	
	0000	0009	0000	0007	|	0000	0009	0000	25	14	
4.2	0000	0004	0000	0005	|	0000	0004	0000	26	15	
	0000	0004	0000	0005	|	0000	0004	0000	* <i>nathap lak</i> 2	2	
	0000	0004	0000	0008	|	0000	0004	0000	11	1	
	0000	0009	0000	0005	|	0000	0008	0000	27	11	
total <i>nathap</i>									(32)	100%	
<i>nathap lak</i> version 1									(2)	6.3%	
<i>nathap lak</i> version 2									(4)	12.5%	
Other <i>nathap lak</i>									(26)	81.3%	
total <i>nathap lak</i> variety									(27)	84.4%	
total <i>nathap</i>									(32)	100%	
<i>nathap noeur</i> version 1									(7)	21.9%	
<i>nathap noeur</i> version 2									(7)	21.9%	
Other <i>nathap noeur</i>									(18)	56.3%	
total <i>nathap noeur</i> variety									(17)	53.1%	

5.3.2 phleng khaek borrahet chan sam nathap songmai (taphon)
Expanded lekha sangkeet : nathap roon 1 from the performed nathap

thon	wak 1				wak 2				nathap number	
	D1		D2		D3		D4		lak	noeur
ching	o	+	o	+	o	+	o	+		
1.1	0000	0000	0000	0000	0000	0000	0000	0000	2	2
	0000	0000	0000	0000	0000	0004	0000	0008	3	3
	0000	0008	0000	0007	0000	0004	0000	0008	nathap lak 1	1
	0000	0008	0000	0007	0000	0004	0000	0008	1	1
1.2	0000	0008	0000	0007	0000	0005	0000	0009	4	4
	0000	0008	0000	0007	0000	0009	0000	0008	5	1
	0000	0008	0000	0007	0000	0008	0000	0008	6	1
	0000	0008	0000	0007	0000	0005	0000	0008	7	1
2.1	0000	0008	0000	0007	0000	0007	0000	0008	8	1
	0000	0008	0000	0007	0000	0007	0000	0008	8	1
	0000	0008	0000	0000	0000	0000	0000	0008	9	3
	0000	0007	0000	0007	0000	0007	0000	0008	10	1
2.2	0000	0004	0000	0007	0000	0004	0000	0008	11	1
	0000	0008	0000	0007	0000	0007	0000	0005	12	5
	0000	0008	0000	0007	0000	0001	0000	0070	13	6
	0000	0008	0000	0007	0000	0007	0000	0008	8	1
total nathap									(16)	100%
nathap lak									(2)	12.5%
Other nathap lak									(14)	87.5%
total nathap lak variety									(13)	81.3%
total nathap									(16)	100%
nathap noeur									(10)	62.5%
Other nathap noeur									(6)	37.5%
total nathap noeur variety									(6)	37.5%

5.3.3 *phleng khaek borrahet chan song nathap songmai (taphon)*
Expanded lekha sangkeet : nathap roon 1 from the performed nathap

<i>thon</i>	<u>wak 1</u>		<u>wak 2</u>		<i>nathap</i>			
	D1	D2	D3	D4	number			
<i>ching</i>	o	+	o	+	<i>lak</i>	<i>noeur</i>		
1.1	0000	0007	0000	0008	0000	0008	nathap lak 1	1
	0000	0001	0000	0007	0000	0009		3
	0000	0004	0000	0005	0000	0004	nathap lak 2	2
	0000	0004	0000	0005	0000	0004	nathap lak 2	2
1.2	0000	0004	0000	0008	0000	0004		4
	0000	0001	0000	0005	0000	0007		5
	0000	0005	0000	0000	0000	0005		6
	0000	0005	0000	0005	0000	0001		7
2.1	0000	0008	0000	0008	0000	0005		8
	0000	0007	0000	0005	0000	0001		9
	0000	0007	0000	0000	0000	0001		10
	0000	0007	0000	0005	0000	0009		11
2.2	0000	0004	0000	0007	0000	0004		12
	0000	0009	0000	0009	0000	0005		13
	0000	0008	0000	0008	0000	0008		14
	0000	0004	0000	0008	0000	0004		15
total <i>nathap</i>					(16)	100%		
<i>nathap lak</i> version 1					(1)	6.3%		
<i>nathap lak</i> version 2					(2)	12.5%		
Other <i>nathap lak</i>					(13)	81.3%		
total <i>nathap lak</i> variety					(15)	93.3%		
total <i>nathap</i>					(16)	100%		
<i>nathap noeur</i> version 1					(3)	18.8%		
<i>nathap noeur</i> version 2					(4)	25.0%		
Other <i>nathap noeur</i>					(9)	56.3%		
total <i>nathap noeur</i> variety					(7)	43.8%		

5.3.4 phleng khaek borrahet chan dio nathap songmai (taphon)
Expanded lekha sangkeet : nathap roon 1 from the performed nathap

<i>thon dio</i>	<i>wak 1</i>		<i>wak 2</i>		<i>nathap number</i>	
	D1	D2	D3	D4	<i>lak</i>	<i>noeur</i>
<i>ching</i>	0	+	0	+		
1.1	0000 0000	0000 0007	0000 0008	0000 0008	nathap lak	1 1
	0000 0003	0000 0007	0000 0008	0000 0008		2 1
	0000 0005	0000 0007	0000 0005	0000 0005		3 2
	0000 0001	0000 0007	0000 0008	0000 0008		4 1
1.2	0000 0003	0000 0000	0000 0005	0000 0000		5 3
	0000 0005	0000 0001	0000 0005	0000 0005		6 4
	0000 0001	0000 0001	0000 0005	0000 0005		7 4
	0000 0001	0000 0001	0000 0007	0000 0008		8 5
2.1	0000 0007	0000 0005	0000 0007	0000 0005		9 6
	0000 0007	0000 0001	0000 0007	0000 0005		10 4
	0000 0001	0000 0007	0000 0007	0000 0005		11 2
	0000 0001	0000 0001	0000 0007	0000 0008		8 5
2.2	0000 0003	0000 0005	0000 0001	0000 0005		12 6
	0000 0001	0000 0005	0000 0003	0000 0008		13 7
	0000 0008	0000 0004	0000 0007	0000 0008		14 8
	0000 0008	0000 0007	0000 0008	0000 0008		15 1
total <i>nathap</i>						(16) 100%
<i>nathap lak</i>						(1) 6.3%
Other <i>nathap lak</i>						(15) 93.8%
total <i>nathap lak</i> variety						(15) 93.8%
total <i>nathap</i>						(16) 100%
<i>nathap noeur</i>						(4) 25.0%
Other <i>nathap noeur</i>						(12) 75.0%
total <i>nathap noeur</i> variety						(8) 50.0%

For convenience, the results of the preceding analysis are summarised in the table below.

Table 39. *phleng si nuan chan song* and *phleng khaek borrathet thao*: summary of *nathap lak*, *nathap noeur*, other *nathap lak* and *nathap* variety from the performed *nathap*

PHLENG	SI NUAN	KHAEK BORRATHET		
	<i>chan song</i>	<i>chan sam</i>	<i>chan song</i>	<i>chan dio</i>
<i>nathap lak</i>	18.8%	12.5%	18.8%	6.3%
<i>nathap noeur</i>	43.8%	62.5%	43.8%	25.0%
other <i>nathap lak</i>	81.3%	87.5%	81.3%	93.8%
<i>nathap lak</i> variety	84.4%	81.3%	93.3%	93.8%

Conclusion

phleng si nuan and *khaek borrathet chan song*:

1. In *chan song*, It was found that the distribution of frequency of *nathap lak* and *nathap noeur* were used equally in both *phleng* (*nathap lak* = 18.8% and *nathap noeur* = 43.8%).
2. It is found also that there are more variety of *nathap* used in *phleng khaek borrathet* than in *phleng si nuan*. But the percentages of the *nathap*, other than *nathap lak*, are the same in both *phleng*.

khaek borrathet thao:

3. The occurrences of *nathap lak* were higher in *chan song* than *chan sam* and *chan dio*. This can be explained by the fact that alternative *nathap lak* versions were used in *chan song*.
4. However, the frequency of *nathap noeur* were higher in *chan sam*, intermediate in *chan song* and lower in *chan dio*. This results in the occurrence of more variety of *nathap* in *chan dio* than in the other two *chan*. The phenomenon can be explained by the fact that in *chan sam* and *chan song* the available time is considerably longer than in *chan dio*, allowing thus more opportunities to accommodate the dio strokes of *nathap lak*.

5.4 dio decoration

In the following, we will consider various levels of *dio* decorations: *kroeng*, *siew* and *kroeng siew* patterns. This study will be carried out for each *dio* positions, D1, D2, D3 and D4 separately, but over the entire number of *changwa nathap* in each *chan* forms.

5.4.1 kroeng patterns from the performed nathap

First, we are going to consider the aspects of *dio* decorations and *kroeng* patterns from the performed *nathap* for all the *chan* forms of each *phleng*:

- (a) a *dio* is said to be decorated as long as it has one or more strokes at positions other than

Ki2 (i.e. Ki2, Si4 and KSi8). These positions can be *kroeng*, *siew* as well as *kroeng siew* positions.

(b) a *dio* is said to be decorated at *kroeng* levels only when it has a stroke at *kroeng* position Ki1 (i.e. Si2 or KSi4).

The percentages of occurrence of decorated *dio* are always based on the total numbers of *dio* in each *chan* form (128 in *phleng si nuan chan song* and 64 in all *chan* forms of *phleng khaek borrahet thao*).

The total *dio* decorations and *kroeng* patterns will be also considered separately for *wak* W1 and W2.

The discussions on the final results will be treated in chapter 5.4.3

5.4.1.1 phleng si nuan chan song nathap songmai (taphon)

Expanded lekha sangkeet : kroeng patterns from the performed nathap

thon dio ching	wak 1				wak 2				
	D1		D2		D3		D4		
	o		+		o		+		
1.1	----	----	----	----	----	----	----	----	
	----	----	----	----	----	----	----	----	
	----	----	0005	0008	0001	0009	0007	0000	
1.2	----	----	0000	0005	0000	0004	0007	0008	
	----	----	0007	0005	0001	0003	0007	0008	
	----	----	0007	0005	0001	0004	0007	0007	
	0000	0009	0007	0005	0003	0009	0007	0008	
2.1	----	----	0007	0008	0008	0007	0003	00011	
	----	----	----	----	----	----	----	----	
	0008	0004	0007	0008	0008	0004	0007	0008	
	----	----	0003	0005	0003	0009	0007	0008	
2.2	----	----	0001	0004	0005	0001	0000	0008	
	----	----	0000	0005	0005	0004	0007	0008	
	0004	0004	0005	0009	0007	0005	0001	0004	
	0005	0009	0003	0007	----	----	0005	0009	
3.1	----	----	----	----	0008	0007	0008	0008	
	----	----	0001	0007	0005	0001	0007	0008	
	0007	0009	0008	0007	0001	0007	0005	0008	
	----	----	0008	0008	0008	0008	0001	0008	
3.2	----	----	0000	0005	0004	0005	0004	0009	
	0000	0008	0008	0009	0009	0007	0005	0005	
	----	----	0007	0005	0008	0004	0000	0008	
	0004	0005	0005	0004	0006	0001	0007	0008	
4.1	----	----	0004	0000	0004	0005	0001	0000	
	0000	0008	0005	0008	0005	0005	0007	0008	
	0008	0007	0008	0008	0008	0007	0004	0007	
	0005	0009	0003	0007	0005	0009	0003	0005	
4.2	----	----	0000	0005	0005	0004	0000	0005	
	0008	0004	0005	0005	0004	0004	0007	0008	
	----	----	0007	0008	0008	0004	0007	0008	
	0005	0009	0007	0005	----	----	----	----	
total dio		(32)		(32)		(32)		(32)	= (128) 100%
total decorated dio		(12)		(27)		(26)		(27)	
percentage		9.4%		21.1%		20.3%		21.1%	
total decorated wak			(39)			(53)			= (92)
percentage			30.5%			41.4%			= 71.9%
total kroeng		(9)		(23)		(25)		(24)	
percentage		7.0%		18.0%		19.5%		18.8%	
total decorated wak			(32)			(49)			= (81)
percentage			25.0%			38.3%			= 63.3%

*11 = eleven (phroet)

5.4.1.2 *phleng khaek borrahet chan sam nathap songmai (taphon)*

Expanded lekha sangkeet : kroeng patterns from the performed nathap

<i>thon</i> <i>dio</i>	<i>wak 1</i>				<i>wak 2</i>			
	D1		D2		D3		D4	
<i>ching</i>	0000	0000 ^o	0000	0000 ⁺	0000	0000 ^o	0000	0000 ⁺
1.1	0008	0008	0004	0007	0000	0005	0007	0009
1.2	0008	0008	0004	0007	0009	0009	0009	0008
2.1	0005	0008	0004	0007	0004	0007	0009	0008
2.2	0007	0004	0004	0007	0001	0007	0001	0005
total <i>dio</i>	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)
total decorated <i>dio</i>	(14)	(14)	(14)	(14)	(11)	(11)	(15)	(15)
percentage	21.9%	21.9%	21.9%	21.9%	17.2%	17.2%	23.4%	23.4%
total decorated <i>wak</i>	(28)	(28)	(28)	(28)	(26)	(26)	(26)	(26)
percentage	43.8%	43.8%	43.8%	43.8%	40.6%	40.6%	40.6%	40.6%
total <i>kroeng</i>	(13)	(13)	(13)	(13)	(9)	(9)	(15)	(15)
percentage	20.3%	20.3%	20.3%	20.3%	14.1%	14.1%	23.4%	23.4%
total decorated <i>wak</i>	(27)	(27)	(27)	(27)	(24)	(24)	(24)	(24)
percentage	42.2%	42.2%	42.2%	42.2%	37.5%	37.5%	37.5%	37.5%

5.4.1.3 *phleng khaek borrahet chan song nathap songmai (taphon)*

Expanded lekha sangkeet : kroeng patterns from the performed nathap

<i>thon</i> <i>dio</i>	<i>wak 1</i>				<i>wak 2</i>			
	D1		D2		D3		D4	
<i>ching</i>	^o		⁺		^o		⁺	
	0000	0000	0000	0000	0000	0000	0000	0000
1.1	0008	0001	0003	0007	0005	0009	0007	0008
	0008	0001	0003	0007	0005	0009	0007	0008
	0001	0005	0001	0000	0001	0005	0000	0005
	0000	0005	0005	0005	0001	0001	0004	0005
1.2	0008	0001	0007	0005	0001	0007	0005	0008
	0001	0005	0001	0000	0001	0005	0000	0005
	0000	0005	0005	0005	0001	0001	0004	0005
2.1	0000	0008	0000	0008	0008	0005	0004	0000
	0004	0007	0005	0005	0000	0001	0007	0005
	0000	0007	0004	0000	0001	0001	0007	0005
	0005	0007	0005	0005	0003	0009	0007	0008
2.2	0005	0004	0000	0007	0005	0004	0007	0008
	0004	0009	0007	0009	0004	0005	0003	0008
	0000	0008	0000	0008	0008	0008	0000	0008
	0008	0004	0007	0008	0005	0004	0007	0008
total <i>dio</i>	(16)		(16)		(16)		(16)	
total <i>dio</i> decoration	(12)		(15)		(14)		(15)	
percentage	18.8%		23.4%		21.9%		23.4%	
total decorated <i>wak</i>		(27)				(29)		
percentage		42.2%				45.3%		
total <i>kroeng</i>	(8)		(11)		(13)		(13)	
percentage	12.5%		17.2%		20.3%		20.3%	
total decorated <i>wak</i>		(19)				(26)		
percentage		29.7%				40.6%		

= (64) 100%

= (56) 87.5%

= (45) 70.3%

5.4.2 *siew* and *kroeng siew* patterns from the performed *nathap*

Now, we are considering the *dio* decorations at *siew* and *kroeng siew* levels in the performed *nathap* for all the *chan* forms of each *phleng*:

(a) a *dio* is said to be decorated at *siew* levels as long as it has at least a stroke at any *siew* positions, S_{ij} , in the *dio* other than at *dio* D_i (i.e. K_i2 , S_i4 and KS_i8 ; 0000 0000).

(b) a *dio* is said to be decorated at *kroeng siew* levels only when it has at least a stroke at any *kroeng siew* positions, KS_{ij} . In the tables, the *dio* which are decorated at *kroeng siew* levels will be underlined (0000 0000).

The percentages of occurrence of decorated *dio* are always based on the total numbers of *dio* in each *chan* forms (128 in *phleng si nuan chan song* and 64 in all *chan* forms of *phleng khaek borrahet thao*).

The total *siew* and *kroeng siew* patterns will be also considered separately for *wak* W1 and W2.

The discussions on the final results will be treated in chapter 5.4.3

5.4.2.1 *phleng si nuan chan song nathap songmai (taphon)*

Expanded lekha sangkeet : siew and kroeng siew patterns from the performed nathap

<i>thon</i> <i>dio</i> <i>ching</i> <i>siew</i> <i>kroeng siew</i>	wak 1				wak 2					
	D1		D2		D3		D4			
	o	+	o	+	o	+	o	+		
	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>		
1.1	----	----	----	----	----	----	----	----		
	----	----	----	----	----	----	----	----		
	----	----	<u>0055</u>	<u>0508</u>	0001	0509	----	----		
1.2	----	----	0000	0705	0000	0504	----	----		
	----	----	----	----	0001	0504	0507	0407		
	0000	0309	0007	0905	----	----	----	----		
2.1	----	----	0707	0008	----	----	----	----		
	----	----	----	----	----	----	----	----		
	----	----	0003	0705	0703	0709	----	----		
2.2	----	----	0501	0504	----	----	0000	0708		
	----	----	0000	0705	----	----	----	----		
	0004	0504	0705	0709	0507	0405	0701	0504		
	----	----	----	----	----	----	0505	0509		
3.1	----	----	0501	0007	----	----	----	----		
	----	----	0007	0509	0501	0307	0005	0708		
	----	----	<u>0078</u>	<u>0507</u>	----	----	----	----		
3.2	----	----	0000	0705	0704	0705	0004	0309		
	0000	0708	0008	0709	0009	0407	0705	0105		
	----	----	----	----	----	----	0000	0708		
	<u>0004</u>	<u>0055</u>	0505	0704	----	----	----	----		
4.1	----	----	----	----	0404	0405	0001	0700		
	0500	0508	0005	0508	0505	0105	----	----		
	----	----	----	----	----	----	0003	0705		
4.2	----	----	0000	0705	----	----	0000	0705		
	----	----	<u>0055</u>	<u>0705</u>	----	----	----	----		
	----	----	----	----	----	----	----	----		
	----	----	----	----	----	----	----	----		
total <i>dio</i>		(32)		(32)		(32)		(32)	= (128)	100%
total <i>siew</i>		(6)		(16)		(10)		(11)		
percentage		4.7%		12.5%	7.8%	8.6%				
total decorated wak			(32)				(21)		= (53)	
percentage			25.0%				16.4%		=	41.4%
total <i>kroeng siew</i> (underlined)		(1)		(3)		(0)		(0)		
percentage		0.8%		2.3%		0.0%		0.0%		
total decorated wak			(4)				(0)		= (4)	
percentage			3.1%				0.0%		=	3.1%

5.4.2.2 phleng khaek borrahet chan sam nathap songmai (taphon)

Expanded lekha sangkeet : siew and kroeng siew patterns from the performed nathap

thon dio	wak 1				wak 2					
	D1		D2		D3		D4			
<i>ching</i>		^o		⁺		^o		⁺		
<i>siew</i>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>		
<i>kroeng siew</i>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>		
1.1	----	----	----	----	----	----	----	----		
	0008	0808	0808	0407	----	----	0154	0708		
1.2	----	----	0004	0407	0000	0505	0407	0079		
	----	----	----	----	0509	0479	0509	0378		
	0008	0808	----	----	0504	0708	0504	5478		
					0001	3735	0339	0708		
2.1	0505	0008	0004	0407	4704	0407	0509	0378		
	0008	8888	0801	0307	0071	5407	5151	0708		
	0000	8788	0088	0470	5471	5470	5151	0708		
	0157	0157	0151	0407	0000	7747	4709	0708		
2.2	0507	0004	0004	0407	----	----	0404	0708		
	----	----	0808	0407	0001	5747	0501	0705		
	----	----	----	----	0005	0501	0507	0470		
	5008	0008	0809	0407	0401	0407	0509	5738		
total <i>dio</i>		(16)		(16)		(16)		(16)	= (64)	100%
total <i>siew</i>		(8)		(9)		(11)		(13)		
percentage		12.5%		14.1%		17.2%		20.3%		
total decorated <i>wak</i>			(17)			(24)			= (41)	
percentage			26.6%			27.5%			=	64.1%
total <i>kroeng siew</i> (underlined)		<u>(4)</u>		<u>(2)</u>		<u>(7)</u>		<u>(11)</u>		
percentage		6.3%		3.1%		10.9%		17.2%		
total decorated <i>wak</i>			(6)			(18)			= (24)	
percentage			9.4%			28.1%			=	37.5%

5.4.2.3 phleng khaek borrahet chan song nathap songmai (taphon)

Expanded lekha sangkeet : siew and kroeng siew patterns from the performed nathap

thon dio	wak 1				wak 2			
	D1		D2		D3		D4	
<i>ching</i>		0		+		0		+
<i>siew</i>	0000	0000	0000	0000	0000	0000	0000	0000
<i>kroeng siew</i>	0000	0000	0000	0000	0000	0000	0000	0000
1.1	----	----	----	----	----	----	0507	0308
	----	----	0000	0705	----	----	----	----
	----	----	----	----	----	----	0004	0708
1.2	----	----	----	----	----	----	----	----
	0008	0501	0507	0105	0071	0507	0105	0008
	0001	0705	0501	0700	0701	0505	0500	5105
	0300	5105	0505	0405	0501	0501	----	----
2.1	0000	0808	0000	0808	0008	0105	----	----
	0704	0707	0505	0105	0000	0101	0407	0805
	0000	0207	0004	0700	0501	0501	----	----
	----	----	0055	0505	0703	0509	----	----
2.2	----	----	----	----	----	----	----	----
	0004	0709	0007	0509	0004	0605	0503	0708
	0000	0708	0000	0708	0008	0708	0800	0708
total <i>dio</i>		(32)		(32)		(32)		(32)
total <i>siew</i>		(8)		(10)		(9)		(7)
percentage		12.5%		15.6%		14.0%		10.9%
total decorated <i>wak</i>			(18)			(16)		(34)
percentage			28.1%			25.0%		53.1%
total <i>kroeng siew</i> (underlined)		(1)		(1)		(1)		(1)
percentage		1.6%		1.6%		1.6%		1.6%
total decorated <i>wak</i>			(2)			(2)		(4)
percentage			3.1%			3.1%		6.3%

5.4.2.4 phleng khaek borrahet chan dio nathap songmai (taphon)

Expanded lekha sangkeet : siew and kroeng siew patterns from the performed nathap

thon dio	wak 1				wak 2			
	D1		D2		D3		D4	
<i>ching</i>		o		+		o		+
<i>siew</i>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>
<i>kroeng siew</i>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>	<u>0000</u>
1.1	-----	-----	-----	-----	-----	-----	-----	-----
	-----	-----	-----	-----	0000	0505	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
1.2	-----	-----	-----	-----	0003	0505	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
	<u>0151</u>	<u>0151</u>	<u>0151</u>	<u>0151</u>	<u>0151</u>	<u>0005</u>	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
2.1	0000	0507	-----	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
2.2	-----	-----	-----	-----	-----	0505	0005	-----
	-----	0505	0005	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----	-----	-----	-----
total <i>dio</i>	(16)	(16)	(16)	(16)	(16)	(16)	(16)	= (64) 100%
total <i>siew</i>	(2)	(2)	(2)	(2)	(3)	(1)	(1)	
percentage	3.1%	3.1%	3.1%	3.1%	4.7%	1.6%	1.6%	
total decorated <i>wak</i>		(4)			(4)			= (8)
percentage		6.3%			6.3%			= 12.5%
total <i>kroeng siew</i> (underlined)	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>	<u>(0)</u>	<u>(0)</u>	
percentage	1.6%	1.6%	1.6%	1.6%	1.6%	0.0%	0.0%	
total decorated <i>wak</i>		(2)			(1)			= (3)
percentage		3.1%			1.6%			= 4.7%

5.4.3 Conclusion on *dio* decoration

The percentages of occurrences found in chapters 5.4.1 and 5.4.2 are reproduced in the table below.

Table 40. *phleng si nuan chan song* and *phleng khaek borrathet thao*: summary of *dio* decorations found from the performed *nathap*

PHLENG	SI NUAN		KHAEK BORRATHET					
	<i>chan song</i>		<i>chan sam</i>		<i>chan song</i>		<i>chan dio</i>	
WAK	W1	W2	W1	W2	W1	W2	W1	W2
decorated <i>dio</i>	31%	41%	44%	41%	42%	45%	30%	33%
	72%		85%		87%		63%	
<i>kroeng</i>	25%	38%	42%	38%	30%	41%	28%	31%
	63%		80%		71%		59%	
<i>siew</i>	25%	16%	27%	28%	28%	25%	6%	6%
	41%		64%		53%		12%	
<i>kroeng siew</i>	3%	0%	9%	28%	3%	3%	3%	2%
	3%		37%		6%		7%	
number of <i>klong phayang</i> formulae (see chapter 6)	(67)		(53)		(56)		(27)	

Conclusion

phleng si nuan and *khaek borrathet chan song*

1. Globally, *phleng khaek borrathet* can be said to be more decorated than *phleng si nuan*. Both *phleng* have roughly same degrees of decoration at *kroeng*, *siew* and *kroeng siew* levels (in average 67%, 44% and 5% respectively).

khaek borrathet thao

2. Generally the decoration at all levels which is higher in *chan sam* is gradually reduced in *chan song* and *chan dio*. At *chan dio*, the decoration consists of merely changing the stroke types at the *dio* positions rather than at higher levels.

5.5 Graphical representation of the *nathap*

As an alternative to statistical analyses, it was found possible to illustrate the *nathap* by graphs and charts. For this purpose, the *expanded lekha sangkeet* of the performed *nathap* is the most suitable.

A cycle of the *nathap* is by definition made up of 32 *kroeng siew* positions. For example, in the 2nd, 3rd and 4th *nathap* of *phleng khaek borrathet chan sam*, *thon* 2.1, if a

number 1 is assigned to every drum stroke in those 3 *nathap*, we will obtain the number of strokes, NS, as follows:

Example 29.

expanded lekha sangkeet (*khaek borrahet chan sam - thon 2.1*)

	<u>KS = 10</u>		<u>dio 4</u>
	↓		↓ ↓
Cycle 2:	0000 8888 0801 0307	|	0071 5407 5151 0708
Cycle 3:	0000 8788 0088 0470	|	5471 5470 5151 0708
Cycle 4:	0157 0157 0151 0407	|	0000 7747 4709 0708

number of stroke (NS)

	<u>NS = 1</u>		
	↓		
Cycle 2:	0000 1111 0101 0101	|	0011 1101 1111 0101
Cycle 3:	0000 1111 0011 0110	|	1111 1110 1111 0101
Cycle 4:	0111 0111 0111 0101	|	0000 1111 1101 0101
Cycle 2+ 3 +4:	0111 2333 0223 0312	|	1122 3322 3323 0303
	↑		↑ ↑
	<u>TSN = 2</u>		<u>TSN = 17</u>

At *kroeng siew* position KS=10, the number of strokes, NS, for the cycles 2,3 and 4 are 1, 0 and 1 respectively, and the total stroke number, TSN, for the combination of the three cycles is 2.

It can be seen that the TSN per *dio* is equal to the sum of the NS of all *kroeng siew* positions in that *dio* (8 *kroeng siew*). The TSN of *dio* D1, D2, D3 and D4 of the combination of the cycles above are 14, 13, 16 and 17 respectively, where for example, the TSN of *dio* D4 is equal to $3+3+2+3+0+3+0+3 = 17$ strokes.

The average stroke number per *dio*, ASN, is equal to the *dio* TSN divided by the total number of *nathap*, TNN, being considered. Here, for *dio* D1, D2, D3 and D4, the ASN are 4.667, 4.333, 5.333 and 5.667 respectively, where TNN = 3 and, for example, for *dio* D4, $ASN = 17 \div 3 = 17/3 = 5.667$ strokes per *dio*.

It can be seen that the TSN and ASN may be based on any convenient unit of the *nathap* such as *kroeng siew*, *kroeng*, and *dio*. The smaller the unit used, the finer is the plotted curve. On the contrary, the larger the unit used, the coarser the plotted curve will be obtained. However, in this study, the unit used is a *dio* throughout.

5.5.1 Nathap Activity Chart, NAC

A Nathap Activity Chart, NAC, is obtained by plotting TSN of *kroeng siew* on the vertical axis and the *kroeng siew* positions on the horizontal axis for all *kroeng siew* positions of the *nathap*. A bar chart is the most convenient way of representing the *nathap* activity.

As the TSN of all the *nathap* in each *chan* form are used to plot the NAC, therefore, it represents the combined activities of all the cycles of the performed *nathap*. The importance in the *nathap*, such as *dio* positions and to some extent *kroeng* positions, can be identified at a glance on the NAC. The degrees of decorations of the performed *nathap* are portrayed by both the height and the spacing of the bars. The higher and the closely packed the bars are, the more decorated the performed *nathap* is. On the contrary, the lower and the more sparsely spread the bars are, the lesser decorated it is. Furthermore, the rhythmic patterns of the performed *nathap* is also clearly illustrated in this kind of chart.

The TSN for *phleng si nuan chan song* and *phleng khaek borrather thao* are shown in the table below. They have been used to construct the NAC of the *phleng* being considered:

Table 41. TSN for *phleng si nuan chan song* and *phleng khaek borrather thao*

	Total number of strokes, TSN for kroeng siew positions																																									
<i>kroeng siew</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32										
<i>si nuan</i>	0	1	0	9	0	5	1	3	0	4	3	2	3	0	14	0	2	9	0	6	0	2	5	0	10	0	3	0	4	0	2	4	0	11	0	3	0					
KB Ch.3	1	3	1	1	3	2	5	3	1	4	0	5	2	1	4	0	9	0	1	3	2	5	2	9	5	1	1	5	14	3	1	3	4	1	5	2	1	2	6	1	4	
KB Ch.2	0	2	0	8	1	8	0	1	6	0	4	1	1	1	1	0	1	0	1	4	0	4	1	1	3	0	9	0	1	6	0	6	0	1	3	1	6	0	1	4		
KB Ch.1	0	1	1	6	0	2	1	1	5	0	2	1	1	1	1	0	1	1	1	5	0	1	1	1	9	0	2	0	1	6	0	1	0	1	1	0	1	1	0	0	1	5

Figure 16

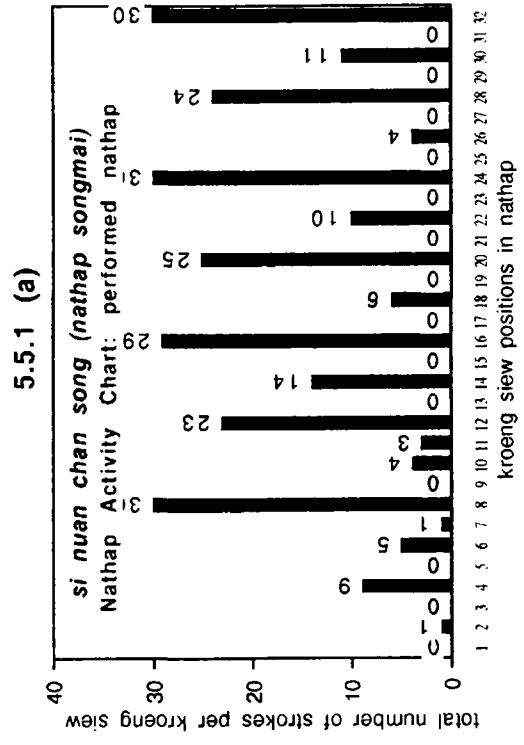


Figure 17

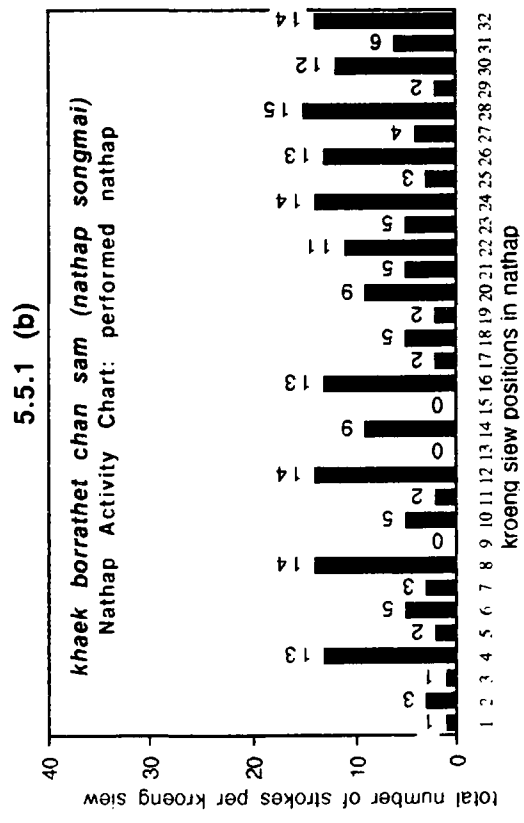


Figure 18

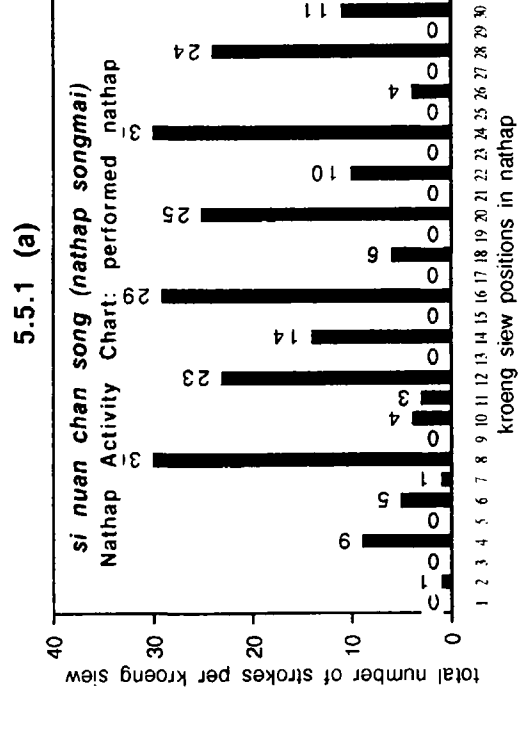
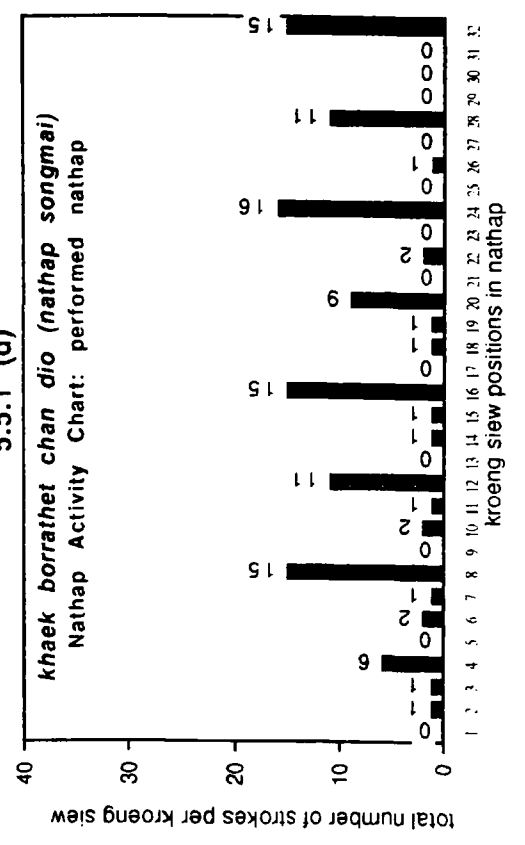


Figure 19



Conclusion

phleng si nuan chan song and *phleng khaek borrathet chan song* (figure 16/ bar chart 5.5.1 a) and figure 18/ bar chart 5.5.1 c)

1) Clearly the NAC for the two *phleng* are very different in spite of the fact that they are the same *chan* and the same *nathap*. This is perhaps a mean of showing the different features of the two performances.

phleng khaek borrathet thao (figures 17, 18 and 19 / bar charts 5.5.1 b, c, and d respectively)

2) The most striking features of the *chan sam*, *chan song* and *chan dio* NAC are their different degrees of decorations. This is characterised, not so much by the height of the bars (stroke density) which are roughly of the same values in all *chan*, but by their spacing. In *chan sam*, strokes are found at almost all positions of the *nathap* down to *kroeng siew* levels. In *chan song*, they are mainly located at *siew* and *kroeng* positions. Whereas in *chan dio*, the high occurrences of strokes are restricted to *kroeng* positions. Evidently, the degree of decoration is maximum in *chan sam*, intermediate in *chan song* and minimum in *chan dio* confirming thus our previous findings by statistical analyses.

General conclusion

3) Two general aspects of the *nathap* can be read from the NAC. First, it is clear that a *nathap* characteristically begins with a period of low activity and follows by a higher but variable one (the activity drops at some point of *dio* units). Secondly, the *nathap* is clearly marked by very high TSN at all the *dio* positions. The other positions such as *kroeng* and *siew* are also confirm their importance by variety of stroke occurrences.

We shall apply these important features in the constructions of the Nathap Activity Graph, NAG, the Average Nathap Activity Graph, ANAG and the Nathap Lak Activity Graph, NLAG.

5.5.2 Performed Nathap Activity Graph, PNAG

Although the NAC charts can provide us with much information about the *nathap*, however, they cannot illustrate the overall picture of the *nathap* activity during the course of a performance.

One alternative way of illustrating a *nathap* activity is by plotting the *dio* TSN on the vertical axis and the *dio* positions of the *nathap* on the horizontal axis. When this plot is carried out for consecutive cycles of the performed *nathap*, a graph referred to here as the Performed Nathap Activity Graph, PNAG, will be obtained. It is clear that this type of graph pictures the overall activity of the actual performance.

The *dio* TSN for *phleng si nuan chan song* and *phleng khaek borrahet thao* have been calculated and collected in the tables below. The PNAG are shown in the NAG graphs number 5.5.5e, 5.5.5f, 5.5.5g, 5.5.5h in chapter 5.5.5.

Table 42. *dio* TSN of *phleng si nuan chan song* for plotting PNAG

<i>dio</i>	D1	D2	D3	D4
<i>nathap</i> 1	0	0	0	0
<i>nathap</i> 2	0	0	1	1
<i>nathap</i> 3	1	1	1	1
<i>nathap</i> 4	1	4	3	2
<i>nathap</i> 5	1	3	2	2
<i>nathap</i> 6	1	2	2	2
<i>nathap</i> 7	1	2	3	4
<i>nathap</i> 8	2	3	2	2
<i>nathap</i> 9	1	3	2	2
<i>nathap</i> 10	1	1	1	1
<i>nathap</i> 11	1	1	1	1
<i>nathap</i> 12	1	3	4	2
<i>nathap</i> 13	1	4	2	2
<i>nathap</i> 14	1	3	2	2
<i>nathap</i> 15	3	4	4	4
<i>nathap</i> 16	2	2	1	4
<i>nathap</i> 17	1	1	2	2
<i>nathap</i> 18	1	3	2	2
<i>nathap</i> 19	3	4	4	3
<i>nathap</i> 20	1	2	2	2
<i>nathap</i> 21	1	2	4	3
<i>nathap</i> 22	2	3	3	4
<i>nathap</i> 23	1	2	2	2
<i>nathap</i> 24	3	4	2	2
<i>nathap</i> 25	1	1	4	2
<i>nathap</i> 26	3	3	4	2
<i>nathap</i> 27	2	2	2	2
<i>nathap</i> 28	2	2	2	3
<i>nathap</i> 29	1	2	2	2
<i>nathap</i> 30	2	4	2	2
<i>nathap</i> 31	1	2	2	2
<i>nathap</i> 32	2	2	1	1
TSN	46	73	71	68
TNN*	30	30	30	30

note TNN* = total number of complete *nathap*

Table 43. *dio* TSN of *phleng khaek borrahet chan sam* for plotting PNAG

<i>dio</i>	D1	D2	D3	D4
<i>nathap</i> 1	0	0	0	0
<i>nathap</i> 2	0	0	1	2
<i>nathap</i> 3	2	2	1	2
<i>nathap</i> 4	3	4	1	5
<i>nathap</i> 5	2	3	2	4
<i>nathap</i> 6	2	2	5	5
<i>nathap</i> 7	2	2	4	6
<i>nathap</i> 8	3	2	5	5
<i>nathap</i> 9	3	3	5	5
<i>nathap</i> 10	5	4	5	6
<i>nathap</i> 11	4	5	8	7
<i>nathap</i> 12	6	5	4	5
<i>nathap</i> 13	3	3	1	4
<i>nathap</i> 14	2	4	5	4
<i>nathap</i> 15	2	2	3	4
<i>nathap</i> 16	3	4	4	6
TSN	42	43	53	68
TNN	14	14	14	14

Table 44. *dio* TSN of *phleng khaek borrahet chan song* for plotting PNAG

<i>dio</i>	D1	D2	D3	D4
<i>nathap</i> 1	1	1	1	1
<i>nathap</i> 2	2	2	2	4
<i>nathap</i> 3	1	2	2	2
<i>nathap</i> 4	1	2	2	3
<i>nathap</i> 5	1	2	1	1
<i>nathap</i> 6	3	4	4	3
<i>nathap</i> 7	3	3	4	4
<i>nathap</i> 8	4	4	4	2
<i>nathap</i> 9	2	2	3	1
<i>nathap</i> 10	4	4	2	4
<i>nathap</i> 11	2	2	4	2
<i>nathap</i> 12	2	4	4	2
<i>nathap</i> 13	2	1	2	2
<i>nathap</i> 14	3	3	3	4
<i>nathap</i> 15	2	2	3	3
<i>nathap</i> 16	2	2	2	2
TSN	35	40	43	40
TNN	16	16	16	16

Table 45. *dio* TSN of *phleng khaek borrahet chan dio* for plotting PNAG

<i>dio</i>	D1	D2	D3	D4
<i>nathap</i> 1	0	1	1	1
<i>nathap</i> 2	1	1	1	1
<i>nathap</i> 3	1	1	3	2
<i>nathap</i> 4	1	2	1	1
<i>nathap</i> 5	1	1	3	1
<i>nathap</i> 6	2	2	2	2
<i>nathap</i> 7	6	6	4	2
<i>nathap</i> 8	2	2	2	2
<i>nathap</i> 9	2	2	2	2
<i>nathap</i> 10	2	2	2	2
<i>nathap</i> 11	1	2	2	2
<i>nathap</i> 12	2	2	2	2
<i>nathap</i> 13	2	2	1	3
<i>nathap</i> 14	2	3	2	2
<i>nathap</i> 15	1	1	1	1
<i>nathap</i> 16	1	1	1	1
TSN	26	31	29	27
TNN	16	16	16	16

5.5.3 Average Nathap Activity Graph, ANAG

The Average Nathap Activity Graph, ANAG, is a graph obtained by plotting the *dio* ASN of all the *nathap*, for a given *chan* forms on the vertical axis and the *dio* positions of the *nathap* on the horizontal axis. Therefore, this graph represents the average of the combined activity of a given number of *nathap* into only one cycle.

The *dio* ASN for plotting ANAG graphs have been worked out for the *phleng* considered and compiled in the table below:

Table 46. *dio* ASN for plotting ANAG

<i>dio</i>	D1	D2	D3	D4
<i>si nuan</i>	1.533	2.433	2.366	2.267
<i>Kh. Bor. chan sam</i>	3.000	3.071	3.786	4.857
<i>Kh. Bor. chan song</i>	2.188	2.500	2.688	2.500
<i>Kh. Bor. chan dio</i>	1.625	1.938	1.813	1.688

5.5.4 Nathap Lak Activity Graph, NLAG

The Nathap Lak Activity Graph, NLAG, similar to the ANAG, is obtained by plotting the *dio* TSN of the appropriate *nathap lak*. In the case of the *nathap songmai*, the *dio* TSN of *chan sam*, *chan song* and *chan dio* are shown in the table below:

Table 47. *dio* TNS for plotting NLAG

<i>dio</i>	D1	D2	D3	D4
<i>nathap songmai</i>				
<i>chan sam</i>	1.000	1.000	1.000	1.000
<i>chan song</i>	1.000	1.000	1.000	1.000
<i>chan dio</i>	0.000	1.000	1.000	1.000

5.5.5 Nathap Activity Graph, NAG

The PNAG, ANAG and the NLAG can be conveniently plotted together in two ways: the Nathap Activity Graph, NAG, for one cycle and the NAG for the performed *nathap*.

a) NAG for one cycle (Figures 20, 21, 22 and 23)

On this type of graph, only the ANAG and the NLAG are plotted. It is interesting to find that the NLAG for *nathap songmai chan sam* and *chan song* are represented by a horizontal line with $ASN = 1$. Whereas the NLAG for *chan dio* is a line beginning with $ASN = 0$ at *dio* D1 and rising to $ASN = 1$ at *dio* D2, D3 and D4. The NLAG curves can be used as reference curves for indicating the degree of decorations of the performed *nathap*.

phleng si nuan chan song and *phleng khaek borrathet chan song*

The examination of ANAG in graphs 5.5.5a and 5.5.5c shows marked differences in the interpretation of the *nathap songmai chan song* in the two *phleng*. Although ANAG curves in both *phleng* have a similar trend, however, they indicate that the positions of the most decorated *dio* are at *dio* D2 in *phleng si nuan* and *dio* D3 in *phleng khaek borrathet chan song*. Furthermore, in both *phleng*, *dio* D1 at the beginning of the *nathap* is less decorated than *dio* D4 at the end of the *nathap* marking thus the beginning and the end of the cycle of the *nathap*.

phleng khaek borrathet thao

The graphs 5.5.5b, 5.5.5c and 5.5.5d. indicate that the ANAG curves are generally higher than the NLAG. Therefore, *phleng khaek borrathet thao nathap* are highly decorated at all levels. The decoration is higher in *chan sam* and is gradually reduced in *chan song* and *chan dio*.

Curves ANAG show clearly that the pictures of the *nathap songmai* in *thao* form do not have the same trend. It is to be noted that the most decorated *dio* which are at *dio* D4 in *chan sam* is shifted to *dio* D3 and D2 in *chan song* and *chan dio* respectively. The only common feature between the three *chan* is that all *nathap* start with a low activity and finish with a higher one.

b) NAG for the performed *nathap* (Figures 24, 25, 26 and 27)

On this type of graph, the PNAG, ANAG and NLAG can be plotted together. The horizontal axis of the graphs is divided into units of *dio*, however, a multiple numbers of 4 *dio* are shown indicating thus the sequence of the performed *nathap* cycles. The PNAG curve is obtained by plotting the *dio* TSN of each performed *nathap* cycle as calculated in chapter 5.5.2. The ANAG and NLAG curves are obtained by repeating the corresponding curves for one *nathap* cycle previously found in (a). However, for the sake of clarity, the plotted symbols for NLAG are not drawn. Therefore, the NLAG of the *nathap songmai thao* are represented simply by a horizontal line with $TSN = 1$ in graph number 5.5.5e, 5.5.5f, 5.5.5g and 5.5.5h.

5.5.5 (a) *si nuan chan song (nathap songmai)*

Nathap Activity Graph : one cycle

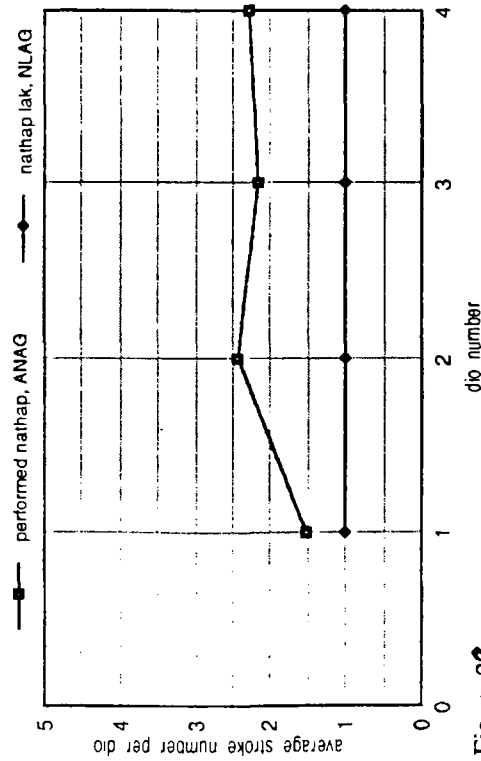
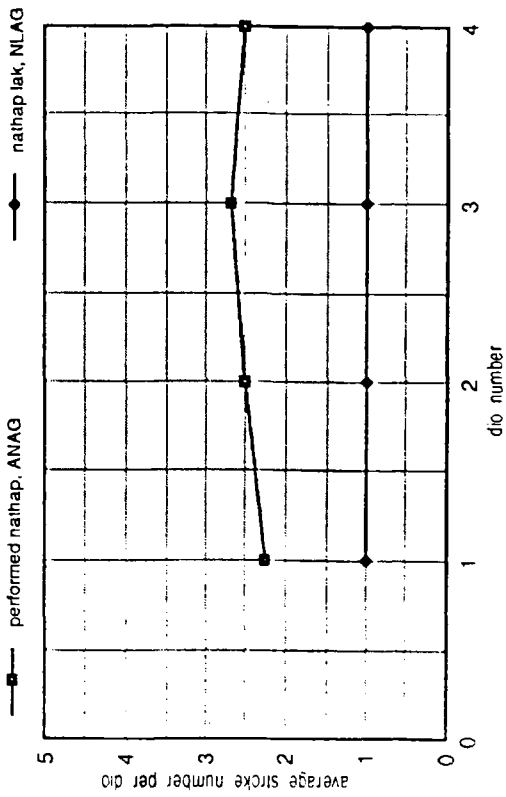


Figure 22

5.5.5 (c) *khaek borrather chan song (nathap songmai)*

Nathap Activity Graph : one cycle



5.5.5 (b) *khaek borrather chan sam (nathap songmai)*

Nathap Activity Graph : one cycle

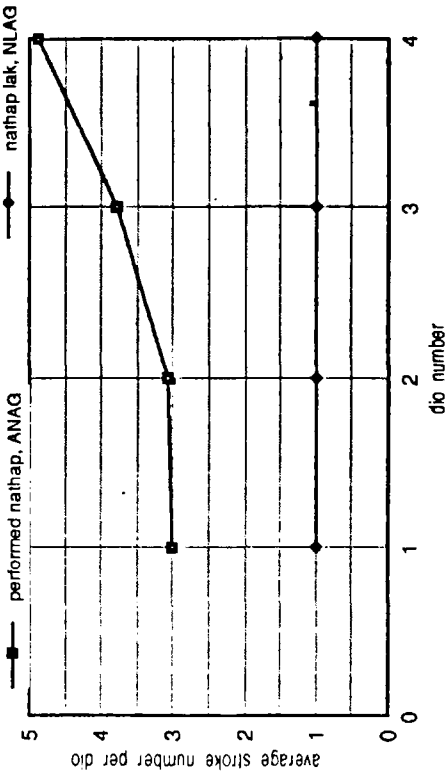
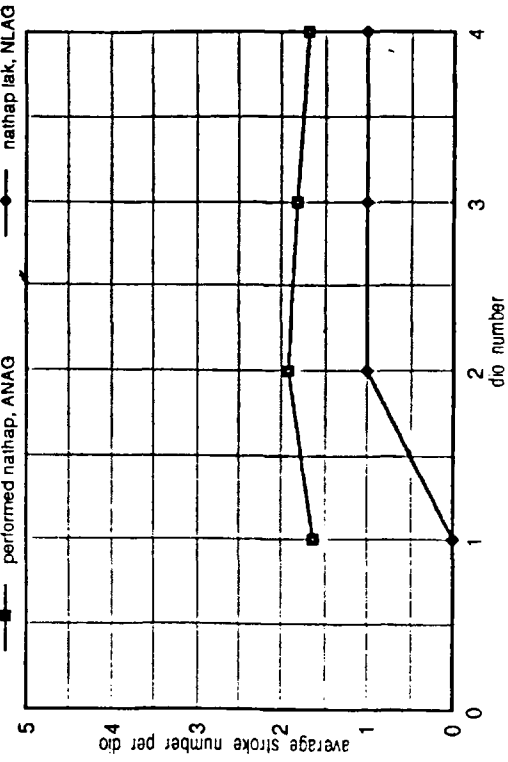


Figure 23

5.5.5 (d) *khaek borrather chan dio (nathap songmai)*

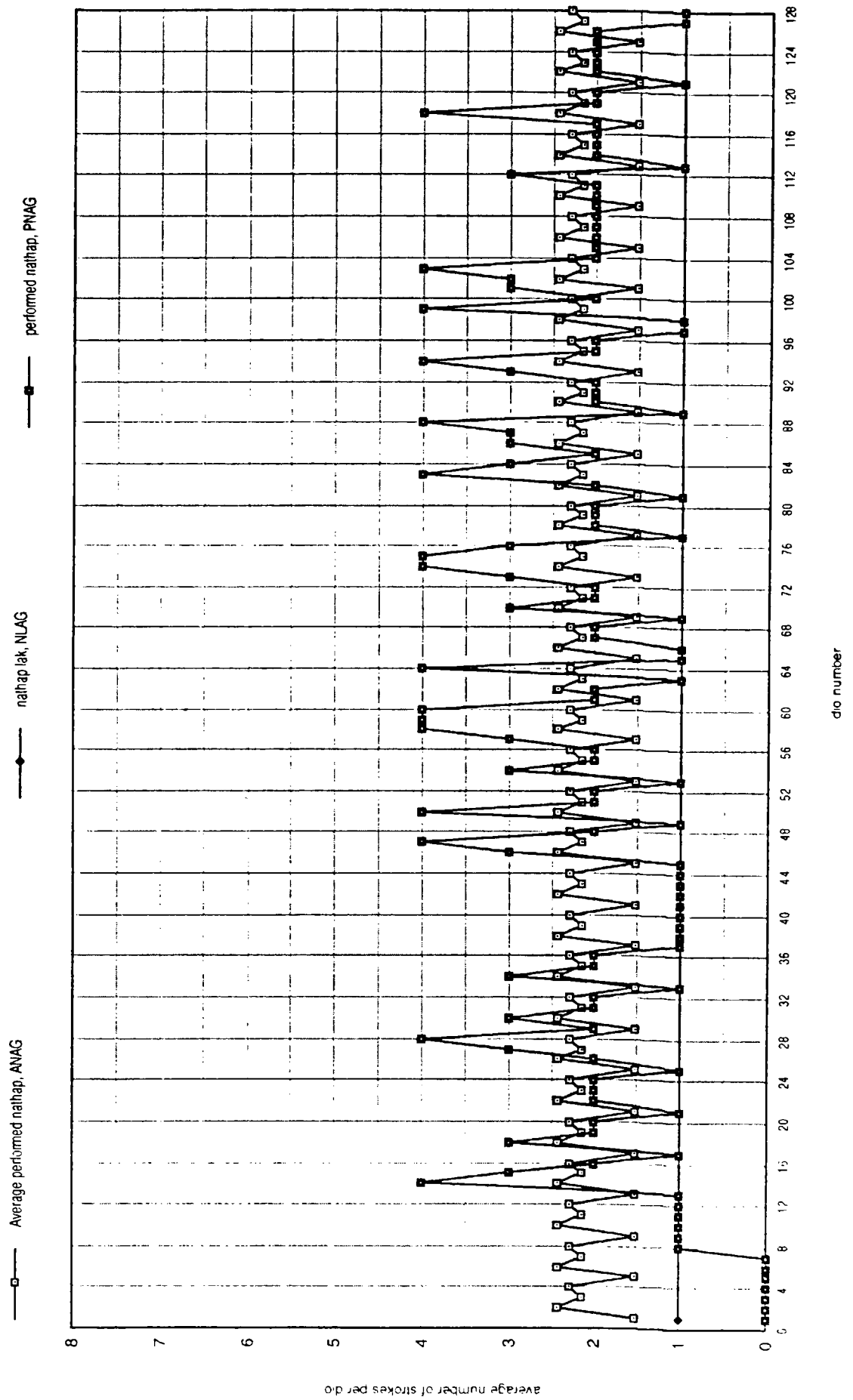
Nathap Activity Graph : one cycle



5.5.5 (e)

si nuan chan song (nathap songmai)

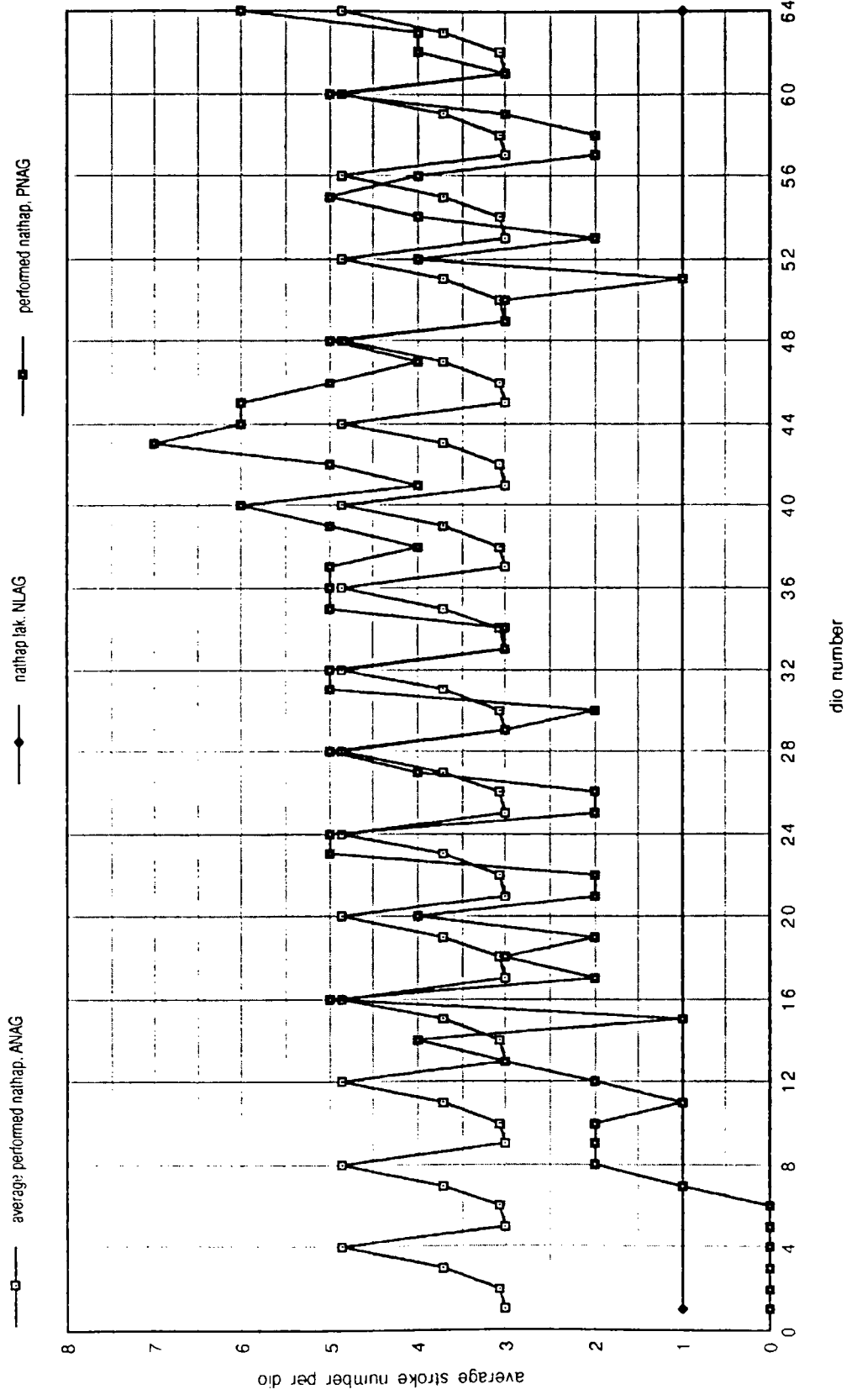
Nathap Activity Graph : performed nathap



5.5.5 (f)

khaek borrather chan sam (nathap songmai)

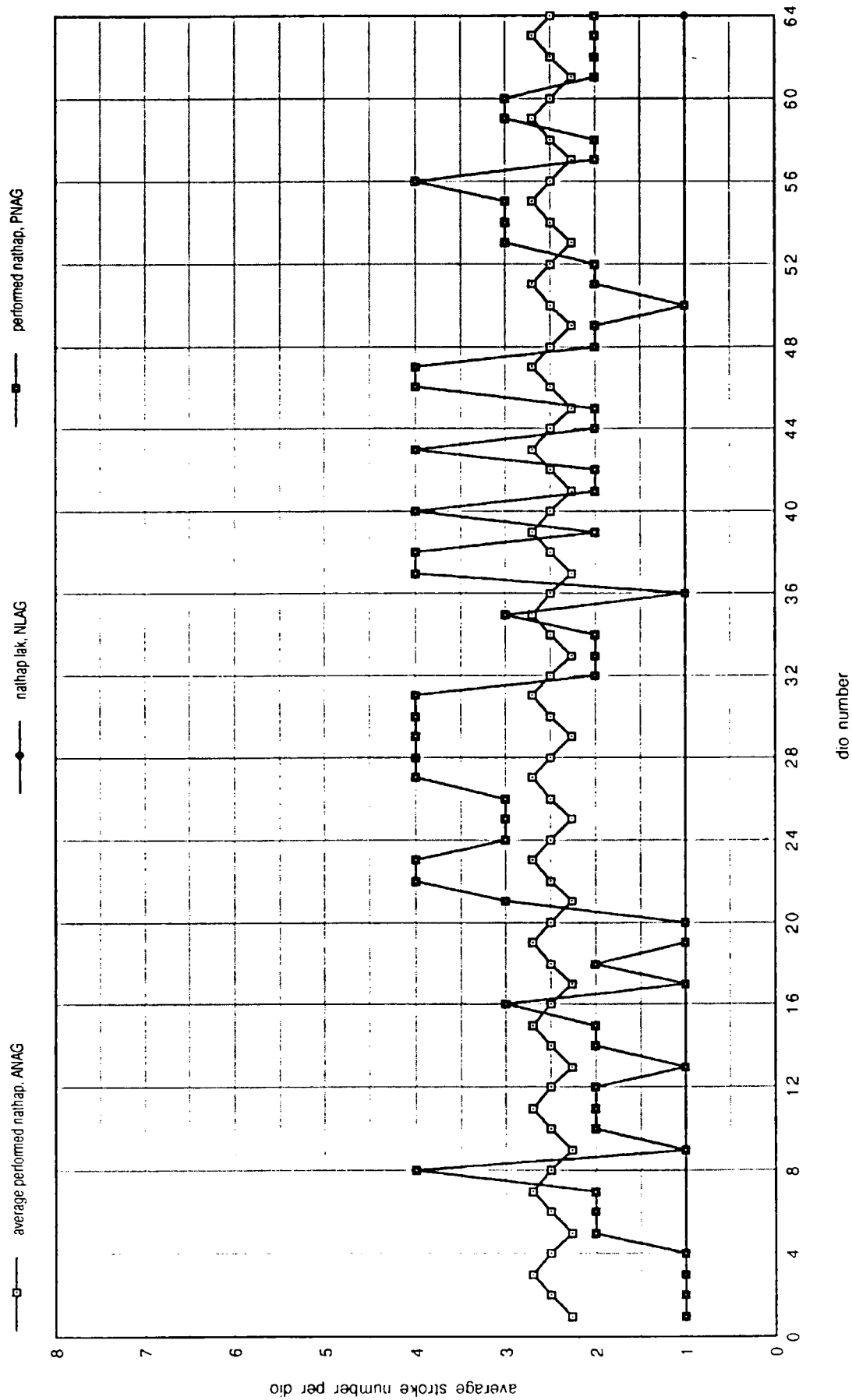
Nathap Activity Graph: performed nathap



5.5.5 (g)

khaek borrahet chan song (nathap songmai)

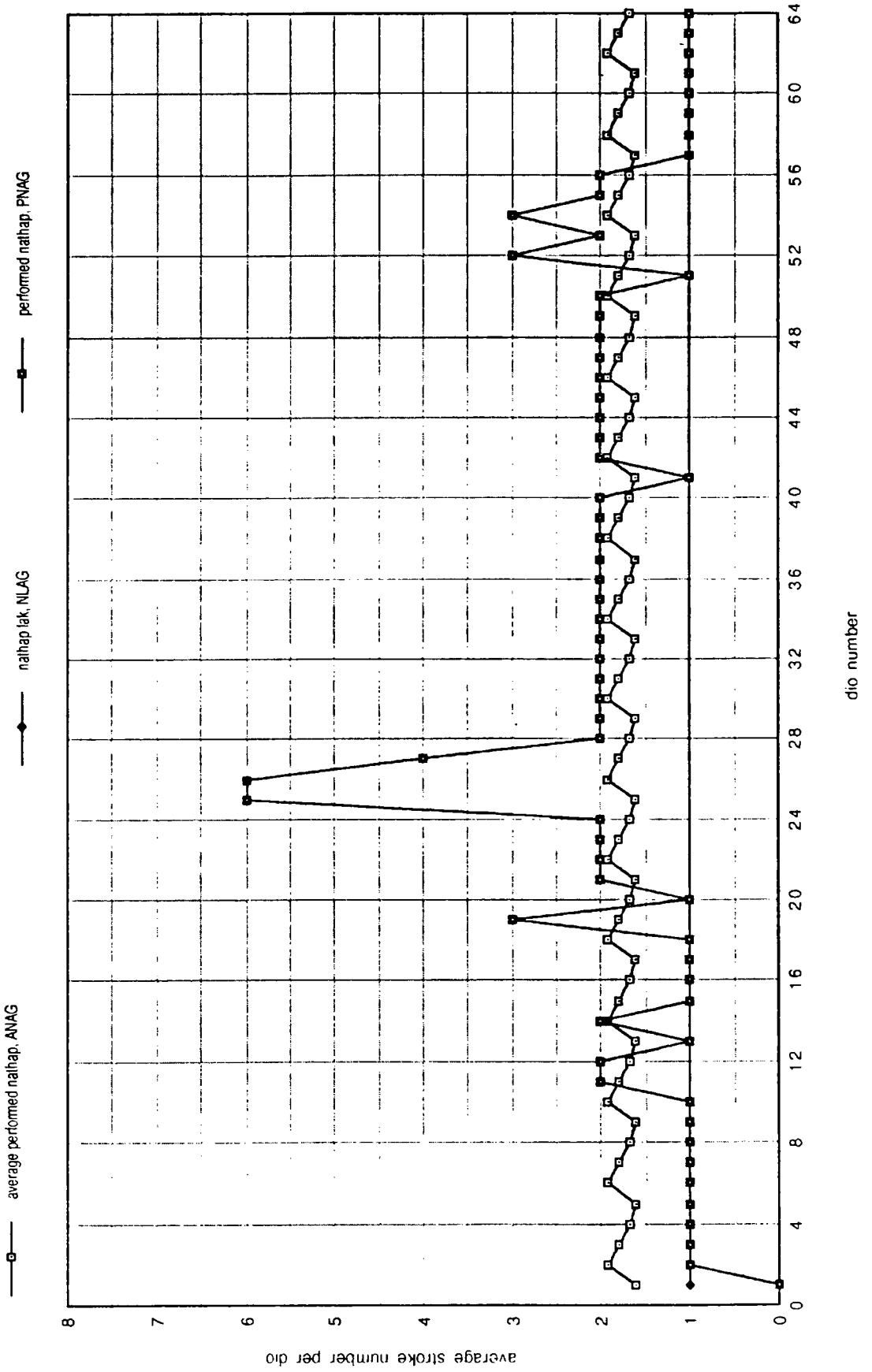
Nathap Activity Graph: performed nathap



khaek borrather chan dio (nathap songmai)

Figure 27
5.5.5 (h)

Nathap Activity Graph: performed nathap



Conclusions

It should be reminded that a number of 16 *dio* corresponds to a full *thon* cycle. In the graphs, the repeat performance of each *thon* are also plotted. Therefore, the graph 5.5.5 e represents the entire performance of *phleng si nuan chan song* and the graphs 5.5.5 f, 5.5.5 g, 5.5.5 h that of *phleng khaek borrahet thao*.

1) *phleng si nuan chan song* (graph 5.5.5 e)

The examination of graph 5.5.5 e reveals the following facts:

i) Clearly, the piece begins with a period of low activity. The opening *nathap* last 3/4 of the length of the first *thon* in which *nathap lak* were used.

ii) The performance ends also in low period of activity with ASN = 2 which begins towards the end of the first time of *thon* 4.

iii) Between the beginning and the end of the piece, the ASN are bounded between the ASN of *nathap lak* (ASN = 1) and a maximum of ASN of 4.

iv) It is to be noted also that the repeats of each *thon* bear no resemblance whatsoever with the first time performances. Clearly, this proves that the performed *nathap*, at least on the surface, are not influenced by the pitch nor by the rhythm of the melodic theme.

2) *phleng khaek borrahet thao* (graph 5.5.5 f, g, h)

i) The overall picture of the *nathap thao* activity can be clearly seen. The shape of the NAG changes abruptly both in the ranges of ASN as well as the shape of the PNAG. The detailed values can be found in graphs 5.5.5 b, 5.5.5 c and 5.5.5 d.

ii) In *chan sam* (graph 5.5.5 f), the performance begins by a period of low activity over half the length of the first *thon*.

iii) Apart from the activity in the first time performance of *thon* 2 where the ASN reaches a maximum of 7, the ASN fluctuates between 2 and 5. In general, the PNAG follows closely the shape of the ANAG. Compare to the NLAG, the PNAG is obviously highly decorated.

iv) *chan sam* does not end with a reduction of *nathap* activity, rather the *chan song* begins with ASN at NLAG level.

v) Again, the *chan song* does not end with low activity, however, the *chan dio* begins with the NLAG activity level.

vi) The piece is ended with NLAG activity level towards the middle of the repeat of the *thon* 2.

vii) The PNAG is marked by a sudden increase of the ASN in the middle of the repeat performance of *thon* 1. This technique is used to break the monotony of the PNAG in *chan dio* which ranges between 1 and 2.

5.6 nathap identification

Regarding to chapter 4.5 of part I (the classification of *nathap* in Thai music), a large number of *nathap* were defined by their usage the characteristic of the compositions. The study of *nathap saman* type and *nathap phised* type so far reveals that a sequence of drum-strokes for different drums is associated with the *nathap lak* and the rhythmic patterns in different *chan*. In this chapter, from the findings carried out from the *nathap songmai* in micro levels, it is possible to apply the same methods of studying *nathap roon* to other *nathap* in order to examine their identifications.

Fifteen known *nathap taphon* in the Thai traditional music have been notated and compiled in the table 48.a below. They are specified by their *nathap lak* structures consisting of drum strokes at all *dio* positions and their total length, *raya nathap*. The majority of Thai *raya nathap* are made up of 1, 2, 4, 8, 16, 32 *dio* in one *nathap cycle*, although *raya nathap* of 7, 48 and exclusive number of *dio* can also be found in some special compositions. A *raya nathap* can also be expressed in term of the total number of *changwa ching-chab*. Obviously, this cannot be applied to the *nathap* with *raya nathap* of one *dio* (e.g. *nathap choed*, *nathap rua*). Some of these *nathap* can only be performed on a specific drum or combination of the drums. Some well known *nathap*, to be performed on *taphon* and *klong thad*, are listed in the table 48.b. However, for lack of time, they will not be studied here.

In this study, a *changwa ching-chab* refers to a combination of one *changwa ching* and *changwa chab*. A *wak* is assumed to have half the *raya nathap*. A *nathap* with the *raya nathap* of one *dio* is assumed to consist of one *dio ching*.

e 48. b nathap lak taphon-klong thud

LO	ch.2	taphon	1 3	3 7	3 7	5 3	7 1	8 1	5 1	3 5
		klong	0 1	1 0	1 0	-1--1--	0 1	1 0	1 0	-1--1--
		thad								

HOR mai doen	ch.2	taphon	0 7	0 7	0 7	5 1
		klong	0 2	2 0	2 0	2 2
		thad				
HOR mai yang	ch.2	taphon	0 7	1 1	5 1	3 5
		klong	0 1	1 0	-1- 1	1 0
		thad				

TEAO	ch.2	taphon	1 7	1 7	1 0	1 7
		klong	0 1	0 1	0 1	1 1
		thad				

KRAO RAM	ch.2	taphon	1 7	0 7	0 0	7 7
		klong	0 0	-1- 1	0 1	1 1
		thad				

KLOM	ch.2	taphon	7 7	7 1
		klong	0 1	1 1
		thad		

KRAO NAI	ch.2	ching	0 0	0 0
		taphon	0 1	1 0
		klong	0 2	2 2
		thad		

KRAO NOK	ch.2	ching	0 0	0 0
		taphon	7 7	7 1
		klong	0 2	-2- 2
		thad		

CHOED	ch.2	ching	0
		taphon	7
		klong	1
		thad	

CHOED	ch.1	ching	0
		taphon	7
		klong	1
		thad	

The possible criteria for the *nathap* identification are:

- (i) *nathap* ending strokes,
- (ii) *raya nathap* of the *nathap*,
- (iii) *wak* ending strokes,
- (iv) *dio ching* stroke
- (v) combinations of any criteria from (i) to (iv) above.

Five combinatory criteria A, B, C, D and E have been adopted in this study.

- 1) A = *nathap* which can be identified by the *nathap* ending strokes alone
- 2) B = *nathap* that can be identified the combination of *nathap* ending strokes and the *raya nathap* of the *nathap*. In the case of *nathap thao*, further distinction must be made between different *chan* forms by strictly using the *nathap lak* strokes.
- 3) C = *nathap* which can be identified by the *wak* ending strokes alone
- 4) D = *nathap* which can be identified by the *wak* ending strokes and the *raya nathap* of the *nathap*.
- 5) E = *nathap* which can be identified by the *wak* ending strokes and the *raya nathap* of the *nathap*. In the case of *nathap thao*, further distinction must be made between different *chan* forms by strictly using the *nathap lak* strokes.

Where x = possible, - = not possible.

Table 49. *nathap* identification

<i>nathap</i> names	<i>raya nathap (dio)</i>	<i>wak</i> ending strokes		minimum requirements				
		W1	W2	A	B	C	D	E
<i>lom</i>	32	8	4	-	-	-	x	x
<i>khamen yai</i>	32	5	4	-	-	x	x	x
<i>worrachet</i>	16	0	0	x	x	x	x	x
<i>long song</i>	16	4	4	-	-	-	x	x
<i>phayasok</i>	16	7	8	-	x	-	x	x
<i>karana</i>	16	8	4	-	-	-	x	x
<i>smingthong</i>	8	4	4	-	x	-	x	x
<i>senlao</i>	4	0	1	x	x	x	x	x
<i>propkai chan sam</i>	8	7	8	-	x	-	-	x
<i>propkai chan song</i>	8	7	8	-	x	-	-	x
<i>propkai chan dio</i>	8	0	8	-	x	x	x	x
<i>songmai chan sam</i>	4	7	8	-	x	-	-	x
<i>songmai chan song 1</i>	4	8	8	-	x	x	x	x
<i>songmai chan song 2</i>	4	5	8	-	x	x	x	x
<i>songmai chan dio</i>	4	7	8	-	x	-	-	x
total				(2)	(11)	(7)	(11)	(15)

Remarks:

- 1) Only two *nathap* can be identified by the *nathap* ending strokes alone.
- 2) All the *nathap* can be identified by their *nathap lak*.
- 3) All *nathap phised* can be identified by the combination of *wak* ending strokes and the *raya nathap* of the *nathap*.

Conclusion

- 1) *nathap worratchet* and *nathap sen lao* can be played with the least restriction as long as the *nathap* ending strokes are strictly observed.
- 2) In *nathap phised*, the *wak* ending strokes and the *raya nathap* of the *nathap* are the minimum requirements for the *nathap* distinction.
- 3) In the case of *nathap thao*, at least the specified *nathap lak* (not necessary the traditional learned *nathap*) must be given and adhered to during the performance. There scope for more precise classification of *nathap propkai thao* and *nathap songmai thao*.

Chapter 6

COLLECTED KLONG PHAYANG

In chapter 2.3.9, 2.3.10, 3.3.9 and 3.3.10, the stroke distribution at *kroeng*, *siew* and *kroeng siew* positions have been considered in detail. It was found that there were no general rules governing the use of drum strokes at these positions. However, many numbers of drum patterns within the duration of a *dio* reoccur very often in various *dio* positions. The distribution of these patterns was studied in the above mentioned chapters and the general conclusions were discussed in chapters 4.5 and 4.6. In this chapter, the patterns referred to here as '*klong phayang* stroke sequence' were collected and classified not according to the *dio* positions, but according to the *dio* ending strokes. The collected '*klong phayang* stroke sequence' were sorted first by *phleng*, then by levels of decoration (*kroeng*, *siew* and *kroeng siew*) and by *chan* forms. Furthermore, in *chan song*, the collection has been made for the combination of patterns found in both '*phleng si nuan*' and '*phleng khaek borrahet chan song*'. All collected '*klong phayang* stroke sequence', some 200 patterns, are given in the forms of the expanded *lekha sangkeet*, *Thai klong phayang* as well as in Western notation. Obviously, they are only the '*klong phayang* stroke sequence' which has been used in two performances. Therefore, the collection is by no means complete and is related to the author's style of performance. Nevertheless, two possible immediate applications can be mentioned:

- i) musical vocabulary for the design of new *nathap*. For example, they can be used for decorating the new *nathap lak* or *nathap roon 1* in chapter 4.7 by selecting '*klong phayang* stroke sequence' with appropriate *dio* ending strokes. Perhaps, in the future, new versions of *nathap songmai* or *propkai* can be specified by their exclusive use of '*klong phayang* stroke sequence'.
- ii) as the '*klong phayang* stroke sequence' are classified from lower to higher levels of decoration, they can be used as the materials for teaching and for practising the *taphon*.

COLLECTED KLONG PILAYANG IN PHLENG SI NUAN CHAN SONG

6.1.1 expanded lekha sangkeet: kroeng, siew and kroeng siew patterns
a. KROENG PATTERNS FROM THE PERFORMED NATHIAP

none	theng	thra	pa	ting	tub	plirng	pliroeng	phroet
0001 0000	0005 0001	0001 0003	0001 0004	0003 0005	0001 0007	0001 0008	0001 0009	0003 00011
0004 0000	0006 0001		0004 0004	0004 0005	0003 0007	0005 0008	0003 0009	
0007 0000			0005 0004	0005 0005	0004 0007	0007 0008	0004 0009	
			0008 0004	0007 0005	0007 0007	0008 0008	0005 0009	
					0008 0007		0007 0009	
					0009 0007		0008 0009	

b. SIEW AND KROENG SIEW PATTERNS FROM THE PERFORMED NATHIAP

none	theng	thra	pa	ting	tub	plirng	pliroeng	phroet
0001 0709			0000 0504	0000 0705	0501 0007	0000 0708	0000 0309	
			0001 0504	0003 0705	0501 0307	0500 0508	0001 0509	
			0501 0504	0004 0055	0507 0407	0005 0508	0703 0709	
			0701 0504	0404 0405	0078 0507	0005 0708	0004 0309	
			0004 0504	0704 0705	0009 0407	0055 0508	0505 0509	
			0505 0704	0055 0705		0707 0008	0705 0709	
				0505 0105			0007 0509	
				0705 0105			0008 0709	
				0007 0905				
				0507 0405				

6.1.2 Collected *klong phayang* in *phleng si nuan chan song*

a) *kroeng* patterns from the performed *nathap*

<u>none</u>	--- theng	----	--- pa	----
	--- tub	----		
<u>theng</u>	--- ting	--- theng	--- tued	--- theng
<u>tha</u>	--- theng	--- tha		
<u>pa</u>	--- theng	--- pa	--- pa	--- pa
	--- ting	--- pa	--- phring	--- pa
<u>ting</u>	--- tha	--- ting	--- pa	--- ting
	--- ting	--- ting	--- tub	--- ting
<u>tub</u>	--- theng	--- tub	--- tha	--- tub
	--- pa	--- tub	--- tub	--- tub
	--- phring	--- tub	--- phroeng	--- tub
<u>phring</u>	--- theng	--- phring	--- ting	--- phring
	--- tub	--- phring	--- phring	--- phring
<u>phroeng</u>	--- theng	--- phroeng	--- tha	--- phroeng
	--- pa	--- phroeng	--- ting	--- phroeng
	--- tub	--- phroeng	--- phring	--- phroeng
<u>phroet</u>	--- tha	--- phroet		

b) *siew* and *kroeng siew* patterns from the performed *nathap*

<u>none</u>	--- theng	- tub - -		
<u>theng</u>				
<u>tha</u>				
<u>pa</u>	----	- ting - pa	--- theng	- ting - pa
	- ting - theng	- ting - pa	- tub - theng	- ting - pa
	--- pa	- ting - pa	- ting - ting	- tub - pa
<u>ting</u>	----	- tub - ting	--- tha	- tub - ting
	--- pa	- - tingting	- pa - pa	- pa - ting
	- tub - pa	- tub - ting	- - tingting	- tub - ting
	- ting - ting	- theng - ting	- tub - ting	- theng - ting
	--- tub	- phroeng - ting	- ting - tub	- pa - ting
<u>tub</u>	- ting - theng	--- tub	- ting - theng	- tha - tub
	- ting - tub	- pa - tub	- - tubphring	- ting - tub
	--- phroeng	- pa - tub		

<u>phring</u>	----	- tub - phring	- ting- -	- ting - phring
	--- ting	- ting - phring	--- ting	- tub - phring
	-- tingting	- ting - phring	- tub - tub	--- phring
<u>phroeng</u>	----	- tha - phroeng	--- theng	- ting - phroeng
	- tub - tha	- tub - phroeng	--- pa	- tha - phroeng
	- ting - ting	- ting - phroeng	- tub - ting	- tub - phroerg
	--- tub	- ting - phroeng	--- phring	- tub - phroerg
<u>phroet</u>				

a. collected klong phayang in phleng si nuan chan song : kroeng patterns

none

A musical score for a piece titled "kroeng patterns". The score consists of 12 staves, each with a label: "therng", "tha", "pa", "tina", "tun", "tun", "prano", "prano", "prano", "prano", "prano", and "prano". The notation is a form of musical shorthand, likely a simplified notation for a traditional instrument like the klong phayang. It features various rhythmic values, including eighth and sixteenth notes, and rests. The score is organized into four measures, with vertical bar lines separating them. The first measure contains the most notation, while the subsequent measures have fewer notes, often consisting of rests or simple rhythmic patterns. The labels "prano" appear on the 7th, 8th, 9th, 10th, and 11th staves, suggesting a specific rhythmic or melodic pattern associated with that instrument.

6 collected klong phayang in phleng si nuan chan song : siew and kroeng siew patterns

doce

The image displays a musical score for a piece titled "collected klong phayang in phleng si nuan chan song : siew and kroeng siew patterns". The score is written on 15 staves, each with a different label on the left side. The labels are: "theng", "tha", "pa", "sing", "tse", "phoena", "phroena", and "phroet". The notation includes various rhythmic values, such as eighth and sixteenth notes, and rests. There are also some markings above the notes, possibly indicating phrasing or dynamics. The score is organized into four measures, with vertical dashed lines separating them. The overall style is that of a traditional musical notation, possibly from a Southeast Asian context.

COLLECTED KLONG PHAYANG IN PHLENG KIAEK BORRATHET CIAN SAM

2. KROENG PATTERNS FROM THE PERFORMED NATIAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
0001 0000	0005 0001		0007 0004	0001 0005	0001 0007	0001 0008	0007 0009	
0007 0000					0004 0007	0004 0008	0009 0009	
0008 0000					0007 0007	0005 0008		
					0008 0007	0008 0008		
					0009 0007	0009 0008		

3. SIEW AND KROENG SIEW PATTERNS FROM THE PERFORMED NATIAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
0507 0470	0005 0501		0507 0004	0000 0505	0000 7747	0000 8788	0407 0079	
0088 0470				0001 3735	0001 5747	5151 0708	0509 0479	
5471 5470				0501 0705	0071 5407	0404 0708		
					0401 0407	0504 0708		
					0801 0307	0504 5478		
					0151 0407	0505 0008		
					0004 0407	0008 0808		
					0154 0708	0008 8888		
					4704 0407	5008 0008		
					0157 0157	0339 0708		
					0808 0407	0509 5738		
					0809 0407	0509 0378		
						4709 0708		

6.2.2 Collected *klong phayang* in *phleng khaek borrahet chan sam*

a) *kroeng* patterns from the performed *nathap*

<u>none</u>	--- theng	----	--- tub	----
	--- phring	----		
<u>theng</u>	--- ting	--- theng		
<u>tha</u>				
<u>pa</u>	--- tub	--- pa		
<u>ting</u>	--- theng	--- ting		
<u>tub</u>	--- theng	--- tub	--- pa	--- tub
	--- tub	--- tub	--- phring	--- tub
	--- phroeng	--- tub		
<u>phring</u>	--- theng	--- phring	--- pa	--- phring
	--- ting	--- phring	--- phring	--- phring
	--- phroeng	--- phring		
<u>phroeng</u>	--- tub	--- phroeng	--- phroeng	--- phroeng
<u>phroet</u>				

b) *siew* and *kroeng siew* patterns from the performed *nathap*

<u>none</u>	- ting - tub	- patub -	-- phringphring	- patub -
	tingpatubtheng	tingpatub -		
<u>theng</u>	--- ting	- ting - theng		
<u>tha</u>				
<u>pa</u>	- ting- tub	--- pa		
<u>ting</u>	----	- ting - ting	--- theng	thatubthatting
	- ting- theng	- tub - ting		
<u>tub</u>	----	tubtubpatub	--- theng	tingtubpatub
	- - tubtheng	tingpa - tub	- pa - theng	- pa - tub
	- phring - theng	- tha - tub	- thengtingtheng	- pa - tub
	--- pa	- pa - tub	patub - pa	- pa - tub
	- thengtingtub	- thengtingtub	- phring - phring	- pa - tub
	- phring - phroeng	- pa - tub		

<u>phring</u>	- - - -	phringtubphringphring	tinghengtingthen	- tub - phring
	- thengingpa	- tub - phring	- pa - pa	- tub - phring
	- ting - pa	- tub - phring	- ting - pa	tingpatubphring
	- ting - ting	- - - phring	- - - phring	- phring - phring
	- - - phring	phringphringphringphring	ting - - phring	- - - phring
	- thathaphroeng	- tub - phring	- ting - phroeng	tingtubthaphring
	- ting - phroeng	- thatubphring	patub - phroeng	- tub - phring
<u>phroeng</u>	- pa - tub	- - tubphroeng	- ting - phroeng	- patubphroeng
<u>phroet</u>				

6.2.3

a. collected klong phayang in phleng khaek borrahet chan sam : kroeng patterns

nene

The image displays a musical score for a piece titled 'nene'. The score is organized into 12 horizontal staves, each representing a different instrument or vocal part. The instruments are labeled as follows: tano, tba, pa, tino, tuc, pua tna, pua cna, and pua det. The notation is written in a traditional style, using a five-line staff with various note values, rests, and bar lines. The music is divided into four measures by vertical bar lines. The first measure shows the initial rhythmic patterns for each instrument. The subsequent measures show the continuation of these patterns, with some instruments having more complex rhythmic figures than others. The overall structure is that of a 'kroeng' pattern, which is a common rhythmic motif in traditional Southeast Asian music.

6. collected klong phayang in phleng khaek borrahet chan sam : siew and kroeng siew patterns

score

t'bang

t'ba

pa

t'ang

t'ub

p'ang

p'roeng

p'raoet

COLLECTED KLONG PHAYANG IN PHLENG KIAEK BORRATHET CHAN SONG

6.3.1 expanded lekha sangkeet: kroeng, siew and kroeng siew patterns

6.3.1 & KROENG PATTERNS FROM THE PERFORMED NATHAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
0001 0000	0001 0001		0005 0004	0001 0005	0001 0007	0003 0008	0003 0009	
0004 0000	0008 0001		0008 0004	0004 0005	0003 0007	0004 0008	0004 0009	
0007 0000				0005 0005	0004 0007	0005 0008	0005 0009	
				0007 0005	0005 0007	0007 0008	0007 0009	
				0008 0005	0008 0005	0008 0008		

SIEW AND KROENG SIEW PATTERNS FROM THE PERFORMED NATHAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
0501 0700	0000 0101			0000 0705	0000 0207	0000 0708	0703 0509	
0004 0700	0501 0501			0300 5105	0071 0507	0000 0808	0004 0709	
	0008 0501			0500 5105	0704 0707	0800 0708	0007 0509	
				0001 0705		0503 0708		
				0701 0505		0004 0708		
				0004 0605		0105 0008		
				0055 0505		0507 0308		
				0505 0105		0008 0708		
				0505 0405				
				0407 0805				
				0507 0105				
				0008 0105				

6.3.2 Collected *klong phayang* in *phleng khaek borrahet chan song*

a) *kroeng* patterns from the performed *nathap*

<u>none</u>	--- theng	----	--- pa	----
	--- tub	----		
<u>theng</u>	--- theng	--- theng	--- phring	--- theng
<u>tha</u>				
<u>pa</u>	--- ting	--- pa	--- phring	--- pa
<u>ting</u>	--- theng	--- ting	--- pa	--- ting
	--- ting	--- ting	--- tub	--- ting
	--- phring	--- ting		
<u>tub</u>	--- theng	--- tub	--- tha	--- tub
	--- pa	--- tub	--- ting	--- tub
<u>phring</u>	--- tha	--- phring	--- pa	--- phring
	--- ting	--- phring	--- tub	--- phring
	--- phring	--- phring		
<u>phroeng</u>	--- tha	--- phroeng	--- pa	--- phroeng
	--- ting	--- phroeng	--- tub	--- phroeng
<u>phroet</u>				

b) *siew* and *kroeng siew* patterns from the performed *nathap*

<u>none</u>	- ting - theng	- tub - -	--- pa	- tub - -
<u>theng</u>	----	- theng - theng	- ting - theng	- ting - theng
	--- phring	- ting - theng		
<u>tha</u>				
<u>pa</u>				
<u>ting</u>	----	- tub - ting	- tha - -	tingtheng - ting
	- ting - -	tingtheng - ting	--- theng	- tub - ting
	- tub - theng	- ting - ting	--- pa	- tued - ting
	- - taling	- ting - ting	- ting - ting	- theng - ting
	- ting - ting	- pa - ting	- pa - tub	- phring - ting
	- ting - tub	- theng - ting	--- phring	- theng - ting
<u>tub</u>	----	- thoet - tub	- - tubtheng	- ting - tub
	- tub - pa	- tub - tub		
<u>phring</u>	----	- tub - phring	----	- phring - phring
	- phring - -	- tub - phring	- ting - tha	- tub - phring
	--- pa	- tub - phring	- theng - ting	--- phring
	- ting - tub	- tha - phring	--- phring	- tub - phring
<u>phroeng</u>	- tub - tha	- ting - phroeng	--- pa	- tub - phroeng
	--- tub	- ting - phroeng		
<u>phroet</u>				

a. collected klong phayang in phleng khaek borrahet chan song : kroeng patterns

none

The image displays a musical score for a piece titled "kroeng patterns". The score is organized into ten horizontal staves, each corresponding to a specific syllable or word. The lyrics are: "theng", "tha", "pa", "tng", "tuc", "phing", "phoeng", and "phoet". Each staff contains a series of musical notes and rests, with some notes marked with a greater-than sign (>) above them. The notation is presented in a traditional style with a five-line staff and a key signature of one flat. The score is divided into measures by vertical bar lines, and the overall structure is contained within a rectangular frame.

6. collected klong phayang in phleng khack borathet chan song :
siew and kroeng siew patterns

none

A musical score for a traditional Cambodian song, titled "siew and kroeng siew patterns". The score is written on 14 staves, each with a different instrument or vocal part labeled on the left. The instruments are: theng, tba, pa, klong, srala, sar, srala, pando, and pandoet. The score is organized into four measures, with vertical bar lines separating them. Each staff contains musical notation, including notes, rests, and various symbols like beams and accents. The notation is dense and characteristic of traditional Southeast Asian musical notation. The word "none" is written above the first staff.

6.4.1 expanded lekha sangkeet: kroeng, siew and kroeng siew patterns
 COLLECTED KLONG PHAYANG IN PHLENG KIAEK BORRATHET CHAN DIO

2. KROENG PATTERNS FROM THE PERFORMED NATHAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
0001 0000	0001 0001	0005 0003	0001 0004	0003 0005	0001 0007	0005 0008		
0005 0000	0005 0001	0007 0003		0004 0005	0003 0007	0007 0008		
0007 0000	0007 0001			0005 0005	0004 0007			
				0006 0005	0005 0007			
				0007 0005	0007 0007			

3. SIEW AND KROENG SIEW PATTERNS FROM THE PERFORMED NATHAP

none	theng	tha	pa	ting	tub	phring	phroeng	phroet
	0151 0151			0000 0505	0000 0507			
				0151 0005				
				0003 0505				
				0505 0005				

6.4.2 Collected *klong phayang* in *phleng khaek borrahet chan dio*

a) *kroeng* patterns from the performed *nathap*

<u>none</u>	--- theng --- tub	----- -----	--- ting	-----
<u>theng</u>	--- theng --- tub	--- theng --- theng	--- ting	--- theng
<u>tha</u>	--- ting	--- tha	--- tub	--- tha
<u>pa</u>	--- theng	--- pa		
<u>ting</u>	--- tha --- ting --- tub	--- ting --- ting --- ting	--- pa --- tued	--- ting --- ting
<u>tub</u>	--- theng --- pa --- tub	--- tub --- tub --- tub	--- tha --- ting	--- tub --- tub
<u>phring</u>	--- ting	--- phring	--- tub	--- phring

phroeng

phroet

b) *siew* and *kroeng siew* patterns from the performed *nathap*

none

theng - thengtingtheng - thengtingtheng

tha

pa

ting - - - - - ting - ting - thengtingtheng - - - ting
 - - - tha - ting - ting - ting - ting - - - ting

tub - - - - - ting - tub

phring

phroeng

phroet

a. collected klong phayang in phleng khaek borrahet chan dio

kroeng patterns

none

theng

tha

pa

ting

tut

phring

phroeng

phroet

l. collected klong phayang in phleng khaek borrahet chan dio
siew and kroeng siew patterns

none

theng

tha

pa

tinn

tut

grrang

grrang

phroet

**COLLECTED KLONG PHAYANG
FROM THE COMBINED NATHAP OF PHLENG SI NUAN AND KIAFK BORRATHET CHAN SONG**

α KROENG PATTERNS FROM THE PERFORMED NATHAP

note	theng	thia	pa	ting	tub	pting	phroeng	phroet
0001 0000	0001 0001	0001 0003	0001 0004	0001 0005	0001 0007	0001 0008	0001 0009	0003 00011
0004 0000	0005 0001		0004 0004	0003 0005	0003 0007	0003 0008	0003 0009	
0007 0000	0006 0001		0005 0004	0004 0005	0004 0007	0004 0008	0004 0009	
	0008 0001		0008 0004	0005 0005	0005 0007	0005 0008	0005 0009	
				0007 0005	0007 0007	0007 0008	0007 0009	
				0008 0005	0008 0007	0008 0008	0008 0009	
					0009 0007			

β SIEW AND KROENG SIEW PATTERNS FROM THE PERFORMED NATHAP

note	theng	thia	pa	ting	tub	pting	phroeng	phroet
0001 0700	0000 0101		0000 0504	0000 0705	0000 0207	0000 0708	0000 0309	
0501 0700	0501 0501		0001 0504	0300 5105	0071 0507	0000 0808	0001 0509	
0004 0700	0008 0501		0501 0504	0500 5105	0501 0007	0500 0508	0703 0509	
			0701 0504	0001 0705	0501 0507	0800 0708	0703 0709	
			0004 0504	0701 0505	0704 0707	0503 0708	0004 0309	
			0505 0704	0003 0705	0507 0407	0004 0708	0004 0709	
				0004 0055	0078 0507	0005 0508	0505 0509	
				0004 0605	0009 0407	0005 0708	0705 0709	
				0404 0405		0105 0008	0007 0509	
				0704 0705		0055 0508	0008 0709	
				0055 0505		0507 0308		
				0055 0705		0707 0008		
				0505 0105		0008 0708		
				0505 0405				
				0705 0105				
				0007 0905				
				0407 0805				
				0507 0105				
				0507 0405				
				0008 0105				

6.5.2 Collected *klong phayang* from the combined *nathap* of *phleng si nuan* and *phleng khaek borrahet chan song*

a) *kroeng* patterns from the performed *nathap*

<u>none</u>	--- theng --- tub	---- ----	--- pa	----
<u>theng</u>	--- theng --- tued	--- theng --- theng	--- ting --- phring	--- theng --- theng
<u>tha</u>	--- theng	--- tha		
<u>pa</u>	--- theng --- ting	--- pa --- pa	--- pa --- phring	--- pa --- pa
<u>ting</u>	--- theng --- pa --- tub	--- ting --- ting --- ting	--- tha --- ting --- phring	--- ting --- ting --- ting
<u>tub</u>	--- theng --- pa --- tub --- phroeng	--- tub --- tub --- tub --- tub	--- tha --- ting --- phring	--- tub --- tub --- tub
<u>phring</u>	--- theng --- pa --- tub	--- phring --- phring --- phring	--- tha --- ting --- phring	--- phring --- phring --- phring
<u>phroeng</u>	--- theng --- pa --- tub	--- phroeng --- phroeng --- phroeng	--- tha --- ting --- phring	--- phroeng --- phroeng --- phroeng
<u>phroet</u>	--- tha	--- phroet		

b) *siew* and *kroeng siew* patterns from the performed *nathap*

<u>none</u>	- - - theng - - - pa	- tub - - - tub - -	- ting - theng	- tub - -
<u>theng</u>	----- - - - phring	- theng - theng - ting - theng	- ting - theng	- ting - theng
<u>tha</u>				
<u>pa</u>	----- - ting - theng - - - pa	- ting - pa - ting - pa - ting - pa	- - - theng - tub - theng - ting - ting	- ting - pa - ting - pa - tub - pa
<u>ting</u>	----- - ting - - - tub - theng - - - pa - pa - pa - - taling - ting - ting - tub - ting - pa - tub - ting - tub	- tub - ting tingtheng - ting - ting - ting - - taling - pa - ting - ting- ting - theng - ting - theng - ting - phring - ting - pa - ting	- tha - - - - - theng - - - tha - - - pa - tub - pa - - taling - ting - ting - - - tub - ting - tub - - - phring	tingtheng - ting - tub - ting - tub - ting - tued - ting - tub - ting - tub - ting - pa - ting - phroeng - ting - theng - ting - theng - ting
<u>tub</u>	----- - ting- theng - tub - pa - - tubphring	- thoet - tub - - - tub - tub - tub - ting - tub	- - tubtheng - ting - theng - ting - tub - - - phroeng	- ting - tub - tha - tub - pa - tub - pa - tub
<u>phring</u>	----- - ting - - - ting - tha - - - ting - theng - ting - ting - tub - - - phring	- tub - phring - ting- phring - tub- phring - ting - phring - - - phring - tha - phring - tub - phring	----- - phring - - - - - pa - - - ting - - taling - tub - tub	- phring - phring - tub - phring - tub - phring - ting - phring - - - phring

phroeng

- - - -	- tha - phroeng	- - - theng	- ting - phroeng
- tub - tha	- ting - phroeng	- tub - tha	- tub - phroeng
- - - pa	- tha - phroeng	- - - pa	- tub - phroeng
- ting - ting	- ting - phroeng	- tub - ting	- tub - phroeng
- - - tub	- ting - phroeng	- - - phring	- tub - phroeng

phroet

a. collected klong phayang in combined phleng si nuan and khaek borrahet chan song

kroeng patterns

none

A musical score for a piece titled "kroeng patterns". The score is written on 14 staves, each with a different vocal line. The lyrics are: "theng", "tha", "pa", "tina", "tub", "paoeng", and "paoet". The music is in a traditional style, featuring a mix of eighth and sixteenth notes, often with beams connecting them. There are several instances of triplets and accents (marked with a > symbol) throughout the score. The staves are arranged in a vertical column, and the lyrics are placed to the left of each corresponding staff. The overall structure is a single melodic line with multiple voices.

b. collected klong phayang in combined phleng si nuan and khaek borrahtet chan song
siew and kroeng siew patterns

none

theng

tha

pa

ting

tub

phring

The image shows a musical score for a piece titled 'klong phayang'. The score is written on 16 staves, with lyrics placed below the first six staves. The lyrics are: 'theng', 'tha', 'pa', 'ting', 'tub', and 'phring'. The music is written in a traditional notation style, featuring a key signature of one flat (B-flat) and a 2/4 time signature. The score is divided into four measures by vertical bar lines. The notation includes various note values, rests, and dynamic markings such as accents (>) and slurs. The word 'none' is written at the top left of the score area.

collected klong phayang in combined phleng si nuan and phleng khack borathet chan song
siew and kroeng siew patterns

paroeng

phroet

The image shows a musical score for a piece titled 'paroeng' and 'phroet'. The score is written on five staves. The top staff is labeled 'paroeng' and contains a melodic line with various note values and rests. The second staff contains a rhythmic accompaniment with horizontal lines and vertical stems. The third staff is labeled 'phroet' and contains a melodic line similar to the first staff. The fourth and fifth staves are empty. The score is divided into four measures by vertical bar lines.

Chapter 7

GENERAL CONCLUSIONS AND REMARKS

In part II, we started our study with the intention of finding the way to describe and identify the *nathap songmai*. As has been said before, the *nathap* songmai can be performed by at least four different Thai drums: *taphon*, *klong song na*, *klong khaek* and *thon-rammana*. For simplicity, we have restricted ourselves to the version played on the *taphon*. For this purpose, we have selected two traditional pieces, *phleng si nuan* in *chan song* only and *phleng khaek borrahet* in *thao* form. One of the original aims was to study *phleng si nuan chan song* and *khaek borrahet chan song* together in order to find the similarities and the differences of the *nathap songmai* as performed in two different contexts. The other aim was to establish whether the derivation of the *nathap thao* can be made from the *nathap chan song* in a similar way to that described by Montri Tramote and later formulated by David Morton for the melodic theme. For this purpose, utilizing the traditional *Thai klong phayang* for the notation of the *taphon* performances, we developed a new cipher notation based on the traditional *lekha sangkeet* notation for string instruments. In this system of notation, where drum strokes are represented by numbers 0 to 12, it was found possible to apply statistical rules of ratio and percentages to describe the distribution and the frequency of occurrence of various drum strokes in the *nathap*. It was soon found that, due to the lack of terminology and musical theory both in Thai and Western languages, we were required to introduce some musical terms relating to various divisions and positions in the *nathap*. Some traditional Thai terms have been re-defined or re-named and some new words have also been coined. In the interest of those for whom Western staff notation is the means of musical notation, we have discussed various possibilities of improving the now standard notation of Thai music originally invented by Phra Chen Duriyanga during the early part of the twentieth century. The discussions relate mainly to the meter and tempo which are, we feel, the essential ingredients of the *nathap*. At this stage of the study, we have considered only the relationships between drum strokes at various positions in the *nathap*. We have studied in depth the distribution and the frequency of occurrences of various drum strokes such as at *dio*, *kroeng*, *siew* and *kroeng siew* positions one by one. Furthermore, we have also tried to establish the relationships between the strokes at *changwa ching* and *changwa chab* of the two *wak* of the *nathap*. The study of the strokes at the two *changwa chab* of the *nathap* has led us to the concept of *nathap noeur*. The study, so far described, has been carried out for both *phleng si nuan* and *phleng khaek borrahet chan song*. The results of this study have been summarized in chapter 4. It has been found that the drum strokes used in the two performances are not limited only to those prescribed in the taught *nathap lak* and that the latter are used in the performances very few times, if at all. However, it was found that a number of *nathap noeur* are common to both *phleng*. Some of the *nathap noeur* were specifically used in one *phleng* or the other. Some drum patterns, at all levels of decoration,

seem to be preferred by different *phleng* in different orders of importance. One of the most interesting findings at this stage of the study is the method of deriving any performed *nathap* from the *nathap noeur* by using selected drum strokes at appropriate positions in the *nathap* and drum patterns called here *klong phayang*. This process is termed here as *nathap roon*. Contrary to our hope at the beginning of the study, no drum strokes nor drum patterns can be said to be specific to the *nathap songmai*. Due to its rare application in actual performance (between 20-30%), it cannot be said that the performed *nathap* in the two *phleng* are based on the *nathap lak songmai*. Furthermore, based on type of drum strokes used alone, the cycle of the *nathap* cannot be detected. Therefore, at this stage, a description of the *nathap songmai chan song* cannot be formulated. Lastly, the influence of the pitch of the melody can be ruled out in view of the fact that in the repeated sections, the performed *nathap* are not the same at any level of decoration considered. It is clear also from the study so far carried out that, unlike in the melodic theme, no relationships between *nathap* at various *chan* forms could be established from drum strokes used alone.

The conclusions found in the analysis of the micro structure of the *nathap* have led us to divert our attention to its macro structure. In addition to the *phleng khaek borrahet chan sam* and *chan dio*, *phleng si nuan* and *phleng khaek borrahet chan song* were analyzed once again from this aspect of the *nathap*. It was found immediately that the standard *lekha sangkeet*, so far used in the previous stage of this study, does not lend itself to the *nathap* structure at various *chan* forms of the *phleng thao*. Therefore, we have decided to introduce a new form of notation referred to here as the expanded *lekha sangkeet*. Notated in this new form, all positions in the *nathap* can be directly related to each other and the *nathap* lengths and *ching* stroke patterns are the same in all *chan* forms. Now, the problem can be tackled in two ways: by statistical and by graphical methods. It must be pointed out here that all studies carried out at this stage are related to the entire performances of the *nathap* in each *chan* forms. First of all, the variations of the performed *nathap* from *nathap lak* and *nathap noeur* were considered. Comparison of *phleng si nuan* and *phleng khaek borrahet chan song* has shown that both of them use the *nathap lak* in the same frequency (18.8%) and also underlying *nathap noeur* occur the same value (~43%). It is found also that more varieties of *nathap* are used in *phleng khaek borrahet* than in *phleng si nuan*. But the percentage of the *nathap*, other than *nathap lak*, are the same in both *phleng* (81.3%). These characteristics can be used to describe the differences in style of the two performances. The same study carried out for *phleng khaek borrahet thao* shows that the percentage of *nathap lak* used in *chan sam* (12.5%) and *chan song* (18.8%) are much higher than in *chan dio* (6.3%). This clearly proves that, whenever sufficient time is available, efforts have been made to accommodate the *nathap lak*. The variety of the performed *nathap* is achieved by the decoration of *dio* strokes. It was found that up to 85% of the *dio* in *chan sam* are decorated, whereas in *chan dio* the percentage is 63%. In *chan sam*, 30% of the *dio* strokes are decorated to *krong siew* level. On the other hand, in *chan song* and *chan dio* only about 6% of them are decorated to

this level. As an alternative to the statistical analyses, the *nathap* can be illustrated by chart and graphs. Three types of graphical representation of *nathap* have been invented: Nathap Activity Chart (NAC) and Nathap Activity Graph (NAG). One of the uses of the NAC chart is the graphical illustration of the degrees of *dio* (or *nathap*) decoration of a given performance, previously studied by statistical methods. But most important of all, it allows us for the first time to define the physical characteristic of the *nathap*. The *nathap* always begins by a period of low activity followed by a higher but variable one. The *nathap* is also clearly marked by very high total stroke number (TSN) at all the *dio* positions. This concept of the *nathap* has been used extensively in producing graphical representation of other physical characteristic of the *nathap* such as the Average Nathap Activity Graph (ANAG), Nathap Lak Activity Graph (NLAG) and Performed Nathap Activity Graph (PNAG). These graphs can be also plotted in a same graph known as Nathap Activity Graph (NAG). Detailed discussion and the construction of these graphs can be found in chapter 5.5.

Having been able to identify the physical characteristic of a *nathap*, we are studying now the relationship between *nathap songmai* and other well known traditional *nathap*. However, for lack of time, we study only the *nathap taphon*. Based on the findings from the study of *nathap songmai*, all *nathap* can be represented by their *nathap noeur* (*wak* ending strokes) and the *raya nathap*. It was found that *nathap phised* and some of *nathap saman* can be identified by their *nathap noeur* and *raya nathap* alone. Whereas in the case of *nathap thao*, their identification can only be made by a strict adherence to the *nathap lak* in the performance. However, as it was found in the performance of the two *phleng* in this study and in the opinion of the author, in practice this rule is seldom observed. Therefore, as far as *nathap thao* are concerned, the concept of the *nathap* can be regarded as a matter of musical convention. In performance, the musician is expected to base his drumming on a model *nathap* (*nathap lak*) and improvise (*sai*) as far as possible within an acceptable limit which is normally taught by the *kru* (school). At the same time, an educated audience is expected to understand the same convention and limits of the said *nathap* appropriate to each *phleng* which is laid down by the tradition.

As an offshoot of the study, some 200 '*klong phayang* stroke sequence' patterns have been collected from the performance of the two selected *phleng*. They are classified according to the *dio* ending strokes and also sorted by levels of decoration. These '*klong phayang* stroke sequence' can be used as teaching materials as well as musical vocabulary for the design of new *nathap* in conjunction with the *nathap* generation (*nathap roon*) described earlier in this study.

Earlier in part I, the author has noted that in order to perform *sai* properly, a drummer must possess a mastery and thorough understanding of the *nathap* and the *phleng* he plays. He must know the nature of the drum and apply his knowledge, skill and creativity to the performance.

In Thai musical context, oral tradition lends itself to flexibility and variability, and improvisation is an essential phenomenon in the principle of Thai music. A given *nathap* can be heard in renditions from the simplest to the most complex levels according to the experience, creativity and freedom of the drummer who performs the drum by that time. The questions of how can we understand the structural principles of the basic and the performed *nathap*, and how can we recognize their activities have been investigated by utilising various analytical concepts as viewed in part II. The results of studying the sequence of drum-strokes in different *nathap* levels and different *chan* levels display the characteristic of the *nathap* and the *sai* patterns appropriate to the *phleng* being played.

However, it must be noted that *sai* patterns in this study are absorbed from both the previous *taphon* training as well as the author's own improvisation. These two factors are merged in the performance to produce the *nathap* described in the Thai and Western notations which became the main data of the analysis part. Being a traditional trained drummer, it is common to state that, the experienced drummer usually introduces his new *nathap roon* into the prescribed basic *nathap* formerly given by his kru. Also, the awareness of *changwa ching-chab* and the understanding of the *phleng* in advance enable him to assemble the *sai* in a manner appropriate to the performance. The outline of *nathap roon* and their drum stroke sequences have been sketched in his mind and united with the simultaneous *sai* during the performance practice. Here, the 'improvisation' or 'spontaneous composition' in Thai drumming is not 'unconscious creation', but rather is predetermined and limited by strict rules in the music-making process. The balance between the freedom and strict discipline, is the principal concern of the Thai musician in performance and constitutes the primary characteristic of Thai musical culture.

Having observed the *taphon* and *nathap*, both from the previous traditional drumming lessons and the structural analysis, the author hopes that this research will be helpful material for further studies on the other drums and it may lead the reader to appreciate Thai music more, to which the author devotes his heart practising with love, passion and care.

APPENDICES

APPENDIX A

- 1) Introduction to the notations used in the study
 - 2) *phleng si nuan chan song*: *khong wong yai lekha sangkeet* and *taphon klong phayang*
 - 3) *phleng si nuan chan song*: Western Notation
 - 4) *phleng khaek borrahet thao*: *khong wong yai lekha sangkeet* and *taphon klong phayang*
 - 5) *phleng khaek borrahet thao*: Western notation
-

1) Introduction to the notations used in the study

The notations used in this study are based on both Thai and Western systems. In the Thai notation, the performed *khong wong yai* melody is represented by *lekha sangkeet* notation whereas the performed *nathap taphon* is represented by *klong phayang* notation. The *lekha sangkeet* notation for the *khong wong yai* is referred here to the Thai pitches:

- i) *nok* or *kruad* (equivalents to note C in Western notation) is notated by number 1
- ii) *klang haeb* (equivalents to note D in Western notation) is notated by number 2
- iii) *chawa* (equivalents to note E in Western notation) is notated by number 3
- iv) *phieng* or *lang* or *nai lod* (equivalents to note F in Western notation) is notated by number 4
- v) *nai* (equivalents to note G in Western notation) is notated by number 5
- vi) *klang* (equivalents to note A in Western notation) is notated by number 6
- vii) *phieng* or *bon* or *nok tam* (equivalents to note A in Western notation) is notated by number 7

The table below shows the lay out of the gong notes in *khong wong yai* from lowest to highest (i.e. far left to far right) with the Thai pitch names, their Western equivalents and *lekha sangkeet* numbers used in the study:

Table 50 *khong wong yai* notes

<u>gong</u>	<u>Thai pitch names</u>	<u>Western equivalent</u>	<u>lekha sangkeet</u>
1st	<i>klang haeb</i>	D	2
2nd	<i>chawa</i>	E	3
3rd	<i>phieng</i> or <i>lang</i>	F	4
4th	<i>nai</i>	G	5
5th	<i>klang</i>	A	6
6th	<i>phieng</i> or <i>bon</i>	B	7
7th	<i>nok</i>	C	1
8th	<i>klang haeb</i>	D	2
9th	<i>chawa</i>	E	3

10th	<i>phieng or lang</i>	F	4
11th	<i>nai</i>	G	5
12th	<i>klang</i>	A	6
13th	<i>phieng or bon</i>	B	7
14th	<i>nok</i>	C	1
15th	<i>klang haeb</i>	D	2
16th	<i>chawa</i>	E	3

The *changwa ching-chab*, *khong wong yai lekha sangkeet* and *taphon klong phayang* notations are put together in the table consisting of 4 layers. In the first layer of the table, the *changwa ching-chab* is indicated by symbol o = *ching* and + = *chab*. The hand patterns, right hand and left hand, used in the *khong wong yai* performance are represented by the second and the third layers respectively. The *taphon klong phayang* is shown in the fourth layer.

In the Western notation, the performed *khong wong yai* melody is represented on the upper staff and the performed *taphon* pattern is on the lower staff.

2) *phleng si nuan chan song**khong wong yai and taphon klong phayang (nathap songmai)**thon 1 - first (4 changwa nathap)*

0	+	0	+
- - - 2	- - - 6	- 7 - 6	- - 7 7
- - - 2	- - - 6	- 7 - 6	- 7 - -
- - - -	- - - -	- - - -	- - - -

- 5 - 6	- 7 - 2	- 3 - 2	- 7 - 6
- 5 - 6	- 7 - 2	- 3 - 2	- 7 - 6
- - - -	- - - -	- - - -	- - - phring

- - 5 5	- 6 - 7	- 3 2 7	- 6 - 5
- 5 - -	- 6 - 7	- 3 2 7	- 6 - 5
- - - tub	- - - phring	- - - phring	- - - phring

- - 6 7	- - 2 -	7 6 - -	5 6 - 5
- 5 - -	6 7 - 6	- - 5 3	- - - 2
- - - tub	- talingtingphring	- thengtingphroeng	- tub - phring

thon 1 - repeat (4 changwa nathap)

0	+	0	+
- - - 2	- - - 6	- 7 - 6	- - 7 7
- - - 2	- - - 6	- 7 - 6	- 7 - -
- - - pa	- - tubting	- thengtingpa	- tub - phring

- - - 5	6 7 - 2	- 3 - 2	- 7 - 6
- 5 - -	- 7 - 2	- 3 - 2	- 7 - 6
- - - pa	- tub - ting	- theng - tha	- tub - phring

- - - 5	- 6 - 7	- 3 2 7	- 6 - 5
- 5 - -	- 6 - 7	- 3 2 7	- 6 - 5
- - - pa	- tub - ting	- thengtingpa	tingtubpatub

- - 6 7	- 2 - -	7 6 - -	5 6 - 5
- 5 - -	- - - 6	- - 5 3	- - - 2
- - thaphroeng	- tubphroengting	- tha - phroeng	- tub - phring

thon 2 - first (4 changwa nathap)

	0	+	0	+
	--5-	-5-5	-7-6	-5-3
	---	---	-7-6	-5-7
- - - tub	tubtub - phring	- phring - tub	- tha - phroet	
		-7-6	-5-6	-7-2
		-7-6	-5-6	-7-2
- - - tub	- - - pa	- - - ting	- - - phring	
		--56	-72-	76--
		23--	-56-6	--53
- phring - pa	- tub - phring	- phring - pa	- tub - phring	
		-2-5	--67	-2-7
		-6-5	-5--	-2-7
- - - theng	- thatubting	tubthatubphroeng	- tub - phring	

thon 2 - repeat (4 changwa nathap)

	0	+	0	+
	--5-	-5-5	-7-6	-5-3
	---	---	-7-6	-5-7
- - - tub	tinghengtingpa	- ting - theng	- - tubphring	
		-7-6	-5-6	-7-2
		-7-6	-5-6	-7-2
- - - pa	- - tubting	- ting - pa	- tub - phring	
		--56	-72-	76--
		23--	-56-6	--53
- patingpa	tubtingtubphroeng	tingtubpating	tubhengtingpa	
		-2-5	--67	-2-2
		-6-5	-5--	---7
- ting - phroeng	- tha - tub	- - - ting	tingtingtingphroeng	

thon 3 - first (4 changwa nathap)

0	+	0	+
--55	---5	---	5337
---2	--23	---	--27
- - - tub	- - - phring	- phring - tub	- phring - phring
---	--66	-7--	22-7
---	-6--	-7-2	--7
- - - theng	tingtheng - tub	- ting - theng	- tub - phring
----	27--	65-5	--67
--67	--65	--22	65-5
- tubtingphroeng	tubphringtingtub	tingthengthatub	- tingtubphring
-7-7	27--	--76	--5
--6-	--65	36--	53-5
- - - tub	- phring - phring	- phring - phring	- theng - phring

thon 3 - repeat (4 changwa nathap)

0	+	0	+
---5	---5	---	--7
---2	-2-3	---	--7
- - - tub	- - - phring	- phring - tub	- phring - phring
----	--66	-7--	22-7
----	-6--	-7-2	--7
- - - theng	tingtheng - tub	- ting - theng	- tub - phring
-7-7	27--	65-5	--67
--6-	--65	--22	65-5
- tubtingphroeng	tubphringtingtub	tingthengthatub	- tingtubphring
-7-7	-6-5	--7-	--5
--6-	---5	-6--	53-2
- - - tub	- phring - phring	- phring - phring	- theng - phring

thon 4 - first (4 changwa nathap)

0	+	0	+
-- 5 -	- 5 - 5	- 7 - 6	--- 5
--- 5	-----	-----	- 5 - 3
- - - ting	- pa - -	papapating	- thengtub -
-----	- 7 - 6	-----	- 7 - 2
-----	-----	- 5 - 6	--- 2
ting- tingphring	- tingtingphring	tingtingthengting	- tub - phring
-----	-- 5 6	- 7 2 -	7 6 --
-----	2 3 --	- 5 6 - 6	-- 5 3
- phring - tub	- phring - phring	- phring - tub	- pa - tub
- 2 - 5	- 6 - 7	- 2 - 7	- 6 - 5
- 6 - 5	- 6 - 7	- 2 - 7	- 6 - 5
- ting - phroeng	- tha - tub	- ting - phroeng	- thatubting

thon 4 - repeat (4 changwa nathap)

0	+	0	+
-- 5 -	- 5 - 5	- 7 - 6	--- 5
--- 5	-----	-----	- 5 - 3
- - - pa	- - tubting	- ting - pa	- - tubting
-----	- 7 - 6	-----	- 7 - 2
-----	-----	- 5 - 6	--- 2
- phring - pa	- talingtubting	- pa - pa	- tub - phring
-----	-- 5 6	- 7 2 -	7 6 --
-----	2 3 --	- 5 6 - 6	-- 5 3
- - - pa	- tub - phring	- phring - pa	- tub - phring
- 2 - 5	- 6 - 7	- 2 - 7	- 6 - 5
- 6 - 5	- 6 - 7	- 2 - 7	- 6 - 5
- ting - phroeng	- tub - ting	- - - phring	- - - phroeng

3) phleng si nuan chan song

Khong Wong Yai
Taphon

Upp 1 (♩ = 35)

Upp 1 repeat (♩ = 40)

Upp 2 (♩ = 40)

Upp 2 m. 100

phleng si nuan chan song

The musical score consists of five systems, each with two staves. The notation includes treble and bass clefs, a 4/4 time signature, and various musical symbols such as notes, rests, and dynamic markings. The score is divided into five sections, each with a tempo marking above the first staff:

- Section 1: *Tempo 1 repeat* (♩ = 45)
- Section 2: *Tempo 2* (♩ = 40)
- Section 3: (♩ = 40)
- Section 4: *Tempo 4 repeat* (♩ = 40)
- Section 5: (♩ = 35)

Each system contains two staves of music. The first staff of each system is the upper voice, and the second staff is the lower voice. The notation includes various note values, rests, and dynamic markings such as *mf* and *f*. There are also some handwritten annotations and markings on the staves.

4) *phleng khaek borrahet thao*
nathap songmai: taphon klong phayang

chan sam

thon 1 - first (4 changwa nathap)

		0		+
- - - 5	- - 66	- - - 1	- - 66	
- - - 5	- 6 - -	- - - 1	- 6 - -	
- - - -	- - - -	- - - -	- - - -	
- - 55	- 6 - 1	- 321	- 7 - 6	
- - 5 -	- 6 - 1	- 321	- 7 - 6	
- - - -	- - - -	- - - -	- - - -	
- 3 - -	22 - -	33 - -	55 - 6	
- 2 - 6	- - - 7	- - - 5	- - - 6	
- - - -	- - - -	- - - -	- - - -	
- 1 - 3	21 - -	66 - -	55 - -	
- 1 - 3	21 - 6	- - - 5	- - - 3	
- - - -	- - - pa	- - - tub	- - - phring	
- - - -	- 3 - 3	- 3 - 3	- 2 - 1	
- - - 3	- - - 3	- 5 - 3	- 2 - 1	
- - - phring	- - - phring	- - - pa	- - - tub	
- 6 - -	55 - -	11 - -	22 - 3	
- 3 - 2	- - - 1	- - - 2	- 2 - 3	
- - - -	- - - pa	- - - tub	- - - phring	
- - 23	- 5 - 6	- 216	- 5 - 3	
- 1 - -	- 5 - 6	- 216	- 5 - 3	
- - - phring	- phring - phring	- phring - phring	- pa - tub	
- 5 - 1	- - 23	- 3 - 3	- 2 - 1	
- 5 - 1	- - 23	- 5 - 3	- 2 - 1	
- - - -	- - - pa	- thengingpa	- tub - phring	

thon 1 - repeat (4 changwa nathap)

	0		+
- - - 5	- - 66	- - - 1	- - 66
- - - 5	- 6 - -	- - - 1	- 6 - -
- - - phring	- - - phring	- - - pa	- pa- tub
- - 5 5	- 6 - 1	- 321	- 7 - 6
- - 5 -	- 6 - 1	- 321	- 7 - 6
- - - -	- ting- ting	- pa- tub	- - tubphroeng
- 3 - -	22 - -	3 3 - -	5 5 - 6
- 2 - 6	- - - 7	- - - 5	- - - 6
- - - phring	- - - phring	- - - pa	- - - tub
- - 1 3	2 1 - -	6 6 - -	5 5 - -
- 1 - 3	2 1 - 6	- - - 5	- - - 3
- ting- phroeng	- patubphroeng	- ting- phroeng	- thatubphring
- - - 3 -	- 3 - 3	- 3 - 3	- 2 - 1
- - - 3	- - - 3	- 5 - 3	- 2 - 1
- - - ting	- - - phring	- - - pa	- - - tub
- 6 - -	5 5 - -	1 1 - -	2 2 - 3
- 3 - 2	- - - 1	- - - 2	- - - 3
- ting - pa	- tub - phring	- ting - pa	tingpatubphring
- - 2 3	- 5 - 6	- 2 1 6	- 5 - 3
- - 1 - -	- 5 - 6	- 2 1 6	- 5 - 3
- - - phring	- phring - phring	- - - pa	- - - tub
- 5 - 1	- - 2 3	- 3 - 3	- 2 - 1
- 5 - 1	- - 2 3	- 5 - 3	- 2 - 1
- - - theng	thatubthating	- thathaphroeng	- tub - phring

thon 2 - first (4 changwa nathap)

		0		+
- - - -	- 3 - 3	- 3 - 3	- 2 - 1	
- - - 3	- - - 3	- 5 - 3	- 2 - 1	
- ting- ting	- - - phring	- - - pa	- pa- tub	
- - 3 3	- 2 - 1	1 1 - -	7 7 - 6	
- 3 - -	- 2 - 1	- - - 7	- - - 6	
patub- pa	- pa- tub	- ting- phroeng	- thatubphring	
- 2 1 6	1 6 - -	- 2 - 3	6 5 - 6	
- 2 1 -	- - 5 3	- 6 - 7	- 5 - 6	
- - - phring	phringphringphringphring	- phring- theng	- tha- tub	
- 6 - -	6 5 - 6	- 2 - -	1 1 - 2	
- - 5 3	- 2 - 3	- 2 - 1	- - - 2	
- - tubtheng	tingpa - tub	tingthengtingtheng	- tub - phring	
- - - -	- 3 - 3	- 3 - 3	- 2 - 1	
- - - 3	- - - 3	- 5 - 3	- 2 - 1	
- - - -	phringtubphringphring	- - phringphring	- patub-	
- 6 - -	5 5 5 -	1 1 - -	2 2 - 3	
- 3 - 5	- - - 1	- - - 2	- - - 3	
tingpatubtheng	tingpatub-	tingthengtingtheng	- tub - phring	
- - 2 3	- 5 - 6	- 1 - 6	- 5 - 3	
- - 1 - -	- 5 - 6	- 1 - 6	- 5 - -	
- thengtingtub	- thengtingtub	- thengtingtheng	- pa- tub	
- 5 - 1	- - 2 3	- 3 - 3	- 2 - 1	
- 2 - 1	- - 2 3	- 5 - 3	- 2 - 1	
- - - -	tubtubpatub	patub- phroeng	- tub - phring	

thon 2- repeat (4 changwa nathap)

	0		+
- - - -	- 3 - 3	- 3 - 3	- 2 - 1
- - - 3	- - - 3	- 5 - 3	- 2 - 1
- ting- tub	- - - pa	- - - pa	- pa- tub
- - 3 3	- 2 - 1	1 1 - -	7 7 - 6
- 3 - -	- 2 - 1	- - - 7	- - - 6
- - - -	- - - pa	- pa - pa	- tub- phring
- 2 - -	1 6 - -	- 2 - 3	6 5 - 6
- - 1 6	- - 5 3	- 6 - 7	- 2 - 3
- - - phring	- - - phring	- phring- phring	- pa- tub
- 7 - -	6 5 - 6	- 2 - -	1 1 - 2
- 6 - 3	- 2 - 3	- 2 - 1	- - - 2
- - - theng	tingtubpatub	- ting- theng	- tub- ting
- - - -	- 3 - 3	- 3 - 3	- 2 - 1
- - - 3	- - - 3	- 5 - 3	- 2 - 1
- - - phring	- - - phring	- - - pa	- - - tub
- 6 - -	5 5 - -	1 1 - -	2 2 - 3
- 3 - 5	- - - 1	- - - 2	- - - 3
- - - ting	- ting- theng	- ting - tub	- patub -
- - 2 3	- 5 - 6	- 1 - 6	- 5 - 3
- - 1 - -	- 5 - 6	- 1 - 6	- 5 - 7
ting- - phring	- - - phring	- phring- phroeng	- pa- tub
- 5 - 1	- 2 - 3	- 3 - 3	- 2 - 1
- 5 - 1	- 2 - 3	- 5 - 3	- 2 - 1
- pa- theng	- pa- tub	- ting- phroeng	tingtubthaphring

*chan song**thon 1 - first (4 changwa nathap)*

0	+	0	+
- - - 5	- - 6 6	- - - 1	- - 6 6
- - - 5	- 6 - -	- - - 1	- 6 - -
- - - tub	- - - phring	- - - phring	- - - phring
- - 5 5	- 6 - 5	- - - -	- 3 - 3
- 5 - -	- 6 - 5	- - - 5	- - - 3
- phring- theng	- tha - tub	- ting - phroeng	tingtubthaphring
- 5 - 3	- - 1 1	- - 2 2	- - - 3
- 5 - 3	- 1 - -	- 2 - -	- - - 3
- - - pa	- - tubting	- ting- pa	- tub- phring
- 3 - 3	- 3 - -	3 3 - -	2 2 - 1
- 5 - 6	- 5 - 3	- - - 2	- - - 1
- - - pa	- tub- ting	- ting- pa	- patubphring

thon 1 - repeat (4 changwa nathap)

0	+	0	+
- - - 5	- - 6 6	- - - 1	- - 6 6
- - - 5	- 6 - -	- - - 1	- 6 - -
- - - pa	- tub- phring	- - - pa	- tub - -
- - 5 5	- 6 - 5	- - - -	- 3 - 3
- 5 - -	- 6 - 5	- - - 5	- - - 3
phring - tingtheng	tingtubthengting	tubthengtingtub	thengting - phring
- 5 - 3	- - 1 1	- - 2 2	- - - 3
- 5 - 3	- 1 - -	- 2 - -	- - - 3
- .thengtubting	- .tingthengtub-	thengtubtingting	ting- .tingthengting
- 3 - 3	3 3 - -	3 3 - -	2 2 - 1
- 5 - 7	6 5 - 3	- - - 2	- - - 1
tha - tingthengting	tingtingpating	tingthengtingtheng	- pa- ting

thon 2- first (4 changwa nathap)

0	+	0	+
- - 3 3	- 2 - 1	- 1 - 5	- - - 6
- 3 - -	- 2 - 1	- - - 5	- - - 6
- - phringphring	- - phringphring	- phringthengting	- pa - -
- - - -	- 6 - 5	- 1 - -	3 3 - 2
- 2 - 3	- 2 - 3	- 1 - 3	- - - 2
tubpatubtub	tingtingthengting	- - thengtheng	patubphringting
- 6 - -	5 3 - -	1 1 - -	2 2 - 3
- - 5 3	- - 2 1	- - - 2	- - - 3
- - thoettub	- patub -	tingthengtingtheng	- tub - ting
- 3 - 3	- 3 - 3	3 3 - -	2 2 - 1
- 5 - 6	- 5 - 3	- - - 2	- - - 1
- ting - tub	- talingtingting	tubthatringphroeng	- tub - phring

thon 2 - repeat (4 changwa nathap)

0	+	0	+
- - 3 3	- 2 - 1	- - - 5	- - - 6
- 3 - -	- 2 - 1	- - - 2	- - - 3
- ting - pa	- - - tub	- ting - pa	- tub - phring
- - - -	- - 5 6	- 1 - 2	- 3 - 2
- 2 - 3	- 3 - -	- 1 - 2	- 3 - 2
- patubphroeng	- tubtingphroeng	- patuedting	tingthatubphring
- 6 - -	5 3 - -	1 1 - -	2 2 - 3
- - 5 3	- - 2 1	- - - 2	- - - 3
- - tubphring	- - tubphring	- phringtubphring	phring - tubphring
- 3 - 3	- 3 - 3	3 3 3 -	2 2 - 1
- 5 - 6	- 5 - 3	- - - 2	- - - 1
- phring - pa	- tub - phring	- ting - pa	- tub - phring

*chan dio**thon 1 - first (4 changwa nathap)*

0 +	0 +
- - 6 6	- - 6 6
- 6 - -	- 6 - -
- - - tub	- phring - phring

- - 5 5	- - 3 3
- 5 - -	- 3 - -
- tha - tub	- phring - phring

- 6 - 1	- 1 2 3
- 2 - 1	- 1 2 3
- ting - tub	- talingtingting

- 3 - 3	- 2 - 1
- 5 - 3	- 2 - 1
- thengthatub	- phring - phring

thon 1 - repeat (4 changwa nathap)

0 +	0 +
- - 6 6	- - 6 6
- 6 - -	- 6 - -
- thatub -	thalatingting -

- - 5 5	- - 3 3
- 5 - -	- 3 - -
thatingtingtheng	tingtingthengting

- 6 - 1	- - 2 3
- 2 - 1	- - 2 3
.thengtingtheng.thengtingtheng.thengtingtheng.thengtingtheng	.thengtingtheng.tingpating

- 3 - 3	- 2 - 1
- 5 - 3	- 2 - 1
tingthengtingtheng	thatubtingphring

thon 2- first (4 changwa nathap)

	0 +		0 +
	- 3 - 2		- 1 - 6
	- 3 - 2		- 1 - 6
- tingtubtuedting		thengtubtingting	
	- - 5 6		- 1 - 2
	- 3 - -		- 1 - 2
patubtingtheng		tingtubthating	
	- 6 - 1		- - 2 3
	- 2 - 1		- - 2 3
- thengthatub		thengpatubting	
	- 3 - 3		- 2 - 1
	- 5 - 3		- 2 - 1
.nathengtingtheng		natubnaphring	

thon 2 - repeat (4 changwa nathap)

	0 +		0 +
	- 3 - 2		- 1 - 6
	- 3 - 2		- 1 - 6
tingthattingting		- thengtalingting	
	- - 5 6		- 1 - 2
	- 3 - -		- 1 - 2
tubthengtalingting		tubthatubphring	
	- 6 - 1		- - 2 3
	- 2 - 1		- - 2 3
- phring - pa		- tub - phring	
	- 3 - 3		- 2 - 1
	- 5 - 3		- 2 - 1
- phring - tub		- phring - phring	

5)khaek borrahet chan sam

libro I (♩ = 44)

K.W.Y.

T.P.

libro I repeat (♩ = 45)

This musical score is for a piece titled "5)khaek borrahet chan sam". It is arranged for two parts: K.W.Y. (likely Keyboard and Wind) and T.P. (likely Trumpet and Percussion). The score is divided into two sections. The first section, labeled "libro I (♩ = 44)", consists of four systems of staves. The second section, labeled "libro I repeat (♩ = 45)", consists of four systems of staves. Each system contains a grand staff with a treble clef and a bass clef. The notation includes various rhythmic values, including eighth and sixteenth notes, and rests. The tempo is indicated by a quarter note equal to 44 or 45 beats per minute.

khaek borrhathet chan sam

thao 2 (1-46)

The first system of music consists of two staves. The upper staff is in treble clef and contains a melody of eighth and sixteenth notes. The lower staff is in bass clef and provides a harmonic accompaniment with chords and moving lines.

The second system of music continues the piece with two staves, maintaining the melodic and harmonic structure established in the first system.

The third system of music continues the piece with two staves, showing a continuation of the melodic and harmonic patterns.

The fourth system of music continues the piece with two staves, featuring a melodic line with some slurs and a supporting bass line.

thao 2 repeat (1-23)

The fifth system of music begins with a repeat sign and contains two staves of music, indicating a repeated section.

The sixth system of music continues the repeated section with two staves of music.

The seventh system of music continues the repeated section with two staves of music.

thao 2 (1-20)

The eighth system of music concludes the piece with two staves, featuring a melodic line with a slur and a supporting bass line.

khaek borrahet chan song

Thao 1 ($\text{♩} = 90$)

K.W.Y

TAPHON

Thao 1 repeat ($\text{♩} = 90$)

Thao 2

Thao 2 repeat ($\text{♩} = 90$)

kheak borrahet chan dio

thon 1 (♩-♩)

K.W.Y.

T.P.

thon 1 repeat (♩-♩)

thon 2 (♩-♩)

thon 2 repeat

(♩-♩)

The musical score is arranged in systems of staves. The first system includes vocal parts for K.W.Y. and T.P. and piano accompaniment. The second system continues the piano accompaniment. The third system includes piano accompaniment and a section marked 'thon 2'. The fourth system continues the piano accompaniment. The fifth system includes piano accompaniment and a section marked 'thon 2 repeat'. The sixth system continues the piano accompaniment. The seventh system includes piano accompaniment and a section marked '(♩-♩)'. The score uses various musical notations including notes, rests, and dynamic markings.

APPENDIX B

THAI KLONG PHAYANG FOR BASIC NATHAP TAPHON

1) *nathap propkai thao**chan sam*

	0		+
-- phring	-- pa	--- theng	-ting-pa
--- theng	-ting-pa	--- pa	--- tub
-----	--- phring	-----	-ting-phring
--- theng	- taling - ting	- thengtingtheng	- tub - phring

chan song

	0		+
-----	--- phring	--- pa	--- tub
-- phring	--- phring	--- tub	--- phring

chan dio

	0		+
-- phring	- pa --	- phring-pa	- tub-phring

2) *nathap songmai thao**chan sam*

	0		+
--- phring	--- phring	-- pa	-- tub
-----	--- pa	--- tub	--- phring

chan song

	0		+
or	--- pa	- tub-ting	- tub-phring
	--- tub	--- phring	--- phring

chan dio

0	+	0	+
--- tub		- phring - phring	

3) *nathap phleng reo**chan dio* (for *phleng ruang*)

0	+	0	+
--- tub		- phring - phring	

4) *nathap samingthong*[for *phleng longsong*(with vocal), *phleng linglod*, *samingthongmon*]*chan song*

	0		+
--- pa	- pa- tub	- pa- tub	- tingtubpa
tubtheng--	tubtheng- tub	- tingtubtheng	thengtingtubpa

5) nathap worrachet*chan song*

o	+	o	+
--- pa	--- tub	--- pa	--- ting
----	- tub- phroeng	- ting- pa	----
--- pa	--- tub	--- pa	--- ting
----	- tub- phroeng	- tub- theng	----

6) nathap senlao*chan song*

o	+	o	+
--- tub	- theng-	- tub- phroeng	- - - theng
(ending)			
- - - ting	- - tubtheng	- theng- ting	- tub- pa

7) nathap longsong (naphat music)*chan song*

o	+	o	+
--- pa	- pa- tub	- ting- tub	- tingtubpa
--- pa	- pa- tub	- ting- tub	- tingtubpa
tubtheng-	tubtheng- tub	- tubphroengtheng	- thatubting
- theng- taling	tingtubtingtheng	- tingtubtheng	thengtingtubpa

8) nathap lom*chan song*

o	+	o	+
----	----	--- tub	--- phring
--- phring	--- pa	----	--- tub
----	--- phring	--- pa	--- tub
--- phroeng	--- tub	- phroeng- theng	--- phring
----	--- pa	----	--- tub
----	--- pa	--- tub	--- phring
----	--- pa	--- tub	- phroeng- theng
- - tubting	- - tubphroeng	- theng- ting	- tub- pa

9) nathap phayasok*chan song (for phleng ruang)*

o	+	o	+
----	----	--- tub	--- phring
--- phring	--- pa	----	--- tub
----	--- phring	--- pa	--- tub
--- phroeng	--- tub	- phring- theng	--- phring

10) nathap khamen yai*chan song (for phleng ruang)*

o	+	o	+
----	----	----	----
--- ting	--- phroeng	--- ting	--- pa
----	--- pa	----	--- tub
----	--- pa	--- tub	--- ting
----	--- pa	----	--- tub
----	--- pa	--- tub	--- ting
----	--- pa	--- tub	- ting- theng
--- ting	-- tubting	--- ting	- tub- pa

11) nathap karana*chan song (for phleng ruang)*

o	+	o	+
----	--- pa	----	--- tub
----	--- pa	--- tub	--- phring
----	--- pa	--- tub	- ting- theng
-- tubting	-- tubphroeng	- theng- ting	- tub- pa

12) nathap sathukarn*(ching only)*

	(<i>taphon</i> Introduction)	-- tubting	-- tubtheng
o	o	o	o
----	----	----	----
----	--- theng	--- tha	-- tubting
----	----	----	--- ting
----	--- ting	-- tubting	--- ting
----	----	----	-- tubtheng
----	--- ting	-- tubting	--- ting
----	--- ting	--- ting	-- tubtheng
--- ting	-- tubtheng	--- tha	-- tubtheng
----	----	----	--- tub
----	----	----	--- tub
--- theng	--- tha	----	-- tubting
----	----	----	--- ting
----	--- ting	--- ting	-- tubtheng
----	--- ting	--- ting	-- tubtheng
--- ting	-- tingtheng	--- tha	--- tub
-- taleed	- teed- ting	--- tub	-- phroengtheng
----	--- tha	----	-- tubting
--- tub	-- phroengtheng	--- tha	-- tubting
--- theng	-- taling	- ting- tub	- phroeng- theng
----	--- tub	--- tub	- phroeng- theng
----	--- tha	----	- tub- ting
--- tub	- phroeng- theng	--- tha	- tub- ting
--- theng	--- taling	- ting- tub	- phroeng- theng

o	o	o	o
-----	-----	-----	-----
--- taling	- ting- ting	- ting- ting	-- thengting
-----	--- tub	--- ting	- ting- theng
--- ting	-- tubtheng	--- tha	-- tubtheng
--- taleed	- teed- ting	--- tub	--- tub
-----	-- tubtheng	-----	- phroeng- theng
- theng- tub	- theng- tub	- theng- tub	-----
--- ting	-- tubtheng	--- tha	- thengtingtub
			-- tubting

repeat the whole *narhap* [four sections] for three times and then add the first section once again.
After repeating, go to the *mue mod* (coda) or the ending pattern as in following section.

o	o	o	o
--- taleed	- teed- ting	--- tub	- phroeng- theng
-----	-- tubtheng	-----	-----
- theng- tub	- theng- tub	- theng- tub	- thengtingtub
--- ting	-- tubtheng	- tha- -	- tub- ting

APPENDIX C

LIST OF THAI MUSIC COMPOSITIONS
WITH NATHAP AND COMPOSITION STRUCTURES

1. List of Thai music compositions from Montri Tramote, 1980

The name of the following compositions are considerably selected from the book of Thai music, *fang lae kao chai phleng Thai* (Listening and Understanding Thai music), published with comments on the history and lyrics by Montri Tramote (1980). The given *nathap* and composition forms are based on various sources, including those of commercial tape cassettes produced by kru Prasit Thawon and Dr. Uthis Nagasawadi, and the additional comments from kru Boonyong Kethkong, kru Somphong Rohitajol, kru Somphong Nuchphichan and notably, Khun Prasan Wongwirojrak. It is to be noted that some of the facts on the given *nathap* and the comments according to these informants may be different from the other scholars or the other music schools. Also, the number of Thai compositions is very vast, regarding to the various type of traditional compositions exists in Thai music (e.g. *phleng thao/phleng sepha*, *phleng homrong* (overture), *phleng ruang* (suite) and *phleng naphat* (theatre/ ceremonial music)) and there are a lot more of new compositions which composed by the contemporary composers during or after kru Montri published his book. However, this study will focus on the *thao* compositions (*phleng thao/phleng sepha*) found in kru Montri's explanation only.

Due to the fact that the title of Thai compositions are basically written and pronounced with tonal, thus it is necessary to give the original Thai spellings together with the simplified English version. Throughout the list of compositions, it is decided to make the order based on Thai alphabetical (d to V) and Thai vowels (t to g-k) system.

<u>phleng</u>		<u>nathap</u>	<u>form</u>
(ก ก)			
<i>karawek</i>	การะเวก	<i>propkai</i>	<i>thao</i>
<i>kra-tai-chomduan</i>	การะทวยชอมดูน	<i>propkai</i>	<i>thao</i>
<i>kra-bi-li-la</i>	การะบีลีลา	<i>propkai</i>	<i>thao</i>
<i>kamsuansurang</i>	กำสรวลสุรางค์	<i>propkai</i>	<i>thao</i>
<i>klomnaree</i>	กล่อมประณี	<i>propkai</i>	<i>thao</i>
<i>kalyayeamhong</i>	กล่อมประไพยฆ้อง	<i>propkai</i>	<i>thao</i>

(ข kh)

<i>khomklomlook</i>	ขอมกลอมลูก	<i>propkai / khamen</i>	<i>thao</i>
<i>khomngoen</i>	ขอมเงิน	<i>propkai / khamen</i>	<i>thao</i>
<i>khomthong</i>	ขอมทอง	<i>propkai / khamen</i>	<i>thao</i>
<i>khomsongkruang</i>	ขอมสงครวง	<i>propkai / khamen</i>	<i>thao</i>
<i>khomboran</i>	ขอมโบราณ	<i>propkai / khamen</i>	<i>thao</i>
<i>khomyai</i>	ขอมใหญ่	<i>propkai</i>	<i>thao</i>
<i>khamenchonnabot</i>	เขมรชนบท	<i>propkai / khamen</i>	<i>thao</i>
<i>khamensongpradamnoen</i>	เขมรทรงพระศิวินัน	<i>propkai / khamen</i>	<i>thao</i>
<i>khamennoi</i>	เขมรน้อย	<i>propkai / khamen</i>	<i>thao</i>
<i>khamenyai</i>	เขมรใหญ่	<i>propkai / khamenyai</i>	<i>thao, phleng ruang</i>
<i>khamenluang</i>	เขมรเหลือง	<i>propkai / khamen</i>	<i>thao</i>
<i>khamenphothisat</i>	เขมรโพธิสัต	<i>propkai</i>	<i>thao</i>
<i>khamenpakthor</i>	เขมรปากทอ	<i>propkai / khamen</i>	<i>thao</i>
<i>khamen-pi-kaew</i>	เขมรป่าแก้ว	<i>propkai</i>	<i>thao</i>
<i>khamen-pi-kaew thangsakkrawa</i>	เขมรป่าแก้วทางจักรวาล	<i>propkai</i>	<i>sam chan</i>
<i>khamenpuang</i>	เขมรพวง	<i>propkai / khamen</i>	<i>thao</i>
<i>khamensaiyok</i>	เขมรไซโยค	<i>propkai / songmai</i>	<i>thao</i>
<i>khamen-rat-cha-buri</i>	เขมรรัตบุรี	<i>songmai</i>	<i>thao</i>
<i>khamenla-or-ong</i>	เขมรละออองค์	<i>propkai / khamen</i>	<i>thao</i>
<i>khamenliabnakorn</i>	เขมรเสียบนคร	<i>propkai / khamen</i>	<i>thao</i>
<i>khamen-phai-rua</i>	เขมรไพรเรือ	<i>propkai / khamen</i>	<i>thao</i>
<i>khamen-ewbang</i>	เขมรเอวัง	<i>propkai / khamen</i>	<i>song chan</i>
<i>khamen-phoom-pra-sart</i>	เขมรพุ่มประสาธ	<i>propkai</i>	<i>thao</i>
<i>khamensudchai</i>	เขมรสุดใจ	<i>propkai / songmai</i>	<i>thao</i>
<i>khaekngor</i>	เขมรเงาะ	<i>songmai / chaosen</i>	<i>thao</i>
<i>khaekchoenchao</i>	เขมรจันทน์เจ้า	<i>songmai / chaosen</i>	<i>thao</i>
<i>khaekmong</i>	เขมรมง	<i>khaek sadayong</i>	<i>thao</i>
<i>khaektoymor</i>	เขมรตอยมอ	<i>songmai</i>	<i>thao</i>
<i>khaeksai</i>	เขมรไซ	<i>propkai</i>	<i>thao</i>
<i>khaeksai</i>	เขมรชัย	<i>propkai</i>	<i>thao</i>
<i>khaeksarai</i>	เขมรสาราย	<i>propkai</i>	<i>thao</i>
<i>khaekmasrie</i>	เขมรมะลิ	<i>songmai / chaosen</i>	<i>thao</i>
<i>khaekkulit</i>	เขมรกุลิต	<i>songmai / chaosen</i>	<i>thao</i>
<i>khaek-a-wang</i>	เขมรอำวัง	<i>propkai / khaek sadayong</i>	<i>thao</i>
<i>khaekdang</i>	เขมรแดง	<i>propkai</i>	<i>thao</i>
<i>khaekhay</i>	เขมรเห	<i>songmai / khaek sadayong</i>	<i>thao</i>
<i>khaekborrathet</i>	เขมรบรรเท	<i>songmai / propkai</i>	<i>thao</i>
<i>khaekmon</i>	เขมรมอญ	<i>propkai</i>	<i>thao/ phleng ruang</i>
<i>khaek mon bangchang</i>	เขมรมอญบางช้าง	<i>propkai</i>	<i>thao</i>

<i>khaek mon bangkhunphrom</i>	เขาค้อเมืองบันขามพรวหม	<i>propkai / mon</i>	<i>thao</i>
<i>khaek-lobburii</i>	เขาค้อพลูจี	<i>songmai</i>	<i>thao</i>
<i>khaek-oi</i>	เขาค้อไผ่	<i>songmai</i>	<i>thao</i>
<i>khaek-si-kler</i>	เขาค้อสีเคลอ	<i>songmai</i>	<i>thao</i>
<i>kha-neng</i>	เขานาง	<i>propkai</i>	<i>thao</i>
<i>khunplubpla</i>	หินพลูปล้ำ	<i>propkai</i>	<i>thao</i>
<i>kamsamut</i>	ข้ามลำมูล	<i>propkai</i>	<i>thao</i>
<i>kwangdab</i>	สว่างดง	<i>propkai / mon</i>	<i>thao</i>

(ค k)

<i>krobchakkrawan</i>	ครกชาจักรวาล	<i>propkai</i>	<i>thao</i>
<i>kunlung kunpa</i>	คุนลุง คุนป่า	<i>propkai</i>	<i>thao</i>
<i>kruanha</i>	ครกภูเขา	<i>songmai / worratchet</i>	<i>thao</i>
<i>kroonkit</i>	ครกนาค	<i>propkai</i>	<i>thao</i>
<i>klauenkratobfang</i>	คลื่นนครชัยฝั่ง	<i>songmai</i>	<i>sam chan, song chan</i>

(ง ng)

<i>ngeoramruk</i>	เงาะรามลึก	<i>songmai / lao</i>	<i>thao</i>
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(จ ch)

<i>chorrakayhangyao</i>	จระเข้หางยาว	<i>propkai</i>	<i>thao</i>
<i>chorrakayhangyaothangsakkawa</i>	จระเข้หางยาวงัดกระดูก	<i>propkai</i>	<i>sam chan</i>
<i>chingjokthong</i>	จิ้งจอกทอง	<i>songmai</i>	<i>thao</i>
<i>chin-kebbuppha</i>	จีนเก็บปลา	<i>songmai / chin</i>	<i>thao</i>
<i>chin-kebbuppha-plaeng</i>	จีนเก็บปลาปลาโตง	<i>songmai / chin</i>	<i>thao</i>
<i>chinsae</i>	จีนไล่	<i>propkai</i>	<i>song chan / phleng ruang</i>
<i>chin-khim-lek</i>	จีนกินเล็ก	<i>songmai / chin</i>	<i>thao</i>
<i>chin-khim-yai</i>	จีนกินใหญ่	<i>propkai / chin</i>	<i>thao</i>
<i>chinnam-sa-dej</i>	จีนน้ำเสด็จ	<i>songmai / chin</i>	<i>thao</i>
<i>chinlan-than</i>	จีนล้นถ่าน	<i>propkai / chin</i>	<i>thao</i>
<i>chinwanglang</i>	จีนวังหลัง	<i>songmai / chin</i>	<i>thao</i>
<i>chinramphat</i>	จีนรามพิศ	<i>songmai / chin</i>	<i>song chan</i>
<i>chin-kwan-on</i>	จีนกวนอัน	<i>songmai / chin</i>	<i>thao</i>
<i>chinnarua</i>	จีนน้ำเรือ	<i>chin</i>	<i>(ching only)</i>
<i>champathongthet</i>	จางป่าทองเทศ	<i>propkai</i>	<i>thao</i>

(๒ ch)

<i>chomsaengchan</i>	ชมนสงจันทร	<i>songmai / worratchet</i>	<i>thao</i>
<i>changprasanna</i>	ชางประสาธนา	<i>propkai</i>	<i>thao</i>
<i>chomsuansawan</i>	ชมนสวนสวน	<i>propkai</i>	<i>thao</i>
<i>chonthan</i>	ชอนนทาน	<i>propkai</i>	<i>thao</i>

(๓ y)

<i>yi-poon-cha-on</i>	ยี่ปุ่นจันทร	<i>songmai / yi poon</i>	<i>thao</i>
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(๔ d)

<i>dok-mai-sai</i>	ดอกไม้ใส	<i>propkai</i>	<i>thao</i>
<i>dok-mai-prai</i>	ดอกไม้ไพร	<i>propkai</i>	<i>thao</i>
<i>duan-ngai-klangpa</i>	เดือนงายกลางป่า	<i>propkai</i>	<i>thao</i>
<i>dao horrakay</i>	ดาวจรกย	<i>propkai</i>	<i>thao</i>

(๕ t)

<i>toyroop</i>	ตอยรูป	<i>propkai</i>	<i>thao</i>
<i>taohay</i>	ตอหาย	<i>propkai</i>	<i>thao</i>
<i>nuangprathat</i>	นวางประธาต	<i>propkai</i>	<i>thao</i>
<i>tonborratchet</i>	ตบนบรatchet	<i>songmai</i>	<i>thao</i>
<i>tonphlengyao</i>	ตบนปลงยาว	<i>propkai</i>	<i>sam chan</i>
<i>tonphlengching</i>	ตบนปลงชิง	<i>propkai</i>	<i>thao</i>
<i>ta-nao-plang</i>	ตบนนาวปลาง	<i>propkai</i>	<i>thao</i>
<i>ta-loom-pong</i>	ตบนลอมปอง	<i>propkai</i>	<i>thao</i>
<i>tamkwang</i>	ตบนกวาง	<i>propkai</i>	<i>thao</i>

(๖ th)

<i>thon-sa-mor</i>	ตบนสมร	<i>propkai</i>	<i>thao</i>
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(๗ th)

<i>thepanthom</i>	เทพธอม	<i>propkai</i>	<i>thao</i>
<i>thep-ni-mit</i>	เทพนิมิต	<i>propkai / nang nai</i>	<i>thao</i>
<i>thep-ran-chuan</i>	เทพรัตนชวน	<i>propkai</i>	<i>thao</i>
<i>thepsaiyat</i>	เทพไสย	<i>propkai</i>	<i>thao</i>
<i>thep-lila</i>	เทพลีลา	<i>propkai</i>	<i>thao</i>
<i>theppanom</i>	เทพพนม	<i>propkai</i>	<i>thao</i>
<i>thepchari</i>	เทพচারิ	<i>propkai / taloong</i>	<i>thao</i>

<i>thep-haw-hoen</i>	เทพหาวเหิง	<i>propkai</i>	<i>thao</i>
<i>tha-le-ba</i>	ทลลล	<i>songmai</i>	<i>thao</i>
<i>thongyon</i>	ทองยอน	<i>propkai</i>	<i>thao</i>
<i>thayoynok</i>	ทอยยนอก	<i>songmai</i>	<i>thao</i>
<i>thayoynai</i>	ทอยยไน	<i>songmai</i>	<i>thao</i>
<i>thayoykhamen</i>	ทอยยขหมเณ	<i>songmai</i>	<i>thao</i>
<i>thayoyyuuan</i>	ทอยยยูวน	<i>songmai</i>	<i>thao</i>
<i>thayoylao</i>	ทอยยลล	<i>songmai</i>	<i>thao</i>

(0 th)

<i>thorraniironghai</i>	ทอรรันอิรองไห	<i>songmai</i>	<i>thao</i>
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(1 n)

<i>nangkruan</i>	นangkruan	<i>propkai</i>	<i>thao</i>
<i>naggeaw</i>	นaggeaw	<i>propkai</i>	<i>thao</i>
<i>nokkhaokhmer</i>	นokkhaokhmer	<i>propkai / songmai / khamen</i>	<i>thao</i>
<i>nokkhamin</i>	นokkhamin	<i>propkai</i>	<i>thao / phleng tuang</i>
<i>nangyuang</i>	นangyuang	<i>propkai</i>	<i>thao</i>
<i>naraiplang-roob</i>	นaraiplang-roob	<i>propkai</i>	<i>thao</i>
<i>namlodtaisai</i>	namlodtaisai	<i>propkai</i>	<i>thao</i>
<i>naraesuanchonchang</i>	naraesuanchonchang	<i>propkai</i>	<i>thao</i>
<i>nokchak</i>	นokchak	<i>propkai</i>	<i>thao</i>
<i>nangnak</i>	นangnak	<i>propkai</i>	<i>thao</i>
<i>nakkharat</i>	นakkharat	<i>propkai</i>	<i>chan dio</i>
<i>niisau</i>	niisau	<i>songmai</i>	<i>thao</i>

(2 b)

<i>bulan</i>	bulan	<i>propkai</i>	<i>thao</i>
<i>bulanloiluan</i>	bulanloiluan	<i>propkai</i>	<i>thao</i>
<i>hanghai</i>	hanghai	<i>songmai</i>	<i>thao</i>
<i>benja-kiri</i>	benja-kiri	<i>benjakiri</i>	<i>thao</i>
<i>hamroeborrombath</i>	hamroeborrombath	<i>propkai</i>	<i>thao</i>
<i>bai-klang</i>	bai-klang	<i>songmai / propkai / lao</i>	<i>thao</i>

(3 p)

<i>pae</i>	pae	<i>propkai</i>	<i>thao</i>
<i>padhor</i>	padhor	<i>propkai</i>	<i>thao</i>

<i>pla-thong</i>	ปลาทอง	<i>propkai</i>	<i>thao</i>
<i>pra-pai-pe-tra</i>	ประพาสเกษตร	<i>propkai</i>	<i>thao</i>
<i>pae-le-chun</i>	ป่าเลขน	<i>songmai / chin</i>	<i>thao</i>

(ฝ f)

<i>farangjorraku</i>	ฝรั่งระกา	<i>songmai / farang</i>	<i>thao</i>
<i>farangkuang</i>	ฝรั่งควง	<i>songmai / farang</i>	<i>thao</i>

(ฟ ph)

<i>phamahay</i>	พม่าหม	<i>propkai / phama</i>	<i>thao</i>
<i>phamahathon</i>	พม่าหมากหม	<i>songmai</i>	<i>thao</i>
<i>phama-plaeng</i>	พม่าหมปลอง	<i>propkai / songmai</i>	<i>thao</i>
<i>phama-kamchab</i>	พม่าหมกำชัย	<i>propkai / phama</i>	<i>thao</i>
<i>phama-klom</i>	พม่าหมกลม	<i>phama</i>	<i>thao</i>
<i>phramditnamtao</i>	พม่าหมดีนัมเต้า	<i>songmai</i>	<i>thao</i>
<i>phramkaohoi</i>	พม่าหมกะโฮ	<i>propkai</i>	<i>thao</i>
<i>phramkebhuawaen</i>	พม่าหมเคบหุวาเอน	<i>nanghong</i>	<i>song chan</i>
<i>phanfarang</i>	พม่าฝรั่ง	<i>songmai / farang</i>	<i>thao</i>
<i>phiroonsrangfa</i>	พม่าหมโรนรังฟ้า	<i>propkai</i>	<i>thao</i>
<i>phuangroi</i>	พม่าหมรอก	<i>propkai</i>	<i>thao</i>
<i>phayakruan</i>	พม่าหมยครวน	<i>propkai</i>	<i>thao</i>
<i>phayarampung</i>	พม่าหมยารampung	<i>propkai</i>	<i>thao</i>
<i>prachankrungsik</i>	พม่าหมจันครุงส์ซิก	<i>propkai</i>	<i>thao</i>
<i>phadcha</i>	พม่าหม	<i>propkai</i>	<i>thao</i>

(ฝ ph)

<i>phiromsurang</i>	พม่าหมสุรัง	<i>propkai</i>	<i>thao</i>
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(ม m)

<i>monramdab</i>	มอญรามดบ	<i>propkai / mon</i>	<i>thao</i>
<i>monyondab</i>	มอญโยนดบ	<i>propkai / mon</i>	<i>thao</i>
<i>malaengphoothong</i>	มอญลาเองฟู้ทอง	<i>songmai</i>	<i>thao</i>
<i>mayong</i>	มอญยอง	<i>mayong / propkai</i>	<i>thao</i>
<i>maran</i>	มอญราน	<i>propkai</i>	<i>thao</i>
<i>monchomchan</i>	มอญชอมชาน	<i>propkai / mon</i>	<i>thao</i>
<i>mon-oy-ing</i>	มอญอัยอิง	<i>propkai / mon</i>	<i>thao</i>
<i>monbahgnangkren</i>	มอญบอญนangkren	<i>mon</i>	<i>song chan</i>
<i>malihuan</i>	มอญลิฮวน	<i>propkai</i>	<i>thao</i>

(ย y)

<i>yuanklao</i>	ยวนเกล้า	<i>songmai / lao</i>	<i>thao</i>
<i>yosalun</i>	โยสลัม	<i>songmai / farang</i>	<i>thao</i>
<i>yong-ngid</i>	ยองนงิด	<i>propkai / yong-ngid</i>	<i>thao</i>

(ร r)

<i>rahokrahoen</i>	ระหกระเหิน	<i>propkai</i>	<i>thao</i>
<i>rasamrasai</i>	ระสาละสา	<i>propkai</i>	<i>thao</i>
<i>room</i>	รวม	<i>propkai</i>	<i>thao</i>
<i>ratripradabdao</i>	ราชวิประดาขาว	<i>propkai</i>	<i>thao</i>

(ล l)

<i>laokhamhom</i>	ลาวคำหอม	<i>songmai / lao</i>	<i>thao</i>
<i>laodamnoensai</i>	ลาวคำเนินทราย	<i>songmai / lao</i>	<i>thao</i>
<i>laosiangthian</i>	ลาวเสียงเทียน	<i>songmai / lao</i>	<i>thao</i>
<i>laoliabkai</i>	ลาวลิ้นกล้วย	<i>songmai / lao</i>	<i>thao</i>
<i>laosaosuay</i>	ลาวสาวสวย	<i>songmai / lao</i>	<i>thao</i>
<i>laotoytaling</i>	ลาวตยตลิ่ง	<i>songmai / lao</i>	<i>thao</i>
<i>laokruan</i>	ลาวครวน	<i>songmai / lao</i>	<i>thao</i>
<i>laosomdej</i>	ลาวสมเด็จ	<i>songmai / lao</i>	<i>thao</i>
<i>laolampang</i>	ลาวลำปาง	<i>songmai / lao</i>	<i>thao</i>
<i>laokrasae</i>	ลาวกระแสน	<i>songmai / lao</i>	<i>thao</i>
<i>liilakrathoom</i>	ลิลาคราหอม	<i>propkai</i>	<i>thao</i>
<i>long-lom</i>	ลิ้นลม	<i>propkai</i>	<i>thao</i>
<i>longrua</i>	ลิ้นรือ	<i>propkai</i>	<i>thao</i>
<i>lomphadchaitkhao</i>	ลมพัดไต้ฟ้า	<i>propkai</i>	<i>thao</i>
<i>lomhuan</i>	ลมหมุน	<i>propkai</i>	<i>thao</i>
<i>lo</i>	โล	<i>lo</i>	<i>song chun</i>

(ว พ)

wilanda-ot	วิลันดาโลก	songmai / farang	thao
wiwekweha	วิเวกเวหา	propkai	thao
wanpradabkoy	แหวนประดับก้อย	propkai	thao

(ส ส)

sarathi	สารถิ	propkai	thao / phleng ruang
si-bot	สีบท	propkai	thao
sudsa-nguan	สุคสงวน	propkai	thao
surintharahu	สุรินทราหู	propkai	thao / phleng ruang
saosodwan	สาวสอคนหวน	propkai	thao
somsongsang	โสมส่องสง	songmai / lao	thao
sroy-ma-yu-ra	สร้อยเมยวรา	songmai	thao
sa-li-ka-chomduan	สาฬิกาขมเค็ดม	propkai	thao
sa-li-ka-khamen	สาฬิกาขมร	propkai	thao
sa-li-ka-kaew	สาฬิกาแก้ว	songmai	thao
sai-pra-chan	ใส่พระจันทร์	propkai	thao
suriyothai	สุริยทัย	propkai	thao
su-da-sawan	สุกดาสวรรค์	propkai	thao
samkannung	แสนคำนึง	songmai	thao
san-sa-nor	แสนเสนาะ	propkai	thao
sansudsa-wad	แสนสุคสว่าง	propkai	thao
sroythayae	สร้อยทยาย	propkai	thao
sammai-nai	สามไม้ใน	propkai	thao
sammai-nok	สามไม้นอก	propkai	thao
surangchamreang	สุรางค์จำเรียง	propkai	thao
samingthong	สามึงทอง	propkai / samingthong	thao
saonoilennam	สาวน้อยเสน่ชา	propkai	thao
si nuan	สินวล	songmai	thao / phleng ruang
sarnsoernprachan	สร้อยสร้อยพระจันทร์	propkai / songmai	thao
sadayong	สกายง	khaek sadayong	thao
sudaphirom	สุคาภิรมย์	propkai	thao
sroylampang	สร้อยลำปาง	songmai / lao	thao
samsao	สามเสา	propkai	thao

(ห h)

<i>hokbot</i>	หอกบต	<i>propkai</i>	<i>thao</i>
<i>hongthong</i>	หงททอง	<i>propkai</i>	<i>thao</i>
<i>hayralennam</i>	เหวราเลนนาม	<i>propkai</i>	<i>thao</i>
<i>huang-a-lai</i>	หวงอาลัย	<i>songmai</i>	<i>thao</i>
<i>huankhamnung</i>	หวนคำนึ่ง	<i>songmai</i>	<i>thao</i>

(อ o,a)

<i>okthalay</i>	อททะเล	<i>songmai</i>	<i>thao</i>
<i>ahnoo</i>	อหนู	<i>songmai</i>	<i>thao</i>
<i>ahca</i>	อคา	<i>propkai</i>	<i>thao</i>
<i>athan</i>	อตา	<i>propkai</i>	<i>thao</i>
<i>asaewoonki</i>	อสาอวอนกี	<i>propkai</i>	<i>thao</i>
<i>anongsuchada</i>	อนองสุชาดา	<i>propkai</i>	<i>thao</i>
<i>apsornsam-ang</i>	อปรนสามอัง	<i>propkai</i>	<i>thao</i>
<i>o-lao</i>	โหล	<i>songmai</i>	<i>thao</i>
<i>aiyaret</i>	อายเรต	<i>propkai</i>	<i>thao</i>

2. List of Thai music compositions from the collection of *lekha sangkeet* notation

The following list of Thai music compositions in this part is based entirely on the collection of 16 *lekha sangkeet* cipher notation books which written for *saw u* (bass fiddle). The collection was published by Duriyaban Music Ltd. from 1919 (note: the latest edition of vol. 11 was 1989). The first editor who is considered to be the inventor of music notation in this style is Khun Charoendotrikarn (kru Dabcharoen Rohitayothin). Later, the music were revised (with the given publishing years) by kru Pruang and Sawad Sutthiumporn, kru Ongkarn Kleebchun and kru Montri Tramote.

It is interesting to find that, in the introduction part of the books, beside the given lyrics of each *phleng*, the composition forms and the name of some *nathap* (with the number of *nathap* cycle) are also mentioned. The number of *nathap* cycle, mentioned in the books as *changwa*, reveal us the clues of the *nathap* to be used in each *phleng* and also the statement of cycle measurements in each *thon* or in each *chan* according to what the editors point out.

However, there are some *nathap* shown in the books without the given name, but still providing the number of *changwa* cycle which can be represent below as: a) *nathap ?* and b) *nathap sam chan / song chan / chan dio*. To the author's knowledge with some investigations have been made, the length of *nathap propkai* cycle seems to suite best to thosenathap (e.g. *nathap ?*, *nathap sam chan*). However, some of the examined *changwa* of the given name

nathap may not be the same number as what is prescribed in the preface part. For example, the prescribed *changwa* of *nathap songmai* in *phleng lao somdet* is 12, whereas the *examined nathap* is 16. Another confusion case is, in some *phleng*, it is not clear whether the *changwa* numbers are given in order to represent the vocal part or the melodic part or overall *changwa* of the *phleng*. For example, the given *nathap* numbers for *phleng lanthan thao*, are 8 and 8 in *thon 1* and *thon 2* of *sam chan*, *song chan* and *chan dio* respectively, but it is found that throughout the notation, the actual numbers are 53 and 20 in *thon 1* and *thon 2* of *sam chan*, 21 and 21 in *thon 1* and *thon 2* of *song chan* and 24 and 20 in *thon 1* and *thon 2* of *chan dio*. To the author's opinion, the given numbers in the example are concerned to the vocal part rather than melody due to the fact that the music part can be played even longer or shorter *changwa* than the written notations by reason of the flexibility of the performances. Therefore, it should be noted that these informations may cause the reader to misread the significance of *changwa* and *nathap* for those *phleng* prescribed by the editor since more investigations are needed to be made.

In order to preserve the original informations obtained from the study of *lekha sangkeet* notations, therefore, without any correction or the investigator's remarks, the name of *phleng*, the composition forms and the name of some *nathap* with the number of *nathap* cycle will be shown in the following list. Again, the Thai spellings will be represented together with the simplified English version. The order of compositions is based on the volume of notations and the original list by the editors in each editions.

Vol. 1: Khun Charoendontrikarn 1921 (11th edition 1982)

1. *sarathii* สารถี สานถิ่น
sam chan, 3 *thon*, *nathap* ?, 4, 4 and 5 *changwa* respectively
2. *sudsanguan* สุสงวน สานถิ่น
sam chan, 1 *thon* only, *nathap* ?, 6 *changwa*
3. *nangkruan* นาคครุฑ สานถิ่น
sam chan, 2 *thon*, *nathap* ?, 4 and 4 *changwa* each
4. *nakkiew* นาคเกี้ยว สานถิ่น
song chan, 2 *thon*, *nathap* ?, 8 *changwa* each
5. *khamen pii kaew* เขมรปีกแก้ว สานถิ่น
sam chan, 2 *thon*, *nathap* ?, 4 and 6 *changwa* respectively
6. *khaek toymor* เขาคัดตอหมวก สานถิ่น
song chan, *nathap songmai*, 4 *changwa* each
7. *kraw taloong* กราวตอง
(no information available)

Vol. 2: Khun Charoendotrikarn 1927 (8th edition 1984)

1. *aiyaret* โหมโรงไถยเรศ สามชั้น
(no information available)
2. *krobchakkrawan* โหมโรงระชาจักรวาล สามชั้น
(no information available)
3. *mayong* ม้าย่อง สามชั้น
(no information available)
4. *kratae-taimai* โหมโรงกระเตไต่ไม้ สามชั้น
(no information available)
5. *laosomdej* สาวสมเด็จ สี่ชั้น
song chan, 4 thon, nathap songmai, 12 changwa each
6. *lao saokratokki* สาวสาวกระตูกี่ สี่ชั้น
song chan, 2 thon, nathap songmai, 5 and 8 changwa respectively
7. *tonworrachet* ต้นวอราชฐ์ สี่ชั้น
song chan, 4 thon, nathap song chan, 2 changwa each

Vol. 3: Khun Charoendotrikarn 1923 (5th edition 1983)

1. *sii bot thao* สีบัวเตา
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
2. *pae thao* เป้าเตา
sam chan 2 thon, nathap sam chan, 3 and 4 changwa respectively
song chan 2 thon, nathap song chan, 3 and 4 changwa respectively
chan dio 2 thon, nathap chan dio, 3 and 4 changwa respectively
3. *thephanthom thao* เทพธนมเตา
sam chan 2 thon, nathap sam chan, 8 and 6 changwa respectively
song chan 2 thon, nathap song chan, 8 and 6 changwa respectively
chan dio 2 thon, nathap chan dio, 8 and 6 changwa respectively
4. *lomphadchaikhao* ลมพัดชาไขห่อ สามชั้น
sam chan, 2 thon, nathap ?, 4 changwa each
5. *lom huan* ลมหวน สามชั้น
sam chan, 2 thon, nathap ?, 5 and 2 changwa respectively
7. *phramdidnamtao thao* พระพนมดิ้นเตาเตา
sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa
8. *lao samthon* ลาวสามทอน สี่ชั้น
song chan, 3 thon, nathap lao, 4, 4 and 6 changwa respectively

Vol. 4: Khun Charoendotrikarn 1919, re-edited by Pruang Sutthiumporn 1941 (4th edition 1978)

1. *homrong charoensri-ayuthhaya* โหมโรงเจริญศรีอยุธยา สามชั้น
(no information available)
2. *bulan thao* บุษลิน เต่า
sam chan 4 thon, nathap sam chan, 6, 4, 9 and 6 changwa respectively
song chan 4 thon, nathap song chan, 6, 4, 9 and 6 changwa respectively
chan dio 4 thon, nathap chan dio, 6, 4, 9 and 6 changwa respectively
3. *toyroop thao* ตักรูป เต่า
sam chan 3 thon, nathap sam chan, 4, 4 and 6 changwa respectively
song chan 3 thon, nathap song chan, 4, 4 and 6 changwa respectively
chan dio 3 thon, nathap chan dio, 4, 4 and 6 changwa respectively
4. *hayralennam thao* หยาเรเลนน้ำ เต่า
sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa
5. *thepnimit thao* เทพนิมิต เต่า
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
6. *surintharahoo thao* สุรินทร์ราชหุ เต่า
sam chan 3 thon, nathap sam chan, 3, 4 and 4 changwa respectively
song chan 3 thon, nathap song chan, 3, 4 and 4 changwa respectively
chan dio 3 thon, nathap chan dio, 3, 4 and 4 changwa respectively
7. *saonoilennam thao* สอนอิลเลนน้ำ เต่า
sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa
8. *hangbai thao* ห้างไบ เต่า
sam chan 2 thon, nathap songmai, 8 changwa each
song chan 2 thon, nathap songmai, 8 changwa each
chan dio 2 thon, nathap songmai, 8 changwa each

Vol.5: Khun Charoendotrikarn 1923, re-edited by Sawad Sutthiumporn 1949 (5th edition 1979)

1. *homrong aiyarachoo-ngaung* โหมโรงไฉ่ราชหุ สามชั้น
(no information available)
2. *chorrakayhangyao thao* จอระกายหางยาว เต่า
sam chan 3 thon, nathap sam chan, 2 changwa each
song chan 3 thon, nathap song chan, 2 changwa each
chan dio 3 thon, nathap chan dio, 2 changwa each

3. *phama ha thon sam chan*, พม่าห้าทอน สามตัน, *nathap ?*, 5 *thon*
thon 1 (= free *changwa*)
thon 2 to thon 5 are 2 *changwa* each
4. *sansnor* แสนแสน, สามตัน
sam chan, *nathap ?*, 6 and 4 *changwa* respectively
5. *wiwekweha* วิเวกเวหา สามตัน
sam chan, *nathap ?*, 1 *thon* only, 4 *changwa*
6. *sarikarchomdoen thao* สารีการชอมต๋อง เต้า
sam chan 1 thon, *nathap sam chan*, 4 *changwa*
song chan 1 thon, *nathap ?*, 4 *changwa*
chan dio 1 thon, *nathap ?*, 4 *changwa*
7. *kraoram* กระแอร่า สกั้ง
 (no information available)

Vol. 6: Khun Charoendontrikarn 1929 (4th edition 1978)

1. *khaek mon* เข็กมอญ สามตัน
sam chan, 3 *thon*, *nathap ?*, 6 *changwa* each
2. *khaek ot* เข็กโถด สามตัน
sam chan, 3 *thon*, *nathap ?*, ? *changwa*
3. *khaeksai thao* เข็กไซเต้า
sam chan 2 thon, *nathap ?*, 4 *changwa* each
song chan 2 thon, *nathap ?*, 4 *changwa* each
chan dio 2 thon, *nathap ?*, 4 *changwa* each
4. *khaek mon bangkhunphrom thao* เข็กมอญ บังขุนพรหม เต้า
sam chan 3 thon, *nathap sam chan*, 4, 4 and 6 *changwa* respectively
song chan 3 thon, *nathap mon*, 8, 8 and 12 *changwa* respectively
chan dio 3 thon, *nathap chan dio*, 4, 4 and 6 *changwa* respectively

Vol. 7: Khun Charoendontrikarn 1919 (4th edition 1978)

1. *thepphanom* เทพพนม สามตัน
sam chan, 2 *thon*, *nathap ?*, 4 *changwa* each
2. *khaek lophuri* เข็กลพบุรี สามตัน
sam chan, 2 *thon*, *nathap songmai*, 10 *changwa* each
3. *bai-klang thao* ไบค์ลั้งเต้า
sam chan 4 thon, *nathap songmai*, 12, 4, 8 and 4 *changwa* respectively
song chan 4 thon, *nathap songmai*, 12, 4, 8 and 4 *changwa* respectively
chan dio 4 thon, *nathap songmai*, 12, 4, 8 and 4 *changwa* respectively
4. *wihokhern* วิหคเหิน สามตัน
sam chan, *nathap ?*, 2 *thon*, 4 *changwa* each

5. *plathong thao* 1ล้าทอง เต่า
sam chan 3 thon, nathap sam chan, 4, 6 and 2 changwa respectively
song chan 3 thon, nathap song chan, 4, 6 and 2 changwa respectively
chan dio 3 thon, nathap chan dio, 4, 6 and 2 changwa respectively
6. *taokinphakboong* เต่ากินผักบุง สองชั้น
 (notated in *plathong song chan*)
7. *khamen sai yok* เขมรไซโยค สามชั้น
sam chan, nathap ?, 2 thon, 4 changwa each

Vol. 8: Khun Charoendontrikarn 1927, re-editing by Sawad Sutthiumporn 1957, 1969
 and Ongkarn Kleebchun 1977.(4th edition 1977)

1. *khamen rachburi* เขมรราชบุรี สามชั้น
sam chan, 2 thon, nathap songmai, 14 and 12 changwa respectively)
2. *khamen phung thao* เขมรพุงเต่า
sam chan 2 thon, nathap sam chan, 4 and 6 changwa respectively
song chan 2 thon, nathap khamen, 4 and 6 changwa respectively
chan dio 2 thon, nathap chan dio, 4 and 6 changwa respectively
3. *khamen pakthor thao* เขมรปากท้อ เต่า
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap khamen, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
4. *lao damnoensai* ลาวดำนเนินทราย สองชั้น
song chan, 2 thon, nathap songmai, 12 and 24 changwa respectively
5. *o lao thao* โอลาว เต่า
sam chan 1 thon, nathap songmai, ? changwa
song chan 1 thon, nathap songmai, ? changwa
chan dio 1 thon, nathap soom, ? changwa
6. *si nuan* สีนวน สองชั้น
song chan, 2 thon, nathap songmai 8 changwa each

Vol. 9: Khun Charoendontrikarn 1932 (3rd edition 1983)

1. *homrong yiemwiman* โหมวังงักยิมมาน สามชั้น
sam chan, nathap sam chan, 4 thon, 5, 3, 3 and 5 changwa respectively
2. *khamen phranakorn thao* เขมรพระนคร เต่า
sam chan 2 thon, nathap sam chan, 6 and 8 changwa respectively
song chan 2 thon, nathap khamen, 6 and 8 changwa respectively
chan dio 2 thon, nathap chan dio, 6 and 8 changwa respectively
3. *khamen phothisat thao* เขมรโพธิสัตว เต่า
sam chan 3 thon, nathap sam chan, 4, 4 and 9 changwa respectively
song chan 3 thon, nathap khamen, 4, 4 and 9 changwa respectively
chan dio 3 thon, nathap chan dio, 4, 4 and 9 changwa respectively

4. *thayoynok* ทยอยนอก สอนถิ่น
sam chan, 2 thon, nathap songmai, 7 and ? changwa respectively
5. *thayoy yuan* ทยอยยวน สอนถิ่น
song chan, 2 thon, nathap songmai, 18 changwa each
6. *thayoy lao* ทยอยลาว
 (no information available)

Vol. 10: Pruang Sutthiumphorn 1938 (2nd edition 1977)

1. *homrong sabadsabing* โหมโรงสะบัดสังข์
 (no information available)
2. *singtolenhang thao* สิงโตเล่นหาง เถา
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
3. *lanthan thao* ลั่นถัน เถา
sam chan 1 thon, nathap songmai, 8 changwa
song chan 1 thon, nathap songmai, 8 changwa
chan dio 1 thon, nathap songmai, 8 changwa
4. *taloompong thao* ตะลุ่มปอง เถา
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
5. *thongyon thao* ทองยอน เถา
sam chan 2 thon, nathap sam chan, 2 and 3 changwa respectively
song chan 2 thon, nathap song chan, 2 and 3 changwa respectively
chan dio 2 thon, nathap chan dio, 2 and 3 changwa respectively
6. *nokkrajabthong thao* นกกระเจาทอง เถา
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
7. *padbot thao* เป็ดบัว เถา
sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each
8. *phoroonsrangfu thao* ฟีรอนสร่างฟ้า เถา
sam chan 1 thon, nathap sam chan, 6 changwa
song chan 1 thon, nathap song chan, 6 changwa
chan dio 1 thon, nathap chan dio, 6 changwa

9. *nokchak thao* นกจ๊ก เต่า

sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa

10. *sukhasem thao* สุขเกษม เต่า

sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa

Vol. 11: Montri Tramote 1950 (3rd edition 1989)

1. *khamen songpradamnoen* เขมรพระนครคำเนิน สามพัน

sam chan, 2 thon, nathap khamen, 6 changwa

2. *somsongsaeng thao* โสมสงสมแสง เต่า

sam chan 3 thon, nathap songmai, 8, 12 and 10 changwa respectively
song chan 3 thon, nathap songmai, 8, 12 and 10 changwa respectively
chan dio 3 thon, nathap songmai, 8, 12 and 10 changwa respectively

3. *khaek kulit thao* เขาคูลิต เต่า

sam chan 1 thon, nathap propkai sadayong, 4 changwa
song chan 1 thon, nathap propkai sadayong, 4 changwa
chan dio 1 thon, nathap propkai sadayong, 4 changwa

4. *hokbot thao* หอกบอท เต่า

sam chan 1 thon, nathap sam chan, 8 changwa
song chan 1 thon, nathap song chan, 8 changwa
chan dio 1 thon, nathap chan dio, 8 changwa

5. *karawek thao* กำรวก เต่า

sam chan 2 thon, nathap sam chan, 4 changwa each
song chan 2 thon, nathap song chan, 4 changwa each
chan dio 2 thon, nathap chan dio, 4 changwa each

6. *hongthong thao* หงษ์ทอง เต่า

sam chan 2 thon, nathap sam chan, 2 and 4 changwa respectively
song chan 2 thon, nathap song chan, 2 and 4 changwa respectively
chan dio 2 thon, nathap chan dio, 2 and 4 changwa respectively

7. *phiromsurang* ภิรมย์สุรางค์ สามพัน

sam chan, 2 thon, nathap propkai, ? changwa

8. *sroymayura thao* สร้อยมยุรา เต่า

sam chan 1 thon, nathap sam chan, 4 changwa
song chan 1 thon, nathap song chan, 4 changwa
chan dio 1 thon, nathap chan dio, 4 changwa

Vol. 12: Montri Tramote 1952 (re-editing by Ongkarn Kleebchun) 4th edition 1989

1. *lao duangdoen* ลาวดวงเดือน
3 *thon*, *nathap lao*, 8, 12 and 10 *changwa* respectively
2. *lao khamhom* ลาวคำหอม
3 *thon*, *nathap songmai*, 16, 12 and 16 *changwa* respectively

Vol. 13: Ongkarn Kleebchun 1955 (2nd edition 1984)

1. *phumahe thao* พญาเห่เห่
sam chan 2 *thon*, *nathap propkai*, 6 *changwa* each
song chan 2 *thon*, *nathap propkai*, 6 *changwa* each
chan dio 2 *thon*, *nathap propkai*, 6 *changwa* each
2. *ar-than thao* อร-than เต่า
sam chan 3 *thon*, *nathap propkai*, 4 *changwa* each
song chan 3 *thon*, *nathap propkai*, 4 *changwa* each
chan dio 3 *thon*, *nathap propkai*, 4 *changwa* each
3. *thayoynai thao* เยาวโยน เต่า
sam chan 3 *thon*, *nathap songmai*
song chan 3 *thon*, *nathap songmai*
chan dio 3 *thon*, *nathap songmai*
4. *lao songkon* ลาวสองคอน ลาดอน
song chan, *nathap lao*, ? *changwa*

Vol. 14: Ongkarn Kleebchun 1956 (2nd edition 1979)

1. *okthalaе thao* ออ-tha-la-tea เต่า
sam chan 2 *thon*, *nathap songmai*, 7 and 6 *changwa* respectively
song chan 2 *thon*, *nathap songmai*, 7 and 6 *changwa* respectively
chan dio 2 *thon*, *nathap songmai*, 7 and 6 *changwa* respectively
2. *thonsamor thao* ทอนสาม เต่า
sam chan 2 *thon*, *nathap propkai*, 4 and 6 *changwa* respectively
song chan 2 *thon*, *nathap propkai*, 4 and 6 *changwa* respectively
chan dio 2 *thon*, *nathap propkai*, 4 and 6 *changwa* respectively
3. *lao siengthian thao* ลาวสิ้งเทียน เต่า
sam chan 2 *thon*, *nathap songmai*, 8 *changwa* each
song chan 2 *thon*, *nathap songmai*, 8 *changwa* each
chan dio 2 *thon*, *nathap songmai*, 8 *changwa* each
4. *choed chin* เต่าจีน
(no information available)
5. *khaek worrachet thao* เขาค้อ เต่า
sam chan 2 *thon*, *nathap propkai*, 2 *changwa* each
song chan 2 *thon*, *nathap propkai*, 2 *changwa* each
chan dio 2 *thon*, *nathap propkai*, 2 *changwa* each

Vol. 15: Ongkarn Kleebuchun 1959 (2nd published 1978)

1. *homrong Kluenkratopfang* โหรงครันกระตาดัง สามชั้น
sam chan, 2 thon, nathap songmai
2. *ratripradabdao thao* รัตปริดาบดาบ เต่า
sam chan 1 thon, nathap propkai, 6 changwa
song chan 1 thon, nathap propkai, 6 changwa
chan dio 1 thon, nathap propkai, 6 changwa
3. *khamen la-or-ong thao* เขมรลือออง เต่า
sam chan 2 thon, nathap propkai, 4 changwa each
song chan 2 thon, nathap propkai, 4 changwa each
chan dio 2 thon, nathap propkai, 4 changwa each

Vol. 16: Ongkarn Kleebuchun 1962 (2nd published 1980)

1. *homrong prathomdusit* โหรงครปฐมดุสิต สามชั้น
sam chan, 2 thon, nathap propkai, 5 and 4 changwa respectively
2. *khaek khao thao* เขาค้อ เต่า
sam chan 2 thon, nathap propkai, 4 changwa each
song chan 2 thon, nathap propkai, 4 changwa each
chan dio 2 thon, nathap propkai, 4 changwa each
3. *suthakansaeng thao* สุธาคันแสง เต่า
sam chan 1 thon, nathap songmai, 14 changwa
song chan 1 thon, nathap songmai, 14 changwa
chan dio 1 thon, nathap songmai, 14 changwa
4. *saenkamnung thao* แสนกำนึ่ง เต่า
sam chan 2 thon, nathap songmai, 16 changwa each
song chan 2 thon, nathap songmai, 16 changwa each
chan dio 2 thon, nathap songmai, 16 changwa each
5. *khom ngoeun thao* เขมรเงื้อง เต่า
sam chan 3 thon, nathap propkai, 3, 4 and 4 changwa respectively
song chan 3 thon, nathap propkai, 3, 4 and 4 changwa respectively
chan dio 3 thon, nathap propkai, 3, 4 and 4 changwa respectively
6. *nokkhaokhamae thao* นกขาคอหมาเห เต่า
sam chan 2 thon, nathap propkai, 4 changwa each
song chan 2 thon, nathap propkai, 4 changwa each
chan dio 2 thon, nathap propkai, 4 changwa each

APPENDIX D

TEMPO MEASUREMENTS IN RECORDED PERFORMANCE

Note: this part is the results of studying *changwa* in terms of tempo. All the *phleng* in the following list are selected from Mr. Um Mongkol's collection of Thai music commercial cassettes. The method of study have been described in chapter 1.1.7.1, 1.1.7.2 and 1.1.7.3 of the main thesis part II. The conclusion can be found in chapter 1.1.7.4 of the same part.

1. PHLENG LIST:

No.	PHLENG	ENSEMBLE	SOURCE
1	<i>bangbai chan song</i>	<i>jakay solo</i>	STV-030
2	<i>chomsaengjan thao</i>	<i>kruang sai psom</i>	VT-15 Vara
3	<i>chomsaengjan thao</i>	<i>mahori</i>	TS-2028
4	<i>karawek thao</i>	<i>khlui trio</i>	VT-06 lotus
5	<i>khaek borrahet thao</i>	<i>pi phat mai khaeng &vocal</i>	006 Prasit
6	<i>khaek mon bangchang chan sam</i>	<i>kruang sai pi chawa</i>	012 Prasit
7	<i>khaek mon bangchang thao</i>	<i>pi phat mai khaeng &vocal</i>	SP.4 Uthis
8	<i>khaek mon bangkhunphrom thao</i>	<i>kruang sai psom</i>	VT-14 Vara
9	<i>khaek lopburi thao</i>	<i>pi phat mai khaeng &vocal</i>	024 Prasit
10	<i>khaek saray chan song</i>	<i>mahori</i>	077 Prasit
11	<i>khamen la-or-ong thao</i>	<i>mahori</i>	TS-2028
12	<i>khamen phothisat chan song</i>	<i>mahori</i>	TS-2028
13	<i>khamen phothisat chan song</i>	<i>pi phat mai khaeng</i>	TS-2024
14	<i>khamen phothisat thao</i>	<i>kruang sai psom</i>	VT-11 Vara
15	<i>khamen rajburi chan sam</i>	<i>pi phat mai khaeng &vocal</i>	007 Prasit
16	<i>khamen saiyok chan sam</i>	<i>pi phat mai nuam</i>	TS-2037
17	<i>khamen saiyok chan sam</i>	<i>kruang sai psom</i>	VT-18 Vara
18	<i>klomnaree thao</i>	<i>kruang sai psom</i>	VT-11 Vara
19	<i>krobjakkawan chan song</i>	<i>pi phat mai nuam</i>	RT-8058
20	<i>kruanha thao</i>	<i>pi phat mai nuam</i>	RT-8058
21	<i>kruanha thao</i>	<i>kruang sai psom</i>	VT-16 Vara
22	<i>lao damnoensai chan song</i>	<i>mahori</i>	TS-2028
23	<i>lao khamhom chan song</i>	<i>mahori</i>	TS-2028
24	<i>lao khamhom chan song</i>	<i>kruang sai Thai</i>	SA.2 Uthis
25	<i>lomhuan chan sam</i>	<i>kruang sai pi chawa</i>	012 Prasit
26	<i>mayuraphirom chan song& dio</i>	<i>pi phat mai nuam</i>	TS-2037
27	<i>mon kruan thao</i>	<i>kruang sai Thai</i>	SA.2 Uthis
28	<i>namlodtaisai chan song</i>	<i>pi phat mai nuam</i>	RT-8058
29	<i>ngeo ramruet chan song&dio</i>	<i>pi phat mai khaeng</i>	TS-2024
30	<i>nokkhaokhmer chan sam &dio</i>	<i>pi phat mon</i>	RT-9401
31	<i>Nokkhao khmer thao</i>	<i>mahori</i>	077 Prasit
32	<i>Nokkhao khmer thao</i>	<i>mahori & vocal</i>	SK.2 Uthis
33	<i>padbot thao</i>	<i>kruang sai psom</i>	VT-18 Vara
34	<i>phama ha thon chan sam</i>	<i>pi phat mai khaeng &vocal</i>	007 Prasit
35	<i>phetnoi chan sam</i>	<i>pi phat mai khaeng</i>	TS-2024
36	<i>phramdidnamtao chan song</i>	<i>pi phat mai nuam&vocal</i>	0047 Inter
37	<i>phramdidnamtao chan song&dio</i>	<i>pi phat mon</i>	RT-9401
38	<i>phramdidnamtao thao</i>	<i>kruang sai psom</i>	VT-11 Vara
39	<i>sarikakaew thao</i>	<i>kruang sai Thai</i>	SA.2 Uthis
40	<i>si nuan chan song</i>	<i>khlui solo</i>	BP-201
41	<i>si nuan chan song</i>	<i>kruang sai psom</i>	RT-8144
42	<i>taokinphakboong chan song</i>	<i>pi phat mai khaeng &vocal</i>	005 Prasit
43	<i>thayoy khamen chan sam</i>	<i>pi phat mai khaeng &vocal</i>	0047 Inter
44	<i>thayoy khamen thao</i>	<i>pi phat mai khaeng &vocal</i>	024 Prasit
45	<i>thongyon thao</i>	<i>kruang sai psom</i>	041 Prasit

2. METRONOME MARKING:

Note: The selected *phleng* on the list above have been measured and analysed in order to have some indication of the tempo used in actual performance. The metronome marking, M.M., is taken from both vocal and music parts. The changes of tempo activities during the performance, either by increasing or dropping the tempo, will be expressed by symbol (-->). If there are more than one steady tempo found in the same *thon*, the M.M. will be underlined.

1. *bangbai chan song*

ensemble: *jakay* solo by kru Pakorn Rodchangphuan

nathap: *songmai*

drum: *klong khaek*

M.M.chan song

thon 1: music = 51

thon 2: music = 51 -->54

2. *chomsaengjan thao*

ensemble: *kruang sai psom*

nathap: *songmai*

drum: *thon-ranmana*

M.M.chan sam

thon 1: music = 39

thon 2: music = 40

thon 3: music = 42

thon 4: music = 46

M.M.chan song

thon 1: music = 52

thon 2: music = 52

thon 3: music = 53

thon 4: music = 54

M.M.chan dio

thon 1: music = 65

thon 2: music = 68

thon 3: music = 68

thon 4: music = 66 -->60 -->54 slow ending

3. *chomsaengjan thao*

ensemble: *mahori*

nathap: *songmai, worrachet*

drum: *klong khaek*

M.M.chan sam

thon 1: music = 44

thon 2: music = 44 -->46

thon 3: music = 50

thon 4: music = 54

M.M.chan song

thon 1: music = 63

thon 2: music = 64

thon 3: music = 67

thon 4: music = 67 -->70

M.M.chan dio

thon 1: music = 94

thon 2: music = 94

thon 3: music = 94

thon 4: music = 94

4. *karawek thao*

ensemble: *khlui* trio by kru Theap Konglathong, kru Yanyong and kru Surachai Dangkoon

nathap: *propkai*

drum: *thon - rammana*

M.M.chan sam

thon 1: music = 43 -->49 -->55

thon 2: music = 59 -->60 -->63

M.M.chan song

thon 1: music = 63 -->66

thon 2: music = 69 -->70

M.M.chan dio

thon 1: music = 77 -->79

thon 2: music = 85 -->65 slow ending

5. khaek borrhathet thaoensemble: *pi phat mai khaeng*nathap: *propkai*drum: *klong song na*M.M.chan samthon 1: vocal = 38 -->42; music = (*pi nai solo*)33 -->35 -->37 -->(ranat ek solo)144 to vocalthon 2: vocal = 44 -->40; music = (*khong wong yai solo*)48 -->88-->

(khong wong lek & ranat thum duet)112 -->116 to vocal

M.M.chan song

thon 1: vocal = 58 -->69; music = 84--> 100 to vocal

thon 2: vocal = 63; music = 104 --> 108 to vocal

M.M.chan dio

thon 1: vocal = 92; music = 116 to vocal

thon 2: vocal = 92 -->120; music = 138 -->160! (to loog mod)

6. khaek mon bangchang chan samensemble: *kruang sai pi chawa* + vocalnathap: *propkai*drum: *klong khaek*M.M.chan sam

thon 1: vocal = 37; music = 59 -->70

thon 2: vocal = 45; music = 58-->67 -->?

thon 3: vocal = 43 -->49; music = 61 -->74

7. khaek mon bangchang thaoensemble: *pi phat mai khaeng* + vocalnathap: *propkai*drum: *klong khaek*M.M.chan sam

thon 1: vocal = 37; music = 69 -->72

thon 2: vocal = 42 -->48; music = 58

thon 3: vocal = 44 -->42 -->?; music = 69 -->80

M.M.chan song

thon 1: vocal = 60; music = 72

thon 2: vocal = 63; music = 72

thon 3: vocal = 58 -->60; music = 69 -->88

M.M.chan dio

thon 1: vocal = 80; music = 88

thon 2: vocal = 87; music = 96

thon 3: vocal = 100; music = 108 -->120

8. khaek mon bangkhunphrom thaoensemble: *kruang sai psom**nathap: propkai, mon*drum: *thon-rammana*M.M.chan sam*thon 1: music = 42**thon 2: music = 42 -->45**thon 3: music = 48 -->50 -->52*M.M.chan song*thon 1: music = 52**thon 2: music = 52 -->56**thon 3: music = 56*M.M.chan dio*thon 1: music = 63**thon 2: music = 65**thon 3: music = 67 --> 50 slow ending***9. khaek lophuri thao**ensemble: *pi phat mai khaeng + vocal**nathap: songmai*drum: *klong khaek*M.M.chan sam*thon 1: vocal = 33 -->40; music = 40 -->51 -->80 -->52 to vocal**thon 2: vocal = 37 -->39 -->41; music = 53 -->59 -->69 --> 76 -->84 -->88 --> to vocal*M.M.chan song*thon 1: vocal = 50; music = 84 --> 67 to vocal**thon 2: vocal = 56; music = 82 --> ? to vocal*M.M.chan dio*thon 1: vocal = 69; music = 126**thon 2: vocal = 76; music = 156***10. khaek saray chan song**ensemble: *mahori**nathap: propkai*drum: *thon-rammana*M.M.chan song*thon 1: music = 37 -->44**thon 2: music = 36 -->50**thon 3: music = 39 -->53 -->57 --44*

11. khamen la-or-ong thaoensemble: *mahori**nathap: propkai*drum: *klong khaek*M.M.chan sam*thon 1: music = 49 -->51**thon 2: music = 56*M.M.chan song*thon 1: music = 58**thon 2: music = 58 -->63*M.M.chan dio*thon 1: music = 71**thon 2: music = 71 -->75***12. khamen phothisat chan song**ensemble: *mahori**nathap: propkai*drum: *klong khaek*M.M.chan song*thon 1: music = 53**thon 2: music = 56**thon 3: music = 60***13. khamen phothisat chan song**ensemble: *pi phat mai khaeng**nathap: propkai*drum: *klong khaek*M.M.chan song*thon 1: music = 48 -->52 -->56**thon 2: music = 54 -->56**thon 3: music = 57 -->58 -->60 -->55 slow ending***14. khamen phothisat thao**ensemble: *kruang sai psom**nathap: propkai*drum: *thon-rammana*M.M.chan sam*thon 1: music = 41**thon 2: music = 49**thon 3: music = 54*

M.M.chan song*thon* 1: music = 56*thon* 2: music = 56*thon* 3: music = 58M.M.chan dio*thon* 1: music = 63*thon* 2: music = 67*thon* 3: music = 74**15. khamen rajburi chan sam**ensemble: *pi phat mai khaeng* + vocal*nathap*: *songmai*drum: *klong song na*M.M.chan sam*thon* 1: vocal = 37; music = 60 -->63 -->(126!) -->69 -->76 to vocal*thon* 2: vocal = 40 -->48; music = 57 -->63 --> 72 --> 76 --> 186! (to *loog mod*)**16. khamen sai yok chan sam**ensemble: *pi phat mai nuam**nathap*: *propkai*drum: *klong khaek*M.M.chan sam*thon* 1: music = 46 -->50*thon* 2: music = 56 -->63**17. khamen sai yok chan sam**ensemble: *kruang sai psom**nathap*: *propkai*drum: *klong khaek*M.M.chan sam*thon* 1: music = 40*thon* 2: music = 43**18. klomnaree thao**ensemble: *kruang sai psom**nathap*: *propkai*drum: *thon-rammana*M.M.chan sam*thon* 1: music = 40*thon* 2: music = 46

M.M.chan song*thon 1: music = 54 -->57**thon 2: music = 56*M.M.chan dio*thon 1: music = 64**thon 2: music = 69***19.krobjakkawan chan song***ensemble: pi phat mai nuam**nathap: propkai**drum: klong khaek*M.M.chan song*thon 1: music = 56 -->60***20. kruanha thao***ensemble: pi phat mai nuam**nathap: songmai, kruanha**drum: klong khaek*M.M.chan sam*thon 1: music = 54 -->63**thon 2: music = 63 -->66/ 67*M.M.chan song*thon 1: music = 67**thon 2: music = 69*M.M.chan dio*thon 1: music = 77**thon 2: music = 87***21. kruanha thao***ensemble: kruang sai psom**nathap: songmai**drum: thon-rammana*M.M.chan sam*thon 1: music = 39 -->42*M.M.chan song*thon 1: music = 49*M.M.chan dio*thon 1: music = 68*

22. lao damnoensai chan songensemble: *mahori**nathap: songmai lao*drum: *klong khaek*M.M.chan song*thon 1: music = 46**thon 2: music = 57***23. lao khamhom chan song**ensemble: *mahori**nathap: songmai lao*drum: *klong khaek*M.M.chan song*thon 1: music = 49**thon 2: music = 54**thon 3: music = 60***24. lao khamhom chan song**ensemble: *kruang sai**nathap: songmai*drum: *thon-rammana*M.M.chan song*thon 1: music = 73**thon 2: music = 74 -->75**thon 3: music = 75***25. lomhuan**ensemble: *kruang sai pi chawa + vocal**nathap: propkai*drum: *klong khaek*M.M.chan sam*thon 1: vocal = 52; music = 63 -->67**thon 2: vocal = 43; music = 72-->?***26. mayuraphirom chan song &chan dio**ensemble: *pi phat mai nuam**nathap: songmai*drum: *klong khaek*M.M.chan song*thon 1: music = 68*M.M.chan dio*thon 1: music = 80*

27. *mon kruan thao*ensemble: *kruang sai*nathap: *songmai*drum: *thon-rammana*M.M.chan sam

thon 1: music = 55 -->65

thon 2: music = 72

M.M.chan song

thon 1: music = 76

thon 2: music = 78

M.M.chan dio

thon 1: music = 103

thon 2: music = 103

28. *namlodtaisai chan song*ensemble: *pi phat mai nuam*nathap: *propkai*drum: *klong khaek*M.M.chan song

thon 1: music = 69

thon 2: music = 73

29. *ngeo ramruek chan song & chan dio*ensemble: *pi phat mai khaeng*nathap: *propkai*drum: *klong khaek*M.M.chan song

thon 1: music = 84 -->86

thon 2: music = 88

M.M.chan dio

thon 1: music = 90 -->92

thon 2: music = 95 -->105 (to loog mod)

30. *nokkhao khmer chan sam & chan dio*ensemble: *pi phat mon*

nathap: ?

drum: *taphon mon & perng mang khuak*M.M.chan sam

thon 1: music = 50 -->53

thon 2: music = 61 -->66

M.M.chan dio*thon* 1: music = 76*thon* 2: music = 80**31. nokkhao khmer thao**ensemble: *mahori**nathap*: *songmai*drum: *thon-rammana*M.M.chan sam*thon* 1: music = 43 -->48*thon* 2: music = 47 -->50M.M.chan song*thon* 1: music = 52*thon* 2: music = 60M.M.chan dio*thon* 1: music = 74*thon* 2: music = 75**32. nokkhao khmer thao**ensemble: *mahori**nathap*: *songmai chan sam, propkai chan song* and *propkai chan dio*drum: *thon-rammana*M.M.chan sam*thon* 1: vocal = 31 -->36;music = 47 -->54 -->58 -->60-->47 to vocal*thon* 2: vocal = 36 -->40;music = 62 -->68 -->76--> 81to vocalM.M.chan song*thon* 1: vocal = 54 -->60;music = 71 -->77 -->65 to vocal*thon* 2: vocal = 58 -->62;music = 80 to vocalM.M.chan dio*thon* 1: vocal = 79;music = 79 -->84 -->86 to vocal*thon* 2: vocal = 77 ;music = 91 -->104 -->122 (to *loog mod*)**33. padbot thao**ensemble: *kruang sai psom**nathap*: *propkai*drum: *klong khaek*M.M.chan sam*thon* 1: music = 42 -->47*thon* 2: music = 49

M.M.chan song

thon 1: music = 47 -->50

thon 2: music = 52

M.M.chan dio

thon 1: music = 69

thon 2: music = 69

34. phama ha thon chan sam

ensemble: *pi phat mai khaeng* + vocal

nathap: *songmai*

drum: *klong song na*

M.M.chan sam

thon 1: vocal = 32;music = 42 -->50-->58-->63-->76-->84 to vocal

thon 2: vocal = 42;music = 48 -->72--> ? --> to vocal

thon 3: vocal = 40;music = 80 --> to vocal

thon 4: vocal = 42;music = 80 --> 84 to vocal

thon 5: vocal = 40;music = 85 --> 164-->176 (to *loog mod*)

35. phetnoi chan sam

ensemble: *pi phat mai khaeng*

nathap: *propkai*

drum: *klong khaek*

M.M.chan sam

thon 1: music = 45 -->50-->54

36. phramdidnamtao chan song

ensemble: *pi phat mai nuam* + vocal

nathap: *songmai*

drum: *taphon*

M.M. chan song: 54 (one *thon* only)

37. phramdidnamtao chan song & chan dio

ensemble: *pi phat mon*

nathap: ?

drum: *taphon mon* & *perng mang khuak*

M.M.chan song

thon 1: music = 66 -->67-->71

M.M.chan dio

thon 1: music = 96

38. phramdidnamtao thaoensemble: *kruang sai psom**nathap: songmai*drum: *thon-rammana*M.M.chan sam*thon 1: music = 38 -->42 -->46*M.M.chan song*thon 1: music = 49*M.M.chan dio*thon 1: music = 72***39. sarikakaew thao**ensemble: *kruang sai**nathap: songmai*drum: *thon-rammana*M.M.chan sam*thon 1: music = 47 -->51**thon 2: music = 45*M.M.chan song*thon 1: music = 80**thon 2: music = 80 -->87*M.M.chan dio*thon 1: music = 87**thon 2: music = 90 -->95*Instruments solo parts-->101-->116-->120 -->122 -->121 -->126 -->132 -->144 (*loog mod*)**40. si nuan chan song**ensemble: *khlui* solo by kru Boonchuay Sowat*nathap: songmai*drum: *thon - rammana*M.M.chan song*thon 1: music = 51**thon 2: music = 54**thon 1: music = 53**thon 2: music = 57 -->52*

41. si nuan chan songensemble: *kruang sai psom**nathap*: ?drum: (note: this *phleng* is accompanied by drum machine!)M.M.chan song*thon* 1: music = 63*thon* 2: music = 63*thon* 1: music = 63*thon* 2: music = 63**42. taokinphakboong chan song**ensemble: *pi phat mai khaeng* + vocal*nathap*: *propkai*drum: *klong song na*M.M.chan song*thon* 1: vocal = 39; music = 100!*thon* 2: vocal = 49; music = 93*thon* 3: Vocal = 46; music = 110 -->176 ! (to loog mod)**43. thayoy khamen chan sam**ensemble: *pi phat mai khaeng* + vocal*nathap*: *songmai*drum: *klong song na*M.M. chan sam*thon* 1: vocal = 37 -->40; music = 50 -->54 -->62 --?????---->106-->60*thon* 2: vocal = 36 -->45; music = 48-->65 -->69 -->77**44. thayoy khamen thao**ensemble: *pi phat mai khaeng* + vocal*nathap*: *songmai*drum: *klong khaek*M.M.chan sam*thon* 1: vocal = 37; music = 44 -->46 -->58 -->66 to vocal*thon* 2: vocal = 33 -->35 -->41; music = 48 -->60 --> 76 --> ? --> to vocalM.M.chan song*thon* 1: vocal = 58; music = 108 --> to vocal*thon* 2: vocal = 66; music = 132 --> 138 to vocalM.M.chan dio*thon* 1: vocal = 80 -->120; music = 126 to vocal*thon* 2: vocal = 96; music = 132 -->141 -->147 (to loog mod)

45. thongyon thao

ensemble: *kruang sai psom*

nathap: propkai

drum: *thon-rammana*

M.M.chan sam

thon 1: music = 38 -->45

thon 2: music = 48 -->50 -->55

M.M.chan song

thon 1: music = 56

thon 2: music = 58 -->61 -->68

M.M.chan dio

thon 1: music = 77 -->79

thon 2: music = 79 -->81 -->56 --> slow down

3. Tempo measurements of all ensemble types

3.1 Ensemble code:

- A = *pi phat* family
 A1 = *pi phat mai kraeng* only
 A2 = *pi phat mai kraeng* with vocal
 A3 = *pi phat mai nuam* only
 A4 = *pi phat mai nuam* with vocal
 A5 = *pi phat non*
- B = *mahori* family
 B1 = *mahori* only
 B2 = *mahori* with vocal
- C = *kruang sai* family
 C1 = *kruang sai 'Thai'*; 'traditional' *kruang sai*
 C2 = *kruang sai psom*; 'Modern *kruang sai*' with Organ, Violin, Electone etc.
 C3 = *kruang sai pi chawa* (with vocal)

D = Special ensemble

- D1 = *jakay* solo
 D2 = *khutai* solo
 D3 = *khutai* trio

3.2 Drum type code:

- TP = *taphon*
 TR = *than - rammana*
 KK = *kleng khaek*
 SN = *kleng song na*; *song na* in short
 TPM = *taphon non*
 PMK = *perng mang khuak*
 DM = Drum machine (!)

3.3 tempo measurement: all ensemble types

ref. NO.	PHLENG	Ensemble type	Drum type used in performance	t	chan sam				chan song				chan dio			
					vocal		instrument		vocal		instrument		vocal		instrument	
				h	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
1	<i>bangbat chan song</i>	D1	KK	1												
				2												
2	<i>chomsaengjan thao</i>	C2	TR	1		39	39	39							65	65
				2		40	40	40							68	68
				3		42	42	42							68	68
				4		46	46	46							54	66
3	<i>chomsaengjan thao</i>	B1	KK	1		44	44	44								
				2		44	46	46								
				3		50	50	50								
				4		54	54	54								
4	<i>karavek thao</i>	D3	TR	1		43	55	55							77	79
				2		59	63	63							65	85
5	<i>khak borathet thao</i>	A2	SN	1	38	42	33	144	58	69	84	100	92	92	116	116
				2	40	44	48	116	63	63	104	108	92	120	138	160
6	<i>khak mon bangchang chan sam</i>	C3	KK	1	37	37	59	70								
				2	45	45	58	67								
				3	43	49	61	74								
7	<i>khak mon bangchang thao</i>	A2	SN	1	37	37	69	72	60	60	72	72	80	80	88	88
				2	42	48	58	58	63	63	72	72	87	87	96	96
				3	42	44	69	80	58	60	69	88	100	100	108	120

20	<i>kruanha thao</i>	A3	KK	1			54	63			67	77	77	77	
				2			63	67			69	87	87	87	
21	<i>kruanha thao</i>	C2	TR	1			39	42			49	68	68	68	
22	<i>lao damneusai chan song</i>	B1	KK	1							46	46			
				2							57	57			
23	<i>lao khamhom chan song</i>	B1	KK	1							49	49			
				2							54	54			
				3							60	60			
24	<i>lao khamhom chan song</i>	C1	TR	1							73	73			
				2							74	75			
				3							75	75			
25	<i>lonhuan chan sam</i>	C3	KK	1	52	52	63	76							
				2	43	43	72	72							
26	<i>mayuraphirom chan song & dio</i>	A3	KK	1							68	68	80	80	
27	<i>mon kruan thao</i>	C1	TR	1			55	65			76	76	103	103	
				2			72	72			78	78	103	103	
28	<i>namlodlatxai chan song</i>	A3	KK	1							69	69			
				2							73	73			
29	<i>ngao ramruak chan song & dio</i>	A1	KK	1							84	86	90	92	
				2							88	88	95	105	
30	<i>nekkhao khmer chan sam & dio</i>	A5	TPM, PMK	1			50	53					76	76	
				2			61	66					80	80	
31	<i>nekkhao khmer thao</i>	B1	TR	1			43	48			52	52	74	74	
				2			47	50			60	60	75	75	
32	<i>nekkhao khmer thao</i>	B2	TR	1	31	36	47	60	54	60	65	77	79	79	86
				2	36	40	62	81	58	62	80	80	77	77	122
33	<i>padbet thao</i>	C2	KK	1			42	47			47	50	69	69	
				2			49	49			52	52	69	69	

minimum > maximum	31	52	33	186	39	69	36	176	69	129	50	160
AVERAGE minimum > AVERAGE maximum	31	42	52	64	56	57	64	67	84	91	92	98
AVERAGE	37		58		57		66		88			86

4. Tempo measurement of some selected *phleng*

ref. NO.	PHLENG	Ensemble type	Drum type used in performance	t	chan sam				chan song				chan dio			
					vocal		instrument		vocal		instrument		vocal		instrument	
					min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2	<i>chomsaengjan thao</i>	C2	TR	1			39	39			52	52			65	65
				2			40	40			52	52			68	68
				3			42	42			53	53			68	68
				4			46	46			54	54			54	66
3	<i>chomsaengjan thao</i>	B1	KK	1			44	44			63	63				
				2			44	46			64	64				
				3			50	50			67	67				
				4			54	54			67	70				
minimum --> maximum							39	54			52	70			54	68
average minimum --> average maximum							45	45			59	59			64	67
average							45				59				66	
6	<i>khatek non bangchang chan sam</i>	C3	KK	1	37	37	59	70								
				2	45	45	58	67								
				3	43	49	61	74								
7	<i>khatek non bangchang thao</i>	A2	SN	1	37	37	69	72	60	60	72	72	80	80	88	88
				2	42	48	58	58	63	63	72	72	87	87	96	96
				3	42	44	69	80	58	60	69	88	100	100	108	120
minimum --> maximum					37	49	58	80	58	63	69	88	80	100	88	120
average minimum --> average maximum					41	43	52	70	50	51	71	73	89	89	97	92
average					42		66		61	74		89		95		

12	<i>khamen phothisat chan song</i>	B1	KK	1						53	53		
				2						56	56		
				3						60	60		
13	<i>khamen phothisat chan song</i>	A1	KK	1						42	56		
				2						54	56		
				3						55	60		
14	<i>khamen phothisat thao</i>	C2	TR	1			41	41		56	56	63	63
				2			49	49		56	56	67	67
				3			54	54		58	58	74	74

minimum --> maximum													
average minimum --> average maximum													
average													
							41	54		42	60	63	74
							48	48		54	58	68	68
							48			56		68	

16	<i>khamen saiyeok chan sam</i>	A3	KK	1			46	50					
				2			56	63					
17	<i>khamen saiyeok chan sam</i>	C2	KK	1			40	40					
				2			43	43					

minimum --> maximum													
average minimum --> average maximum													
average													
							43	63					
							46	49					
							48						

20	<i>kraunha thao</i>	A3	KK	1			54	63		67	67	77	77
				2			63	67		69	69	87	87
21	<i>kraunha thao</i>	C2	TR	1			39	42		49	49	68	68

minimum --> maximum													
average minimum --> average maximum													
average													
							39	67		49	69	68	87
							52	57		62	62	77	77
							55			62		77	

23	<i>lao khianhem chan song</i>	B1	KK	1						49	49		
				2						54	54		
				3						60	60		
24	<i>lao khianhem chan song</i>	C1	TR	1						73	73		
				2						74	75		
				3						75	75		

minimum --> maximum												
average minimum --> average maximum												
average												
64												

30	<i>nokkhaokhmer chan sam &dio</i>	A5	TPM, PMK	1		50	53						76	76	
				2		61	66						80	80	
31	<i>nokkhaokhmer thao</i>	B1	TR	1		43	48			52	52		74	74	
				2		47	50			60	60		75	75	
32	<i>nokkhaokhmer thao</i>	B2	TR	1	31	36	47	60	54	60	65	77	79	79	86
				2	36	40	62	81	58	62	80	80	77	77	122

minimum --> maximum												
average minimum --> average maximum												
average												
36												
31												
34												
36												
40												
43												
45												
52												
56												
59												
62												
64												
66												
77												
78												
80												
83												

36	<i>phrandidhantao chan song</i>	A4	TP	1						54	54			
37	<i>phrandidhantao chan song &dio</i>	A5	TPM, PMK							66	71		96	96
38	<i>phrandidhantao thao</i>	C2	TR			38	46			49	49		72	72

minimum --> maximum												
average minimum --> average maximum												
average												
42												
38												
38												
42												
46												
49												
56												
57												
71												
72												
84												
84												

40	<i>si nuan chan song</i>	D2	TR	1	2	3	4	51	51					
				2				54	54					
				3				53	53					
				4				52	57					
41	<i>si nuan chan song</i>	C2	DM	1				63	63					
				2				63	63					
				3				63	63					
				4				63	63					

minimum --> maximum													
average minimum --> average maximum													
average													
58													

43	<i>thavoy khamen chan sam</i>	A2	SN	1	37	40	50	48						
				2	36	45	106	77						
44	<i>thavoy khamen thao</i>	A2	KK	1	37	37	44	66	58	58	108	108	80	120
				2	33	41	48	76	66	66	132	138	96	132
													96	132
													147	147

minimum --> maximum													
average minimum --> average maximum													
average													
39													
65													
62													
122													
98													
133													

30	<i>nekhae kimer chan sam & dio</i>	A5	TPM, PMK	1				50	53									76	76		
				2				61	66									80	80		
34	<i>phama ha then chan sam</i>	A2	SN	1	32	32	42	42	84												
				2	42	42	48	72													
				3	40	40	80	80													
				4	42	42	80	80													
				5	40	40	85	176													
35	<i>phetnoi chan sam</i>	A1	KK	1			45	54													
36	<i>phramidhantao chan song</i>	A4	TP	1						54	54										
37	<i>phramidhantao chan song & dio</i>	A5	TPM, PMK							66	71							96	96		
42	<i>taekinhakheong chan song</i>	A2	SN	1								39	39	100	100						
				2								49	49	93	93						
				3								46	46	110	176						
43	<i>thayy khamen chan sam</i>	A2	SN	1	37	40	50	106													
				2	36	45	48	77													
44	<i>thayy khamen thao</i>	A2	KK	1	37	37	44	66				58	58	108	108	80	120	126	126		
				2	33	41	48	76				66	66	132	138	96	96	132	147		
										minimum --> maximum		32	48	33	186	69	120	76	160		
										average minimum --> average maximum		38	41	67	83	86	93	104	108		
										average		40		70		90		106			

6. tempo measurements of *mahori* ensembles

ref NO.	PHLENG	Ensemble type	Drum type used in performance	t	chan sam				chan song				chan dio			
					vocal		instrument		vocal		instrument		vocal		instrument	
					min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
3	<i>chemsaengjan thao</i>	B1	KK	1			44	44			63	63				
				2			44	46			64	64				
				3			50	50			67	67				
				4			54	54			67	70				
10	<i>khaek saray chan song</i>	B1	TR	1							37	44				
				2							36	50				
				3							39	57				
11	<i>khamen la er eng thao</i>	B1	KK	1			49	51			58	58			71	71
				2			56	56			58	63			71	75
12	<i>khamen phethisat chan song</i>	B1	KK	1							53	53				
				2							56	56				
				3							60	60				
22	<i>lao damnoensai chan song</i>	B1	KK	1							46	46				
				2							57	57				
23	<i>lao Khamhem chan song</i>	B1	KK	1							49	49				
				2							54	54				
				3							60	60				
31	<i>nokkhae khmer thao</i>	B1	TR	1			43	48			52	52			74	74
				2			47	50			60	60			75	75
32	<i>nokkhae khmer thao</i>	B2	TR	1	31	36	47	60	54	60	65	77	79	79	79	86
				2	36	40	62	81	58	62	80	80	77	77	91	122

minimum --> maximum	31	40	43	81	54	62	36	80	77	79	71	122
average minimum --> average maximum	34	38	50	54	56	61	56	69	78	78	77	84
average	36		52		59		58		78		81	

7. tempo measurements of *krung sai* ensembles

ref. NO	PHLENG	Ensemble type	Drum type used in performances	t	chan sam				chan song				chan dio			
					vocal		instrument		vocal		instrument		vocal		instrument	
					min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2	<i>chemsaengsan thao</i>	C2	TR	1			39	39			52	52			65	65
				2			40	40			52	52			68	68
				3			42	42			53	53			68	68
				4			46	46			54	54			54	66
6	<i>khak nen bangchang chan sam</i>	C3	KK	1	37	37	59	70								
				2	45	45	58	67								
				3	43	49	61	74								
8	<i>khak nen bangkhunphrom thao</i>	C2	TR	1			42	42			52	52			63	63
				2			42	45			52	56			65	65
				3			48	52			56	56			50	67
14	<i>khamen phothisa thao</i>	C2	TR	1			41	41			56	56			63	63
				2			49	49			56	56			67	67
				3			54	54			58	58			74	74
17	<i>khamen saiyeok chan sam</i>	C2	KK	1			40	40								
				2			43	43								
18	<i>klonnaree thao</i>	C2	TR	1			40	40			54	57			64	64
				2			46	46			56	56			69	69
21	<i>kruttha thao</i>	C2	TR	1			39	42			49	49			68	68
24	<i>lao khamhem chan song</i>	C1	TR	1							73	73				
				2							74	75				
				3							75	75				

25	<i>lomhuan chan sam</i>	C3	KK	1	52	52	63	76											
				2	43	43	72	72											
27	<i>mon kuan thao</i>	C1	TR	1			55	65					76						103
				2			72	72					78						103
33	<i>paebet thao</i>	C2	KK	1			42	47					47						69
				2			49	49					52						69
38	<i>phramdichantao thao</i>	C2	TR				38	46					49						72
39	<i>sarikakaw thao</i>	C1	TR	1			47	51					80						87
				2			45	45					80						90
41	<i>si man chan song</i>	C2	DM	1									63						
				2									63						
				3									63						
				4									63						
45	<i>thongyon thao</i>	C2	TR	1			38	45					56						77
				2			48	55					58						56

minimum --> maximum		37	52	38	76								47	87					50	144
average minimum --> average maximum		44	45	48	52								60	61					71	76
average		45		50									61						79	

8. Summary of tempo measurements

8.1 Summary of minimum/ maximum tempo markings

Ensemble type	chan sam				chan song				chan dio			
	vocal		instrument		vocal		instrument		vocal		instrument	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
<i>pi phat</i>	32	48	33	186	39	69	42	176	69	120	76	160
<i>mahori</i>	31	40	43	81	54	62	36	80	77	79	71	122
<i>kruang sai</i>	37	52	38	76	-	-	47	87	-	-	50	144
all	31	52	33	186	39	69	36	176	69	120	50	160

8.2 Summary of average minimum/ maximum tempo markings

Ensemble type	chan sam				chan song				chan dio			
	vocal		instrument		vocal		instrument		vocal		instrument	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
<i>pi phat</i>	38	41	67	83	56	56	78	84	86	93	104	108
<i>mahori</i>	34	38	50	54	56	61	56	69	78	78	77	84
<i>kruang sai</i>	44	45	48	52	-	-	60	61	-	-	71	76
all	31	42	52	64	56	57	64	67	84	91	92	98

8.3 Summary of average tempo markings

Ensemble type	chan sam		chan song		chan dio	
	vocal	instrument	vocal	instrument	vocal	instrument
<i>pi phat</i>	40	70	56	81	90	106
<i>mahori</i>	36	52	59	58	78	81
<i>kruang sai</i>	45	50	-	61	-	79
all	37	58	57	66	88	86

8.4 tempo measurements of *phleng* having the same title

2+3	minimum --> maximum		39	54		52	70				54	68
	average minimum --> average maximum		45	45		59	59				64	67
	average			45			59					66

6+7	minimum --> maximum	37	49	58	80	58	63	69	88	80	100	88	120
	average minimum --> average maximum	41	43	52	70	50	51	71	73	89	89	97	92
	average	42		66		61		74		89		95	

12+13+14	minimum -> maximum			41	54			42	60			63	74
	average minimum --> average maximum			48	48			54	58			68	68
	average			48				56				68	

9. METRONOME MARKING FROM OTHER SOURCES:

9.1 A complete score (Western notation) for *phleng homerong yen* suite, published by the Fine Arts Department, 1950. The original transcription was transcribed by Phra Chen Duriyanga and his music students in 1930.

ensemble: *pi phat kruang yai*

nathap : (variously; similar name to the *phleng* titles)

drum: *taphon & klong thad*

<u>phleng title:</u>	<u>M.M. indication</u>
<i>sathukarn</i>	63
<i>tra yapakkuak</i>	63
<i>tra plaiphralak</i>	-
<i>tra manlamom</i>	-
<i>rua samla</i>	50
<i>tonchup</i>	60
<i>kaoman</i>	-
<i>ptom</i>	-
<i>la</i>	-
<i>samer</i>	poco a poco accel.
<i>rua la dio</i>	Largamente, accel.
<i>choed chan song</i>	92
<i>choed chan dio</i>	-
<i>klom</i>	L'istesso tempo
<i>chamnan</i>	-
<i>kraw nai</i>	-
<i>tonchub</i>	-
<i>la</i>	-

9.2 *phleng khaek mon thao*

music transcribed by Somsak Ketukaenchan, 1984 from tape SP.16 Uthis

ensemble: *pi phat mai khaeng* + vocal

nathap: *propkai*

drum: *klong khaek*

M.M.chan sam

thon 1: vocal = 46; music = 56 -->faster etc. -->116 --> to vocal

thon 2: vocal = 50; music = 60 -->faster etc. --> to vocal

thon 3: vocal = 54; music = 60 -->faster etc. --> ending slow to vocal

M.M.chan song

thon 1: vocal = 46; music = 56 -->faster etc. --> to vocal

thon 2: vocal = 48; music = 80 -->faster etc. --> to vocal

thon 3: vocal = 48; music = ?

M.M.chan dio

thon 1: vocal = 56;music = 76 --> to vocal

thon 2: vocal = 76;music = 84 --> to vocal

thon 3: vocal = 84;music = 92 --> to Loog Mod

10. METRONOME MARKING FROM AUTHIOR'S PERFORMANCE:

music transcribed by Anant Narkong, 1990 from the S.O.A.S. video recordings.

(i) *phleng si nuan chan song*

ensemble: *khong wong yai + ching+taphon+klong khaek*

nathap: propkai

drum: *taphon &klong khaek*

M.M.chan song

thon 1: 35 --> 40

thon 2: 43

thon 3: 43

thon 4: 44 --> 46 -->33 slow ending

(ii) *phleng khaek horrathet thao*

ensemble: *khong wong yai + ching+taphon+klong khaek*

nathap: propkai

drum: *taphon &klong khaek*

M.M.chan sam

thon 1: 41 --> 43

thon 2: 46 --> 47 -->50

M.M.chan song

thon 1: 50 --> 53

thon 2: 53 --> 54

M.M.chan dio

thon 1: 57 -->58

thon 2: 60 -->50 slow ending

APPENDIX E
GLOSSARY OF THAI MUSICAL TERMS

Note: This glossary is intended to clarify the terminology used in this research. Due to the lack of traditional music vocabulary, thus it is necessary to formulate some new terms from the context of everyday conversation into this study. The traditional words will be shown in bold type whereas the new terms will be bold and italic.

bandor บัณเฑาะว์: a small hand drum.

chab ฉับ: a damped stroke of a *ching*.

chab lek ฉาบเล็ก: a pair of medium-sized hand cymbal.

chab yai ฉาบใหญ่: a pair of large-sized hand cymbal.

chan ชัน: A metrical level in a *phleng*.

chan dio ชันเดียว: the shortest length of metrical level in the *thao*.

chan sam ชันสาม: the longest metrical level in a *phleng thao*. This term is traditionally called *sam chan*.

chan song ชันสอง: the medium metrical level in a *phleng thao*. This term is traditionally called *song chan*.

changwa จังหวะ: the 'universal' definition which covers every aspect of rhythm (pulse, beat, meter, phrase, tempo, etc.) in Thai music. It is also commonly used in the context of measurement.

changwa chab จังหวะฉับ: the period of time which starts after the preceding *ching* stroke and ends on the *chab* stroke. To put it another way, a *changwa chab* begins on hearing the *ching* stroke and finishes on hearing the *chab* stroke of the *ching*.

changwa ching จังหวะฉิ่ง: the period of time which starts after the preceding *chab* stroke and ends on the *ching* stroke. The alternative formulation can be also given in a similar way to that of *changwa chab* mentioned above.

changwa ching-chab จังหวะฉิ่ง-ฉับ: the period of *changwa* comprising a *changwa ching* and a *changwa chab*.

changwa dio จังหวะเดี่ยว: general term to represent the period of time between two *dio*, in other words either a *changwa ching* or a *changwa chab*. This term is also often referred to as *dio* for simplicity.

changwa kroeng จังหวะครึ่ง: One half of the duration of a *changwa dio*.

changwa kroeng siew จังหวะครึ่งเดียว: One eighth of the duration of a *changwa dio*.

changwa nathap จังหวะหน้าทับ or **nathap** หน้าทับ: One cycle of a drum pattern in a composition. By tradition, the length of a *thon* is measured into a number of *changwa nathap*, referred to only as *changwa* for short.

changwa siew จังหวะเดียว: One quarter of the duration of a *changwa dio*.

changwa siew siew จังหวะเดียวเดียว: One sixteenth of the duration of a *changwa dio*.

ching ฉิ่ง: 1) a pair of small hand cymbals.

2) the ringing sound produced when the two part of cymbals are struck together sharply and immediately pulled apart. This sound is considered to be the weak accent of the *changwa ching*.

dhon ดอน : 'adlib'; freely improvisation without any pre-composed melodic/rhythmic pattern.

dio เดี่ยว: the rhythmic position which a *ching* or *chab* strokes sounds; called respectively *dio ching* and *dio chab*.

dontri&nattayasilpa ดนตรี & นาฏศิลป์: music and drama

hoon หุ่น: the body of the drum.

keb เก็บ: A technique of performance practice; to play in full melody. It can notated into 4 notes per 1 bar in the Thai notation system, or by demisemiquaver figuration in the western 2/4. In the drumming technique, the *keb* is a technique to embellishing the *nathap noeur* by filling the strokes in any available gap/space of the basic *nathap*.

khad ขัด: syncopation

khaek แขก : foreign; the term related to the Malay, Java, and Indian connection with Thai music.

khon โขน: mask drama

khong wong yai มโหรีวงใหญ่ : A circle of gong-kettle consisting of 16 tuned gongs placed horizontally in order of pitch from low to high in a rattan rack. The *khong wong yai* player sits in the middle of circular frame and plays the gongs with two mallets.

klong กลอง : A generic word for drum

klong chana กลองชนะ : a cylindrical drum with two unequal-sized heads. The drum is suspended from the straps over the shoulders when played while standing or marching. This drum is mainly used in the royal procession.

klong jeen กลองจีน: Literally, a 'Chinese' drum. It is a drum made in barrel shaped similar to the Chinese vertically suspended drum - *tunggu* - and beaten by a pair of a sticks. This drum is used in the *pi phat* and *mahori* ensembles when perform the music in Chinese accent, *phleng phasa chin*.

klong khaek กลองแขก: a cylindrical drum with two unequal-sized heads. This drum is always used as one of a pair played by two musicians. One drum is higher-pitched than the other and is known as *tua phoo*, the 'male'. The lower-pitched drum is, therefore, called the 'female' drum, *tua mea*. The drum replaces the *taphon* in the *pi phat* ensemble and the *thon-rammana* combination in the *mahori* and *kruang sai* ensembles.

klong malayu กลองมลายู: a pair of cylindrical drum with two unequal-sized heads. A higher-pitched is called *tua phoo*, the 'male', and a lower-pitched is called *tua mea*, the 'female'. In performance, the larger head of the drum is beaten by the stick, whereas the smaller one is beaten by hand. It is used in funeral music as a rhythmic part of the *pi phat nang hong* or the *wong bua loi*.

klong phayang กลองพยางค์ : the drum notation based on Thai syllables.

klong song na กลองสองหน้า (or **song na** สองหน้า in short): The drum built in the similar structure to the *taphon* but has longer and smaller body and not fixed with the stand. It replaces the regular *taphon* in the *pi phat* ensemble when it accompanies the *sepha* (chanted epics) and *sepha* style compositions - such as those in *thao* or variation form - which have vocal sections. The lighter sound of the *song na* is more suitable for vocal accompaniment. The *song na* plays a rhythmic line very much like the *taphon*, but it uses fewer different types of strokes.

klong taphon กลองตะโพน: a pair of *taphon* laid on top of a special stand and beaten on the big heads by the soft hammers. It is used in the *pi phat dukdamban* ensemble when accompanying the *lakon dukdamban* performance (dance drama in opera form). The rhythmic pattern of this drum is that of the *klong thad* pattern and always played alternately with the *taphon* one which is beaten by hands.

klong thad กลองทัด: a pair of large barrel-shaped drums which beaten by a pair of sticks. It consists of a higher-pitched drum, *tua phoo* (the 'male' drum) and a lower-pitched drum, *tua mea* (the 'female' drum). The drum is used in the *pi phat* ensemble when performing the Buddhist ceremony, *wai kru* ceremony, dance drama and the concert music.

klong ting กลองตึง: a pair of medium barrel-shaped drums which beaten by a pair of sticks. It consists of a higher-pitched and a lower-pitched drum. The drum is used in the *pi phat kruang khoo* ensemble (the double *pi phat* ensemble) when accompanying the *nang yai* (shadow puppets) performance.

klong tuk กลองตุ๊ก: a pair of small barrel-shaped drums which beaten by a pair of sticks. It consists of a higher-pitched and a lower-pitched drum. The drum is used in the *pi phat chartri* ensemble and plays interlocking pattern with the *thon chartri*.

klong yao กลองยาว: a goblet-shaped drum made of wood with a single head. This drum is used to accompany the entertainment music in informal occasions (e.g. *phleng* in the relaxing or joking mood) as well as in the *ram klong yao* (central folk dance with the *klong yao* drum). It is called *klong yao* (lit: long drum) due to the fact that it has a long body.

krah กรับ: a pair of wooden percussion instruments which is held in each hand. It gives the strong accent (strong beat) to the rhythm part.

kror กรอ: the percussion instrument made from medium-sized bamboo tube and beaten by a pair of mallets.

krong โกร่ง: the percussion instrument made from large-sized bamboo tube and beaten by a pair of mallets. The *krong* is mainly used in the *pi phat* ensemble when accompanying the *khon* (masked drama) performance.

kru ครู: the teacher or music master.

kruang nang เครื่องหนัง: 'skin'/membrane' instrument.

[Note: Traditionally, according to the Thai concept of instrumental classification, *diid-sii-tii-pao* (literal means: "to pluck-to bow-to beat-to blow"), the drum belongs to a *kruang tii*

group, the rhythmic percussions, which is particularly known as *kruang nang*. All kinds of drums are called by Thai musicians a "*kruang nang*" (*skin*), because skin is the main sounding part of the instruments.]

kruang sai เครื่องสาย : a generic term for the string ensemble; the ensemble composed of predominantly string instruments (plucked and bowed), flute and rhythmic percussions.

lakon ลิขศิลป์ : dance drama

lekha sangkeet เลขาลังคีตย์ : the Thai traditional cipher notation use for transcribing melody and rhythm of various instruments.

loog khong ลูกลมอง : the basic or principal melody composed the *khong wong yai* version.

loog len ลูกลิ้น : 'trick': refers to a special variation of *sai* to be applied to a certain point of the melody.

loog lor loog khad ลูกล้อลูกลัด : a composition and instrumental technique involving a dialogue *loog lor* 'question and answer within the same theme' and *loog khad* 'quarrel' between two group of instruments.

loog mod ลูกลมอด : coda; special melody to ending the *phleng*

mahori มโหรี : A generic term refers to the ensemble composed of the strings, wind, and percussion instruments. The ensemble is usually performed entertainment music.

mong โมง : a hanging gong.

na theng หน้าแท่ง : a big drumhead.

na mud หน้ามุด : a small drumhead.

nathap หน้าทับ : drumming pattern; rhythmic unit playing by the drum.

nathap lak หน้าทับหลัก : the learned *nathap*, used in the drum lessons and considered to be the basic pattern of *nathap*. also called *noeur dang*.

nathap macro structure: the relationship between various *wak* of a *nathap*. It is thought that the distinction between various kind of *nathap* can be made at this level. The macro structure includes also the study of the degree of decoration of the *nathap* used in the entire performance of the *phleng*.

nathap micro structure: the relationship of various drum strokes used within a *nathap* and their frequency of occurrence in the entire performance.

nathap noeur หน้าทับเนื้อ : an analytical abstraction pattern of a *nathap*. It consists solely of *dio chab* positions (i.e. wak ending stroke) of the *nathap*.

nathap phised หน้าทับพิเศษ: special *nathap*

nathap roon หน้าทับรู้น : a decorated level of a *nathap noeur* and *nathap lak*. *nathap roon* 1, 2, 3, 4 represent *nathap* with at least one decorated stroke at *dio ching*, *kroeng*, *siew* and *kroeng siew* respectively.

nathap saman หน้าทับสามัญ: ordinary *nathap*

noeur dang เนื้อแดง : means 'red meat'; a term used in drumming technique only. It refers to the simplest, most basic version of a *nathap* to be played on the drum. This term is alternative to *loog khong* or *noeur phleng*, which describes the basic melody of any composition and performed by the *khong wong yai*.

noeur phleng เนื้อเพลง : 'meat of composition'; the basic melody.

perng mang เป็ฆาง: the double-headed barrel drum using mainly in the royal procession (e.g. royal funeral or royal marching). In general, it provides the signal for the procession and also plays interlocking pattern with the *klong chana*.

perng mang kauk เป็ฆางคอก: a set of 7 double-headed barrel drums in graded sizes and tuned in relative pitches from low to high. It is used mainly in the *pi phat mon* ensemble and played interlocking pattern with the *taphon mon*.

phat พาทย์: a generic term for the melodic percussion.

phasa ภาษา: 'language'; foreign accents in Thai music i.e. *farang* (European), *khamen* (Cambodian), *Yuan* (Vietnamese).

phleng เพลง: This word has the following meanings:

1. music, e.g. *phleng Thai* (Thai Music), *phleng sakol* (Western music)
2. musical form, e.g. *phleng reo*, *phleng ruang*, *phleng thao*
3. musical genre, e.g. *phleng lakon*, *phleng ngan sop*
4. musical repertoire, e.g. *phleng sepha*, *phleng mahori*
5. composition, e.g. *phleng si nuan chan song*

However, in this thesis *phleng* refers solely to the musical composition.

phleng naphat เพลงหน้าพาทย์: 1. sacred music; the compositions used in ritual events, i.e. *wai kru*.

2. the compositions used to symbolize the 'abstract action' in *khon* and *lakon* performances e.g. flying, spelling magic.

phleng ruang เพลงเรือง: a suite (instrumental music only); a set of different songs grouped into the standard sequence: *phleng cha* เพลงช้า (slow tune in *propkai* drum pattern and *ching chan song* or *chan sam* tempo), *phleng songmai* เพลงสองไม (medium tune in *songmai* drum pattern and *ching chan song* tempo), *phleng reo* เพลงเร็ว (fast tune in *phleng reo* drum pattern and *ching chan dio* tempo) and *phleng la* เพลงลา ('farewell' tune in *phleng la* drum pattern and *ching chan song* tempo).

phleng tab เพลงต๊อป: a suite (instrumental and vocal music); a medley of *phleng* with either different or the same melodic and rhythmic structures. *phleng tab* with vocal can be divided into (i) *tab phleng* ต๊อปเพลง: a suite with the lyrics from different story, and (ii) *tab ruang* ต๊อปเรือง: a suite with the lyrics from the same story.

phleng thao เพลงเตา: a *phleng* with three or more *chan*. The majority of *phleng thao* has only three *chan*. In this case, it is normally played in the following sequence: *chan sam*, *chan song* and *chan dio*.

pi ปี่: the oboe

pin peat: Cambodian term for *pi phat*.

pi phat ปี่พาทย์: A generic term for ensemble of predominantly tuned percussions, untuned percussions and oboe. The *pi phat* ensemble is mainly used to accompany ritual and theatrical genres but can also be used for entertainment purposes.

rammana ฆ้องมโหรี: A shallow frame drum with a single head.

rammana mahori ฆ้องมโหรี: a small shallow frame drum with a single head. It is usually played in combination with the *thon mahori*, both by one player.

rammana lamtad ฆ้องมโหรีลำตัด: a big shallow frame drum with a single head. It is used in combination with other non-melodic percussions e.g. *ching*, *krab* providing the rhythmic accompaniment for the *lamtad* (a kind of folk dialogue singing found in central Thailand).

ranat ek ระนาดเอก: the higher-pitched wooden xylophone.

ranat ek lek ระนาดเอกเหล็ก: the higher-pitched metal xylophone.

ranat thum ระนาดทุ้ม: the lower-pitched wooden xylophone.

ranat thum lek ระนาดทุ้มเหล็ก: the lower-pitched metal xylophone.

raya nathap ระยะเวลาทับ (or **raya changwa nathap** ระยะจังหวะหน้าทับ): the total length expressed either as a total number of *dio* or as a total number of *changwa ching-chab* contained in the *changwa nathap*.

rob ร็อบ: another term for *changwa nathap*. This term is however rarely used by the drummer.

saphon ตะโพน: the ancient term for the *taphon*.

saw u ซออุ: the bass fiddle.

sepha เสภา: an old style chanting with the *krah sepha* and the *pi phat sepha* ensemble.

sam chan สามชั้น: the longest length of the three metrical levels of the *thao*.

sai สาย: the way to making variation/ improvisation on drum (s). The *sai* consists of a large number of interpretation techniques, i.e. *keb, khayii, khad, yuen, and don*.

song chan สองชั้น: the medium length of metrical level in the *thao*.

taphon ตะโพน: The double-headed barrel drum using mainly in the *pi phat* and *mahori* ensemble. The drum is tuned to a deeper pitch by applied a mixture of cooked rice and ashes into the centre of each head. The drum can produce at least 12 different strokes.

taphon mon ตะโพนมอญ: the double-headed barrel drum using mainly in the *pi phat mon* ensemble. This drum has a bigger shape than the *taphon* (Thai).

thang ท่าง: (1) a way, method; (2) generic term for pitch outline; (3) term for indicated the proper style of playing any specific instrument i.e. *thang ranat, thang saw*; (4) the style/'fashion' of music school i.e. *thang kru X, thang kru Y*.

thao ท้า: The telescopic composition form consisting of at least three main metrical divisions: *sam chan, song chan* and *chan dio* played in its order.

thap ทับ: a former name of the *thon*.

thon[pronounced with rising tone] ทุอน : section/ movement in the composition

thon [pronounced with middle tone and long vowel 'o' as 'thoon'] โทน : A goblet-shaped drum made of clay or wood with a single head. There are two models of this drum in Thailand. The *thon chatri* which is used in the south of Thailand to accompany the *lakon nok* and the shadow plays; and the *thon mahori* which is usually played in combination with the *rammana* in the *mahori* and *kruang sai* ensemble.

thon chartri โทนชาตรี: a goblet-shaped drum made of wood with a single head. It is used solely in the *pi phat chatri* ensemble when accompanying the *lakon chatri* (folk drama) and *phleng phasa taloong* (music sung with Southern accent). The body of this drum is bigger and larger than the *thon mahori*. In performance, it always plays interlocking pattern with another *thon chatri* and the *klong chartri* or *klong tuk*.

thon mahori โทนมโหรี: a goblet-shaped drum made of clay or wood with a single head. This drum is used in combination with the *rammana* in the *kruang sai* or *mahori* ensemble.

tua mea ตัวเมีย : female drum; lower pitched *klong khaek*

tua phoo ตัวผู้ : male drum; higher pitched *klong khaek*

thuang na ถ่วงหน้า or khaoข้าว: a mixture of a cooked and ashes mashed into a glutinous mass. It is used for tuning the drum in *taphon*-type to a deeper pitch.

wai kru ไหว้ครู: the teacher homage ceremony.

wak วรรค: a segment of a *changwa nathap* comprising a multiple number of a combination of *changwa ching* and *changwa chab*. Generally, a complete *changwa nathap* consists of two *wak*.

yok kru ยกครู: the initiation ceremony to be performed before learning the music.

BIBLIOGRAPHY

(in English)

Becker, Judith

- 1978 'Percussive patterns in the music of mainland South-East Asia',
Ethnomusicology 12/2.
- 1980 'A South-East Asian musical process: Thai *thao* and Javanese *irama*'.
Ethnomusicology Vol.24: 453-64.

Bidyalankarana, H.H. Prince

- 1975 'Sebha Recitation and the story of Khun Chang Khun Phan',
The Siamese Theatre, edited by Mattani Rutnin, Bangkok: Siam Society Press.

Brunet, Jacques

- 1974 'The origin of Cambodian music', Traditional Drama and Music of South-East Asia. edited by Mohd.Taib Osman, Kuala Lumpur.

Carkin, Gary Bryden

- 1984 Likay: the Thai popular theatre form and its function within Thai society, D.Phil. Thesis, Department of Theatre, Michigan State University .

Chumbhot of Nagor Svareja, Princess

- 1974 Drums of Thailand, Note and Record. Folkways Records FE 4215.

Cravath, P.

- 1985 Earth in flower: an historical and descriptive study of the classical dance drama of Cambodia. 2 Vols. Ph.D.Thesis, Department of drama, University of Hawaii.

Damrongrajanubhab, H.H. Prince

- 1931 Siamese Musical Instruments 2nd ed. Bangkok: The Royal Institute.
[text available in Thai and English].

Duriyanga, Phra Chen

- 1948 Siamese Music. Bangkok: Department of Fine Arts, Bangkok.
- 1956 Thai Music. Thailand Culture series, No 8, 4th ed., Bangkok.

Dyck, Gerald P.

- 1975 Review on the Record "Drums of Thailand", Ethnomusicology. Vol.3:510-11.

Fuller, Pual

- 1979 Review of David Morton, *The traditional music of Thailand*.
Ethnomusicology Vol.23:339-43.

Gaston, Bruce

- 1987 "Thai Court music: Buddhism and Hinduism in Harmony" in Music of the Royal Court edited by William Robson and Alison Mansbridge, London.

Hood, Mantle

- 1959 'The reliability of oral tradition', Journal of the American Musicological Society Vol.12: 201-9.
1971 The Ethnomusicologist. Newyork: McGraw Hill Book Company.
1975 'Improvisation in the stratified ensembles of South-East Asia',
Selected Reports in Ethnomusicology Vol.2(2):25-33.

Jairazbhoy, Nazir

- 1977 'The purposes of transcription', Ethnomusicology Vol.21: 275-82.
1980 'Improvisation', II. Asian Art Music, The New Grove Vol.9:52-56.

Jearadithaporn, Pranee

- 1973 The relationship of music and society as seen in the Thai case.
M.A.Thesis, Department of Anthropology, Cornell University.

Ketukaenchan, Somsak

- 1984 khaek mon thao: a complete transcription, with an introduction and commentary on the history and significance of the phleng thao in Thai traditional Music., M.A.Thesis, Department of Music, University of York.
1989 The thang of the khong wong yai and ranat ek: a transcription and analysis of performance practice in Thai music, 2 Vols., D.Phil. Thesis, Department of Music, University of York.

Maceda, Jose'

- 1986 'A concept of Time in a Music of South-East Asia', Ethnomusicology. Vol.30: 11-53.

Malm, William P.

- 1977 Music Cultures of the Pacific, the Near East and Asia.
Practica Hall History of Music Series, Englewood Cliffs, N.J.

Miller, Terry E.

1984 'Reconstructing Siamese musical history from historical sources: 1548-1932' Asian Music Vol.15 (2):32-42.

Moore, Sidney.

1969 'Thai Songs in 7/4 Meter', Ethnomusicology. Vol.13:309-12.

Morton, David

1964 The traditional Instrumental music of Thailand.

Ph.D.Thesis, Department of Music, Los Angeles (Cal.), University of California.

1968 The Traditional Music of Thailand.

Los Angeles: Regents of the University of California.

1969 'Instruments and Instrumental Functions in the ensembles of South-East Asia:

A cross-cultural comparison', Traditional Drama and Music of South-East Asia.
Vol.18. edited by Mohd.Taib Osman, Kuala Lumpur.

1976 The Traditional Music of Thailand.

University of California Press, Berkeley/ Los Angeles/ London.

1980 'The Music of Thailand', The New Grove Dictionary of Music and Musicians. edited by Stanley Sadie, London.

Myers-Moro, Pamela

1988 Thai music and musicians in contemporary Bangkok: An ethnography..

Ph.D. Thesis, Department of Anthropology, Berkeley, University of California.

Nettl, Bruno

1983 The study of Ethnomusicology: twenty-nine issues and concepts.

Urbana: University of Illinois Press.

Osman, M.T., ed.

1974 Traditional drama and music of South-East Asia. Kuala Lumpur.

Picken, Laurence

1957 'Siam(Thailand)', 'the Music of Far Eastern Asia: 2. Other countries'

The New Oxford History of Music. Vol.1,Ch.3., edited by Egon Wellesz, London.

Roongruang, Panya

1989 Thai music in sound. Bangkok. [Thai text also available]

Sam, Sam-ang

1988 The pin pear ensemble: its history, music, and context. Ph.D. Thesis, Music Department, Wesleyan University.

Seeger, Charles

1958 'Prescriptive and Descriptive music writing' Musical Quarterly. Vol. 44:184-95.

Silpabanleng, Prasidh

1955 'Music in Thailand - Composers and Performers' role' Music in South-East Asia. Unesco Phillipines Publication No.15.

Taylor, Eric

1989 Musical Instruments of South-East Asia. Images of Asia Series. Singapore: Oxford University Press.

Yupho, Dhanit

1960 Thai Musical Instruments. translated from Thai by David Morton. Bangkok.

1961 The custom and rite of paying homage to teachers of khon, lakon and piphat. Bangkok: Fine Arts Department.

(in Thai)

Amattayakul, Phoonphit

1986 *dontri wichak* [Thai music appreciation]. Bangkok.

Aroonrat, Udom

1984 *thissadee phleng thao* [the theory of *phleng thao* composition]. Nakonpathom: Silpakorn University.

Charoendotrikarn, Khun, edit.

1919 (to 1989) *note lekhasangkeet samrah saw u* [cipher notation for *saw ou*]. 16 Volumes. Bangkok : Duriyaban Music

Damrongrajanubhab, H.H. Prince

1962 *tamnan mahori piphat* [The History of Thai Musical Instruments]. Bangkok.

Department of Fine Arts

1950 *hom rong yen*, a transcription of the *Piphat* ensemble with complete score and parts. London. English text also available

1954 *tham khwan*, a transcription of the *Piphat* ensemble with complete score and parts. Bangkok.

1961 *note phleng Thai* [a transcription of Thai Classical Music and commentary], Book 1, Bangkok.

Kantasiri, Kovit

1984 *phuunthan dontri Thai* [Foundations of Thai music], Vol.1, Bangkok.

Nagasawad, Uthis

1979 *thissadee lae pratibhat dontri Thai* [Theory and Practice in Thai music], Book 1, Bangkok.

1981 *taphon Thai* [A description and basic patterns of the *taphon*]. Bangkok

1984 *thissadee lae pratibhat dontri Thai : koo mue fuek khruangsai Thai* [Theory and Practice in Thai Music: the String Instruments], Book 2, Bangkok.

Nawikmool, Anek

1984 *phleng nok sattawat* [Songs beyond the century]. Bangkok.

1989 *sappasangkeet* [Introduction to the literature in Thai music]. Bangkok

Nimnatipan, Sumonmal

1981 *khoo mue karn suk saa dontri Thai* [A manual of Thai Classical Music]. Bangkok.

Pookhaothong, Sa-Ngad

1973 *note phleng Thai* [Notations of Vocal and Instrumental Music], Book 1, Bangkok.

1989 *karn dontri Thai lae thang pai su don tri Thai* [Thai Music and the Thai Musical Approach]. Bangkok.

Roongruang, Panya

1978 *prawat karn dontri Thai* [History of Thai Music]. Bangkok.

1989 *dontri Thai prakob siang* [Thai Music in Sound]. Bangkok.

English text is also available

Samniengchanchoeng, Khun

1952 *tamra taphon* (The Art of playing the *taphon* drum), Varasan Silpakon.

Vol.5: 1-27. Bangkok.

Silpabanleng, Chin [Kunying] and Chindaawat, Likit

1978 *dontri Thai suksaa* [Thai music study]. Bangkok.

The Office of the National Culture Commission

1985 *dontri puenbaan lae silpa kaarnsadang khong Thai* [Folk Music and traditional Performing Arts of Thailand]. Bangkok: Ministry of Education.

Tramote, Montri and Kultan, Wichian

1980 *Fang lae khaochai phleng Thai* [Listen to and Understand Thai Music]. Bangkok.

Tramote, Montri

1954 *karn lalen khong Thai* [The entertainment of Thailand]. Bangkok.

1964 *sab sangkeet* [Thai Musical terminology]. Bangkok.

Wongthet, Sujit

1989 *rong ram thampleng* [Sing, Dance and Play Music]. Bangkok

Yupho, Dhanit

1957 *khruang dontri Thai* [Thai Musical Instruments]. Bangkok (reprinted 1987)

Selection of Thai music commercial cassettes

BP 201

Inter 0047

Lotus VT 06

RT 8058

RT 8144

RT 9401

SA. 2 (Uthis Nagasawadi)

Sitthi Thawon (Prasit Thawon) 005

Sitthi Thawon (Prasit Thawon) 006

Sitthi Thawon (Prasit Thawon) 007

Sitthi Thawon (Prasit Thawon) 012

Sitthi Thawon (Prasit Thawon) 024

Sitthi Thawon (Prasit Thawon) 041

Sitthi Thawon (Prasit Thawon) 077

SK. 2 (Uthis Nagasawadi)

SP. 4 (Uthis Nagasawadi)

STV 030

TS 2024

TS 2028

TS 2037

VT-11 (Vara Worrowet)

VT-14 (Vara Worrowet)

VT-15 (Vara Worrowet)

VT-16 (Vara Worrowet)

VT-18 (Vara Worrowet)

video Thai drumming: taphon

BASIC TECHNIQUE OF THE TAPHON AND THE PERFORMANCE IN
PHLENG SI NUAN CHAN SONG AND KHAEK BORRATHET THAO

Anant Narkong: *taphon, khong wong yai*

Dr. Somsak Ketukaenchan: *ching*

Dr. Richard Widdess: video

recorded at SOAS, Fri 23rd March 1990.

contents:

1. 12*taphon* basic strokes
 2. The basic *songmai* pattern: *chan sam, chan song, chan dio*
 3. *natap songmai chan song : phleng si nuan*
 4. *natap songmai thao: phleng khaek borrathet*
-

Note: The video recording was made as the material to study the basic technique and the *sai*-making on the *taphon* drum. It can be divided into two parts:

- i) the 12 basic drum strokes on the *taphon*, and
- ii) the examples of the *taphon* rhythmic patterns, *nathap*, with the selected compositions.

A.taphon only

1. *taphon* basic strokes

1.1 *na theng* (big head):

1.1.1 theng

1.1.2 thoed

1.1.3 tha

1.1.4 pa

1.2 *na mud* (small head):

1.2.1 ting

1.2.2 tued

1.2.3 tub

1.3 both head (big&small)

1.3.1 phring

1.3.2 phroeng

1.3.3 phroet

1.3.4 phrued

1.3.5 plang

B. nathap songmai : nathap lak

2.1 *chan song* : one cycle

2.2 *chan sam* : one cycle

2.3 *chan dio* : one cycle

C. taphon and khong wong yai and ching

3. *nathap song mai chan song* : variation on *phleng si nuan*

4. *nathap song mai thao* : variation on *phleng khuek borrather*

