

MUSICAL NOTATION IN THAILAND

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The goal of this paper is to survey the history and forms of written notation as it has been used by musicians in the Thai classical tradition, with an emphasis upon the functions and implications of notation. While the topic is of significance in its own right, it also touches upon broader issues such as acculturation, the social organization of performing artists, and the interface between oral and written tradition. Most significantly, we must ask to what extent the use of notation signifies changing values and represents altered contexts of music-learning in Thailand. Data are drawn from my research in Bangkok in 1985-86.¹

Towards the end of this paper, I shall briefly contrast the Thai example with Judith Becker's discussion of notation in Java. Thai and Javanese music are similar in structure, especially in the traditionally formulaic, "improvisatory" nature of performance, and the type of notation commonly used in each society is very similar, so that any arguments regarding the implications of notation might be compelling in both cases. Becker² has made a strong argument that notation, as a foreign-derived innovation, potentially alters the nature of musical performance in Java. I believe the Thai example, though similar in some ways, shows another way in which the technology of notation can operate, one which leaves the musical system more intact. 20th century changes in Thai music-making—which granted are more profound—are more the result of social changes than the result of notation.

History and Types of Musical Notation

The Thai term for notation tells much of the origin of the idea of writing down music: the English word "note," pronounced *noot*, is used, sometimes as *noot phleeng thay*, the latter words meaning "Thai song," specifically Thai classical music.

The first known notation of Thai music—by anyone, foreigner or Thai—was that of Simon de La Loubère in the 17th century (Figure 1). La Loubère was a traveler who compiled an astonishingly encyclopedic account of Siamese life and customs; his notated version of a Thai melody is of such symbolic significance that it became one of the sources for the melody of the contemporary Royal Anthem. To my knowledge it was a long time after La Loubère's visit, however, before Thai music was again notated, this time for military bands with Western instruments, playing Thai melodies, in the second half of the

19th century (I do not know whether it was Thai or foreigners who wrote down the melodies; it was most likely Thai performing them, however, for various accounts testify to the performance of Western musical ensembles with Thai personnel during that period).

What loom large, however, in the history of Thai notation as told by my informants and in Thai-authored sources, are the 20th-century efforts to use Western notation to record and preserve Thai music, as well as indigenous systems designed solely for use by Thai. In a short English-language article, Phra Chen Duriyanga—renowned for fostering the Thai performance of Western classical music in this century—reminisces about the first (and only major) attempt to preserve Thai music with Western notation, recalling that Prince Damrong Rajanubhab, through Thailand's Royal Institute, spearheaded the effort in 1930 (or, approximately 1930, for sources vary)³. A committee was formed of Thai who could read and write Western notation—largely members of Phra Chen's Western orchestra—and their task was to write down as much music as possible. Phra Chen himself was not a performer of Thai music at all, and studied the instruments only enough to carry out the notation. An informant explained that recordings of Thai music were also made at the time, intended for preservation, but these were lost during World War II bombing while awaiting manufacture in Germany.

The result of these efforts is a collection of some four hundred compositions, either in score form for ensemble or

¹ This article was originally read at a conference on Southeast Asia at the University of California, Berkeley, February 1988, and is based on a portion of the author's doctoral thesis in anthropology. Field research on Thai music was generously funded by a grant from Fulbright IIE. I wish to thank the following individuals for their generosity and cooperation while I pursued my work in Bangkok: Mr. Phichit Chayseri; the Music Department at Srinakharinwirot University, Prasarnmitr campus; Mr. Niphaan Thanarak and other musicians at the Department of Public Relations; and Dr. Juree Vichit-Vadakan.

² Judith Becker, *Traditional Music in Modern Java: Gamelan in a Changing Society*. University of Hawaii, Honolulu, 1980, pp. 11-25.

³ Phra Chen Duriyanga, *Thai Music*, Fine Arts Department, Bangkok, 1951, p. 2.

simply "middle versions" [*thaang klaang klaang*] of melodies—which might be taught to a beginning student but which are realized, rather than actually played, in performance by accomplished musicians (Figure 2). Most of the notated compositions are familiar works from the *seephaa mahoorii* or "entertainment" branch of repertoire, those songs which are most likely to be taught to youngsters and to amateur musicians (that is, not theater music and the ritually-significant *naa phaai*). These manuscripts formed the basis of David Morton's scholarly studies of Thai music, and microfilm copies are stored in the archives of the University of California at Los Angeles's Institute of Ethnomusicology. Some of the notations have been published by Thailand's Department of Fine Arts. Furthermore, the National Library stores some of the old manuscripts of military band arrangements, and still other notations are housed at the Musical Arts Center of the Bangkok Bank.

It appears that the invention of indigenous notation occurred well after the earliest efforts by foreigners to write down Thai music, yet somewhat before Phra Chen's effort to utilize Western notation for preservation. One source dates the development of specifically-Thai notation at 1913. I have heard of no indication that Thai-style notation existed in the 19th century or earlier.

The use of Western and Thai systems of notation has always contrasted greatly. If the Western-style notation of Thai music was intended as preservation, there its function stopped: today, "scholars, not musicians," as one informant put it, are the only people to utilize any of these manuscripts. They are not used for performance or for teaching. Western notation of songs does appear in some of the Thai-authored texts on music. One musician joked that Western notation is too complicated, and compared its appearance to a kind of Thai plant which has curly leaves and stems. In contrast, the Thai systems are clear, easy to read, can be learned even by a beginner in a matter of minutes, and are superbly appropriate for the purposes they generally serve: they impart just enough information (the outline of the main melody) to help a beginning student learn, to enable an amateur player to have fun, or to serve as a mnemonic device for advanced or even professional musicians.

Written sources and oral accounts cite Luang Pradit Phayrau as the first musician to create a system for notating Thai music, although others developed similar systems soon thereafter. His daughter, Khunying Chin Silpabanleng, cites precisely the use of notation as both a mnemonic and teaching aid: "In those days (1913) music study was done by memory. Those who taught and those who studied wasted a lot of time. My father had to teach music over and over . . . Then he thought of signs to help improve the memory . . ."4 Luang Pradit's system employs numerals 1 through 9 for pitches on the *sau duang*, *sau uu* (the two-stringed fiddles), and *khluy* (flute), and numerals 1 through 12 for *cakhee* (zither). One reads a series of numerals across, from left to right, as though reading a book; the numerals correspond to pitches, for example on the *sau duang*:

- 1 lower-pitched open string . . .
- 2, 3, 4 each successive finger on that string . . .

- 5 higher-pitched open string . . .
- 6, 7, 8, 9 each successive finger on that string.

Pitch 1 always corresponds to the lowest pitch (the lower open string, or *saay thum*) on the *sau duang*; since the *sau uu* is tuned a fifth lower, its pitch indicated by numeral 5 sounds the same as the *sau duang*'s pitch 1. Both Thai and Arabic numerals may be used.

Originally, Luang Pradit's system utilized patterns of short vertical and horizontal lines to indicate rhythm and repetition of notes. Later the system was revised to make rhythm easier to read. Numerals were set off in groups to represent "measures" (similar to those in Western music) indicating metric stress, and simple rhythmic events—outside of straight one-note per one-beat movement, which is what the system notates most easily—could be shown by short curved lines or open spaces (Figure 3). A variation of this system indicates pitches in a higher octave by dots over numerals, reinforcing the fact that pitch 1 is still pitch 1 even when an octave higher (Figure 4): Today the most commonly-used modification of Luang Pradit's system among players of stringed instruments uses two ruled lines, each line representing a string, and numerals representing the fingers to be placed on each string (Figure 5). String players possibly use notation more frequently than other musicians because stringed instruments are those more frequently played by amateurs—as we'll get to below.

Yet another system of notation uses letters based upon Western solmization (do, re, mi, etc.) (Figure 6). This system is currently used in school classrooms when teaching *khluy* (flute). It is important to remember that here, as in the other Thai notation systems and throughout Thai musical theory, there is what Western musicians call a "non-movable do." That is, the letter *dau* (๑) or pitch #1 always remains the same, regardless of its function within a piece of music, regardless of what mode or pitch level the piece occurs in. Furthermore, there is a consistent alteration in all Western notations of Thai music which could cause confusion to Westerners. The Western "do" (Thai *dau*), always written in Thailand as note C, sounds "re" (Western note D), and all other pitches are correspondingly one note "off." Those who write down Thai music have generally found it easier to consistently use C Major, which has no sharps and flats, than the more accurate—according to the conventional Western relationship of notation to actual pitch—D Major.

Notation, Acculturation, and Culture History

While considering the history and forms of musical notation in Thailand, one must ask why efforts to record music occurred when they did and not at some other time. I repeatedly suggested to informants that the idea of notation derived from

⁴ Quoted in Panyaa Rungruang, *Prawatkaan dontrii thay* [History of Thai Music], Thai Watanaa Phanit, Bangkok, 1982, p. 101. My translation.

contact with the West, but none seemed to agree wholeheartedly. However, the notion that music—which has existed for a very long time in the oral tradition—must be preserved lest it die out appears to indicate an altered perception of time, change, and the fixedness of music itself (that is, that a piece of music should be fixed at all rather than mutating through individual innovations over time) may well have come from the West, where we have written down "art music" for a long time. This is the argument put forth by Judith Becker regarding the advent of musical notation in Java. She writes :

The idea of preserving a gamelan piece as it manifests itself at one particular point in history and in one particular locale is not an indigenous concept. It was introduced by foreigners who mistakenly believed that a gamelan piece is a fixed entity which, if captured in notation, would be preserved from extinction.⁵

The concern for loss of repertoire may also indicate an increase in the Thai (or at least Thai musician's and scholar's) consciousness of changes which occur through time. Undoubtedly repertoire of previous eras had been lost through the vagaries of oral tradition, as a regular part of history which musicians either did not know about or did not care to comment upon. Yet as Phra Chen Duriyanga pointed out, concern over the loss of Thai music in the present era was stimulated when Prince Damrong reviewed a list of the names of Siamese songs and it was discovered that "...more than 50 per cent of the melodies had already been lost forever..." (Becker quotes similar sentiments from Javanese sources).⁶ This is a modern concern, perhaps related to the 19th century romantic views which brought about the studies of folklore and anthropology, among other fields (tied so closely to feelings of nationalism, which were also growing in Siam at the time of musical notation). Both Phra Chen and Prince Damrong, who had Western educations, were surely aware of such notions. (Phra Chen, who was originally named Peter Feit, had an American father and a German education; Prince Damrong, a half-brother of King Rama V, was a leading scholar of his time and is known as the "father of Thai history.") Because foreign contact with Siam, attempts by foreigners to notate Siamese music, and the arrangement of Siamese music for Western brass band all occurred significantly before the major effort at preservation in the 1930s, one wonders why transcribing did not occur earlier, were it not for the force of acculturated ideas regarding change.

Furthermore, by the first decades of the 20th century scholars and musicians had had opportunity to see that foreign forms of entertainment—seen by many as invasive and debilitating—were becoming very popular. Since the late 19th century, Siamese theater had become "reformed" by incorporating certain Western characteristics.⁷ By 1932 films and distinctive film-inspired songs were being produced in Thailand, and foreign films had been imported for some time before that.⁸ The days of abundant royal and noble support for Thai music ended in 1925 with the death of King Rama VI, and after the coup d'état of 1932 musicians were fully incorporated into the government bureaucracy, altering the traditional context in which students studied with master musicians. Those who would seek to

preserve Thai music may have had very real concerns about its future, even though the 1930s notation effort began *before* the era of Japanese occupation and of Prime Minister Phibul Songkhraam, whose social change policies—which included government licensing and censoring of performers—gave many musicians even more cause to worry about the demise of their art.

The impetus behind invention of Thai systems of notation is more difficult to pinpoint. As Khunying Chin pointed out, such notation saved time for teachers and aided memory, yet why would such concerns not have inspired earlier musicians to create a recording system? Two possible explanations both point, again, to cultural changes due to contact with the West and the increasingly cosmopolitan nature of Thai life. First, the very notion of writing down music in a manner which was of use to teachers and students may have been borrowed from the West. In this light, musical notation may be seen as part of the broader phenomenon of increasing literacy in Thailand. The implementation of a national system of public schools, and the idea that all Thai citizens could become literate, developed in the first decades of the 20th century, coinciding with the advent of musical notation. Second, the notions that time can be wasted or saved, that memory needs to be helped (because if it's not, then one loses time...) are similarly not indigenous. The brilliance of the Thai solution—from the perspective of Thai music as we know it—was to create systems of notation which could not be used uniformly throughout the entire repertoire (because they would have meant significant and inevitable changes in the nature of the music—perhaps along the lines Judith Becker⁹ suggests), which did not divorce the student from the teacher, and which thus kept intact many aspects of the traditional social organization of musicians.

Notation and the Oral Tradition

In order to glimpse the implications of notation on Thai music-making, it is necessary to examine how notation is used. Here we can see the adoption of the technology of written music within a tradition of musical transmission which is still fundamentally oral, with music passed from teacher to student. While over the past several decades published notation of music has been available for students and amateurs, by far the most common use of notation now is by teachers who notate, by hand, during lessons with students. The "giving" of a composition from teacher to student remains.

⁵ Becker *ibid*, p. 13.

⁶ Duriyanga *ibid*.

⁷ Mattani Moj dara Rutnin, *Transformation of the Thai Concepts of Aesthetics*, Thai Khadi Research Institute, Thammasat University, Bangkok, 1983.

⁸ Kancanaakphan [Khun Wicitmaatraa], *Ruang khaung lakhaun le phleeng* [The Story of Drama and Song], Samnakphimruangsin, Bangkok.

⁹ Becker *ibid*, pp. 11-25.

The double-ruled system of notation for stringed instruments, and the single-line numerical systems for other instruments, make convenient use of lined writing paper which one can buy easily and inexpensively in Bangkok. Amateur musicians buy large empty notebooks, the pages to be filled eventually with notated songs, copied out either in the student's own hand or written in by a teacher. My *sau duang* teacher, who regularly used notation when teaching adult amateur musicians, wrote at least one new song in my notebook each week; the time spent writing in the notebook accounted for the bulk of my one-hour lesson each week (Figure 5).

Commercially published compositions in numerical notation, and even in western notation, may be purchased at stores in Bangkok. One professional musician, now a university professor, showed me a cabinet full of such publications in his home, but claimed that none of them were accurate. I imagined that the printers had erred, but my informant explained that in the past when publishers approached teachers for songs, the latter were extremely reluctant to make public their special knowledge. Teachers would agree to sell a song, yet they purposely put in "mistakes," saving the "real" version for their own students. In this way the traditional bond of teacher and student—always articulated by the transmission of guarded knowledge—remained intact. At the same time bonds between teachers and students who might purchase and use the published music were strengthened as well: it was common knowledge that the printed music was inaccurate, so students were forced to go to their own teachers who could pick out the errors and teach a recognized version.

My informants generally argued that notation was not changing Thai music because only a small portion of the total repertoire could be notated at all. One suggested that amateur players who rely upon notated songs (which most amateurs do) must choose only from the approximately 200 songs which can be written down easily in the Thai systems (amateurs don't use Western notation, which granted can notate more "information"). Entire categories of repertoire, such as the *naa phaet*, compositions with complex rhythms, those in *cangwa lauy* ("floating rhythm," that is, unmetred), and solos, cannot be notated. My aforementioned *sau duang* teacher, who regularly taught with the aid of notation, did not attempt to notate at all a virtuosic solo which he taught me, for with its abundant ornaments, special bowing effects, and high register it simply could not be rendered in Thai notation, although someone else gave me what he considered a rather ridiculous published version of the same solo, nearly unrecognizable in its pared-down, notated form (Figure 7). Even relatively simple songs—the standards of amateur playing and child students—can seldom be played accurately if learned only from notation. Details of rhythm and such things as bowing direction will not be notated but must be learned from the teacher. Any ornamentation or elaboration of the melody, such as might be added to a long sustained note, must be learned from the teacher only. Furthermore, I observed a case in which a teacher incorrectly notated a rhythmically difficult passage; each child in an ensemble of his students learned the passage correctly, however, by drilling

over and over with the teacher. This example suggests several things: what the teacher teaches overrides what is notated; the students don't really understand notation that well and simply use it as a mnemonic device, reinforcing what they memorize from their teacher; and, the teacher—who wrote in notation every day—was not skilled enough at writing down music to notate correctly what was, in the broad scheme of things, not a particularly difficult composition.

Of course so long as students and amateurs rely upon notation, they do not learn the improvisation—or formulaic rendering—characteristic to their own instrument. Learning to improvise is the hurdle that sets apart the more advanced students who may go on to become accomplished musicians. I did not encounter any hobbyists who improvised at all. This is one reason why ensembles of amateurs and beginning-level students generally perform melodies in unison, rather than in the swirling eddys (to paraphrase David Morton) of full-blown renditions by highly-trained performers. Judith Becker argues that in Java, contemporary students who memorize "improvised" versions from notation do not internalize the true system of gamelan performance; as far as I can tell, this is not the case in Thailand, where it appears that some students who begin studying with notation do indeed make the leap to accomplished performance. Thai music teachers will steer a student away from notation as soon as possible if the student is seriously interested in music.

Though I stated earlier that Western notation is not used except for preservation purposes, the following case from my field notes shows how one young man used Western notation as a mnemonic tool, despite a traditional teacher who frowned on it:

As student in secondary school, S. played trumpet in his school's brass band. At age 17—when he looked "hippie" and had long hair—he visited his uncle in a village, and heard his uncle play the *pii nay*. To his uncle's amazement, he fell in love with the sound and wanted to learn to play. He started college at the Lopburi campus of Srinakharinwirot University as a music major. He no longer wished to play the trumpet, for he'd tired of what he called the brass band aesthetics: "the loudest is the best." He studied, as he put it, "traditionally" with an elderly teacher—"one of the true masters"—who would not allow him to use any notation whatsoever. The teacher insisted that students who used notation would never learn to play properly. However, S. said that he would rush out of his lessons when they were done, hurrying to notate the bits of music he'd just learned, before he forgot. While other students would come back for the next lesson having forgotten much of what they'd learned before, he would come back with everything perfectly committed to memory. Also, as there were usually four or five students present during lessons, he would listen to the songs the others were study-

ing, and notate them for himself so he could learn them, too. When his teacher would begin to teach him one of those pieces, his teacher would be impressed by his fast progress, not realizing that S. had a head start. I asked if the teacher ever found out about his use of notation. S. explained that he'd mentioned it, but the teacher did not believe him, just waved it off, insisting that if S. really were using notation, he couldn't possibly play as well as he did. (From author's notes, February 6, 1986).

This story illustrates well the generational conflict between an older teacher, prejudiced and skeptical towards notation, and a young student acculturated to Western music who is still able to become proficient in Thai music. Yet it seems that very few if any musicians, even those who consider themselves most traditional, completely avoid notation now. After having met with my primary informant for several months, during which as a good traditionalist he'd both complained that notation "ruined the spirit" of music and expressed hope that notation will prevent the loss of neglected repertoire, I was surprised one day to see him consult a large notebook similar to those I'd seen amateur musicians use. He was attempting to play a song for me which he'd performed not long before, and because, he explained, the version of the song was from outside his "school," he could not remember it easily. So, he consulted the notebook, in which were written countless songs, in a small, neat hand. He glanced at the problematic passage, then set the notebook flat on the ground in front of his *ranaat* (xylophone), stealing a quick glance at it now and then as he played.

However, virtually every musician will stress that notation should never be used during public performances. University students may use notation, either given to them or jotted down themselves, to help memorize new material, but they will always have the music memorized before a performance. Even young children, who don't yet know how to improvise and therefore don't really need to be freed of notation for musical purposes, are urged to memorize songs before concerts, or at the very least, to write crib notes on a small piece of paper which they can hide behind their instruments so that no one knows.

As a way of summarizing some of the implications of the notation of Thai music, I would like to touch upon a few of Judith Becker's points regarding the impact of notation in Java, and contrast these to the Thai situation.¹⁰ Most obviously, Becker explains that "notation is considered to be progressive and modern, and is highly valued if not always practiced;" clearly, the situation is different in Thailand, where serious

¹⁰ Personal correspondence from Dr. Becker indicates that her 1980 characterization of the use of notation in Java (based on research conducted for her 1972 doctoral dissertation) is no longer entirely accurate. Evidently many Javanese musicians and teachers who had encouraged the use of musical notation during the late 1960 and early 1970s have revised their ideas, now feeling that written music is of only limited usefulness. The subject has been one of some controversy among Javanese musicians.

musicians are apologetic about the use of notation, and even amateurs know that one "shouldn't" use notation. Therefore, the authority of written versions—which Becker found in Java—does not exist in Thailand. Notation is not to be trusted.

More deeply, Becker argues that notation is partly behind an increasing uniformity of Javanese styles, in which regional differences become negated and in which students closely duplicated the music of their teachers. I don't know enough about classical music in rural Thailand to speak of its changing relationship to urban styles, but I do know that within the urban context uniformity is not valued (except, for some, in an effort to standardize tuning). Some stylistic homogenization may be occurring today, but I would argue that this is not due to the technology of notation but to social factors, especially the authority of certain prestigious and well-placed individuals—such as the composer Luang Pradit at the government's Department of Fine Arts—and the mixing of eclectic personnel in modern performance and study contexts. Further more, in parts of the Thai repertoire, such as instrumental solos, students are *supposed* to duplicate exactly the versions of their teachers—but then, that repertoire is too complex and too special to be notated anyway.

Finally, Becker contrasts the traditional training of the Javanese musician, in which a student absorbs a musical totality, with the modern practice of receiving lessons of finite periods. Because of new, urban work schedules, a teacher cannot teach for long hours, and students may not be able to study as part of an ensemble but rather learn their instrument's part alone. Notation is a convenient tool in such a setting. To Becker, this implies an experiential change on the part of musicians, who learn to perceive one instrumental line as standing "apart" from others. In Thailand, identical changes have occurred in teaching contexts, though—since notation is looked down upon—it is the tape recorder which today serves as convenient tool (here I'm disregarding the amateurs and young children who learn solely from notation). Students may record compositions during lessons, then study with the tape between lessons. Practicing alone with a tape recording may alter the perception and experience of student musicians as Becker described—learning to view one line apart from an ensemble—but the authority of the teacher rather than of an abstracted "version" remains, for it is the teacher on the tape. Authority is not transferred to an enduring technological record.

To conclude, both indigenous and Western forms of musical notation are used by musicians in the Thai classical tradition, yet the two were adopted for different reasons and continue to function in different ways today. From the start, the Thai systems were intended to aid memory and speed the teaching of music, while Western notation has been used in efforts at preservation. It appears that as it is used by professional musicians and seriously committed students in Bangkok, notation changes neither the music nor the teacher/disciple relationship in particularly significant ways. As it is used in the schools and by amateur musicians, notation brings music into new contexts. Yet amateurs who "receive" songs in written form still maintain certain fundamental features of traditional teacher/student relationships.

A Siamese - Song. pag. 117.

Say Samon cüy leüpacam Son Seüa conép neüa Tchâon
 Keun disou näyey pleng ny co tchaüsüa pleng day, pleng labam le tchaüey tchaütay
 pleng ny colhaüsüa pleng So näyey. peüy Dongle chaüey Tchiong
 qwa:ang nang Tchâng Tchayleu Tcha deun ey.

p. 68.

Figure 1 Composition notated by Simon de La Loubère, appearing in *The Kingdom of Siam*, Oxford University Press, Kuala Lumpur, 1969, p. 113. From 1687 original.

เมืองหลวง SUITE SOLENNELLE

SAI.YOK A Cambodian air

Andante

Moderato. f
 Legatissimo sempre

ปี่ Oboe
 ระฆังทอง Xylophone treble
 ระฆังเงิน Xylophone or Clockenspiel
 ระฆังเล็ก Celeste
 ระฆังทึบ Xylophone alto or Marimba
 ฆ้องมโหรี Resonophone alto

Figure 2 Melody and ensemble score notated by Phra Chen Duriyanga, appearing in *Thai Music (5th edition)*, Fine Arts Department, Bangkok, 1973, p. 38 and p. 48.

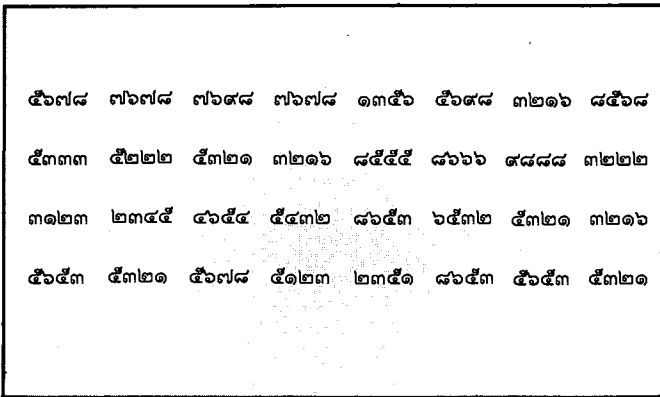


Figure 3 Thai-style numerical notation of "Phleeng carakhee haang yaaw," reproduced from Panyaa Rungruang, *Prawatkaan dontrii they* [History of Thai Music], Thai Watanaa Phanit, Bangkok, 1982, p. 102.

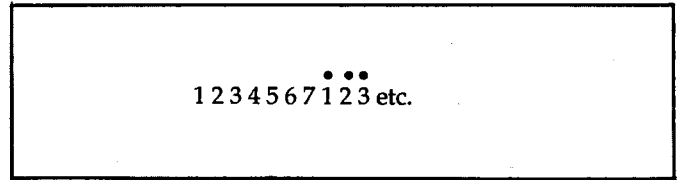


Figure 4 Dots over numerals indicate pitches in a higher octave.

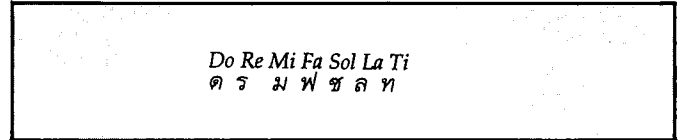


Figure 6 Thai letters representing pitches.

ตอน 1 เพลงเขมรไทรโยค 3 ชั้น

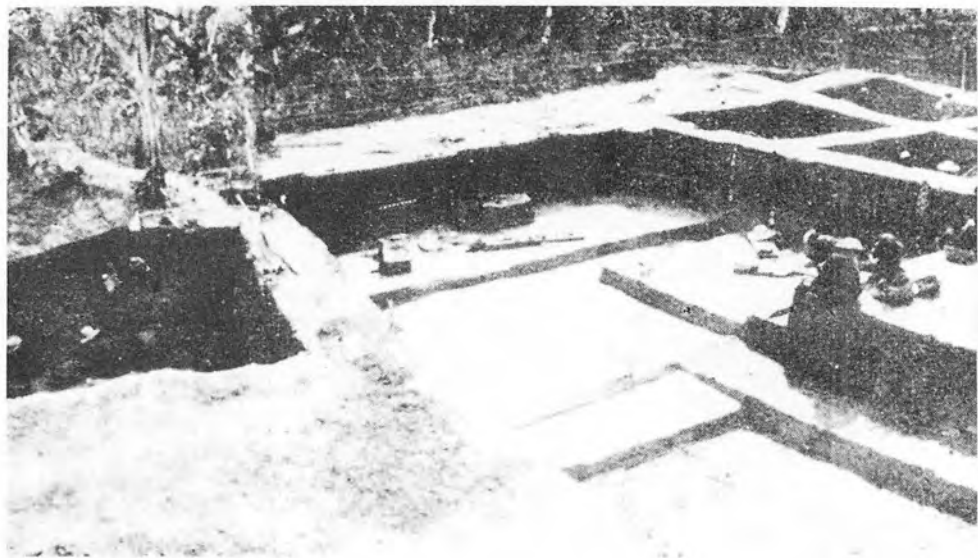
	. 3 3 1	. . 3 1	2 3	. . 4 3	2 0 2	. 0 3	2 2 2 2
0 1 3	0 2 3	0 2 3	1 2 3 4	. 3 3 3	. 2 3	. 1 3 0	1 0
. . . 0	. . 1	. . 3 0	2 3	1 3	0 1 3	. 3 .	0 0 0 0
0	3 1 0	0 2 3	2	1 0 1	. 0 2 3	1 0 3 0	2 0
3 3 1	3 1 0	3	1 0 1	. 3 3 3		1 0 3 0	1 0

memm	b'emm		o	memo	oo	o	
		memm	m am		me oem	memo	
o	me	o oe	oem'	o	me	oem'	memo
m me	me	m		m mm	me		

Figure 5 Notation for *sau duang* (higher-pitched two-stringed fiddle).
 Above: Portion of hand-written notation for "Phleeng khameen say-yook," given to the author by a musician at the Department of Public Relations.
 Below: a portion of "Phleeng pe," using Thai numerals. Reproduced from Panyaa Rungruang *ibid*.

ด้ยวพระยาโศก
 นำหอประหม่อม

Figure 7 A portion of an instrumental solo, "Phleeng diaw phrayaasook," reproduced from published sheet music notated by Sudcay Siibeencaa.



Panoramic view of the Bang Site excavation, Ban Kao, 1960-62. JSS, April 1964, p. 80a.