EDITORIAL

Words from the past, music from the present, and hopes for the future are all presented in this edition of *Balungan*. Through the years, many people have submitted articles and interviews that never appeared in print. We take this opportunity to bring some those contributions to light: **Elaine Barkin**'s 1990 interview and report on **Komang Astita's** residency at UCLA in 1995, and an extensive compendium of gambang cengkok compiled by **Carter Scholz** in the early 90s.

As happens with the passage of time, the gamelan community has lost many good friends and teachers in recent years. **Nancy Cooper** gives us an interview of one of the most popular and at the same time unique Javanese *pesindhen*, **Nyi Tjondroloekito** (192?–1997). *Rag for Deena*, by **Barbara Benary**, was dedicated to **Deena Burton** (1948–2005), an artist and scholar active in Indonesian arts in New York City. New music in Indonesia lost a great champion in **Harry Roesli**, a dedicated composer and activist based in Bandung but well known throughout the nation. Many will miss the American composer and gamelan enthusiast **Lou Harrison** (1917–2003). This issue includes a previously unpublished score, and the documentation of the gamelan Harrison and partner **William Colvig** (1917–2000) built at Mills College in California.

Two previously unpublished Indonesian composers have scores here. The composition by **Slamet Sjukur** is entirely vocal; a sort of "mouth-gamelan." **Michael Asmara**'s piece for piano is also quite theatrical.

The most recent information is in **Andrew McGraw**'s discussion and transcriptions of *Trimbat* by **Ida Bagus Made Widnyana**, drawn from Andy's just-completed dissertation on new music in Bali. Also new to many readers will be the English version of **Rahayu Supanggah**'s important theoretical article on the Javanese musical concept *gatra*, as well as the complete notes for his self-produced CD *Homage to Tradition*.

Looking to the future, this issue marks the debut of the electronic version of *Balungan*. Articles appear at **www.gamelan.org/balungan**, with some additions.

I appreciate the support shown by several libraries to continue a print edition; an exclusive monograph will be included in each annual issue. OTOH, **www.gamelan.org** serves an ever-growing cyber-community of gamelan players, scholars, and others involved in Indonesian arts and their international counterparts.

jody diamond
hanover, nh
7/7/2005

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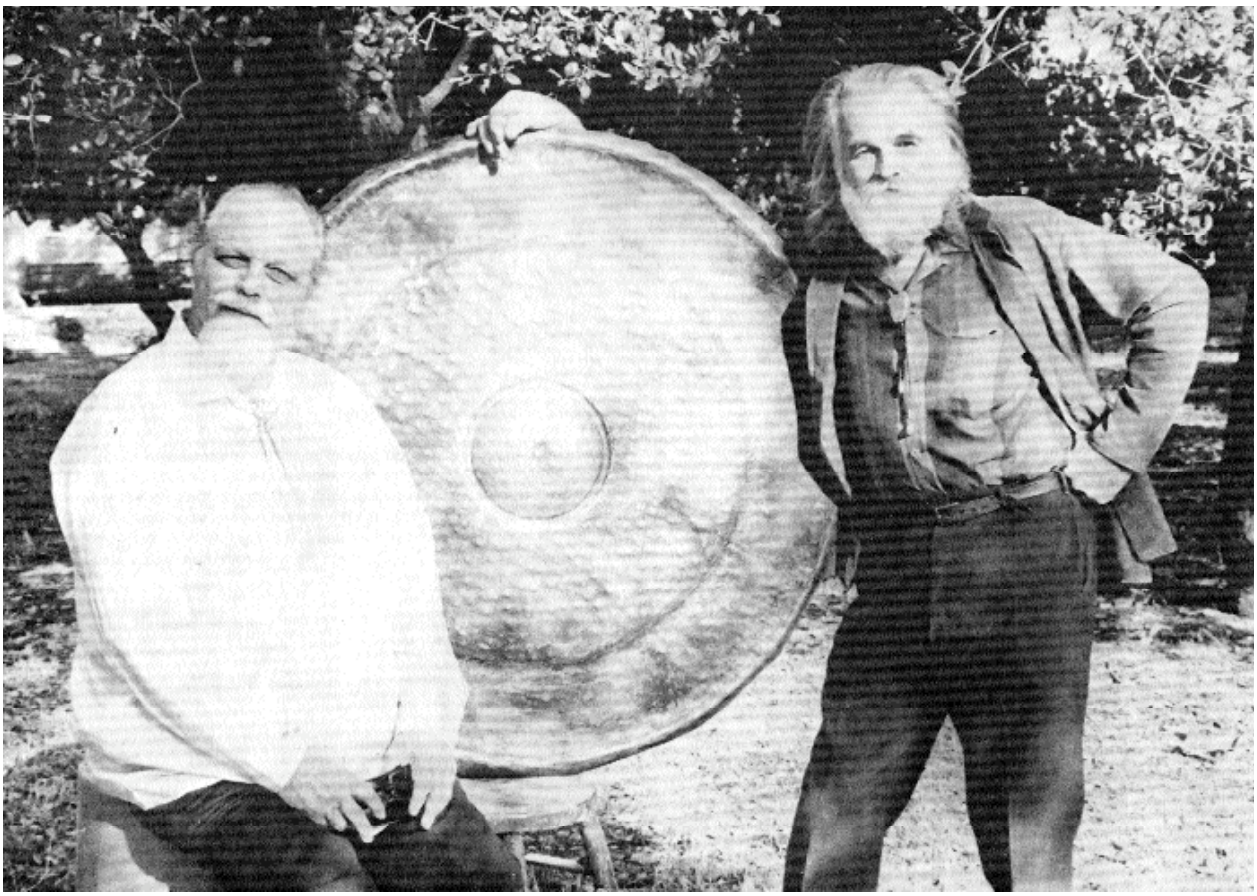


Lou Harrison
1917 – 2003

William Colvig
1917 – 2000

TRADITIONS

Gatra: A Basic Concept of Traditional Javanese Gending

by Rahayu Supanggah

Introduction

In daily life, the Javanese community takes the word or term *gatra* to mean a beginning, a bud, the early form or embryo of a final form of something, which will provide both life and meaning to that thing. It may be a living creature, either plant or animal. When a baby in a mother's womb first begins to take human shape, the Javanese describe it as *wis gatra*, which means it already has its early form. In Old Javanese or Kawi, gatra means body or picture. Likewise, when a seed begins to sprout and its shoot becomes visible, or when a branch or twig begins to grow leaves, the shoot or bud can be called a gatra. *Thukulan, thokolan,* or bean sprouts can also be called gatra.

Why the Javanese *karawitan* community uses the word gatra to describe one of its highly important and conceptional elements has not been established. Not a single karawitan theoretician has explained the concept of gatra from the perspective of an early form of life. All practitioners and students of traditional karawitan, whether they realize it or not, will be unable to separate their karawitan, or musicianship, from what they call gatra. A singer or instrumental player — whether of gender, rebab, bonang, gambang, sindhen, kendhang, siter, suling, or saron — and any other musicians involved in a karawitan (gendhing) performance, will always take the various elements and aspects of gatra into consideration as an important point of reference for their treatment or *garap* of the music. Although the importance of the position and role of gatra in karawitan is known, not many people have undertaken a deeper, more detailed explanation or analysis of the mystery that is gatra.

Sindusawarno, Martopangrawit and Judith Becker have all touched on the importance of gatra as an object for the analysis of *pathet*. Sindusawarno with his ding-dong concept (1962),[1] Martopangrawit with his concepts of *maju-mundur* and direction of *seleh* notes (Martopangrawit 1975: 57), and Judith Becker with her contour concept (1980) have opened our eyes to the importance of gatra in traditional Javanese karawitan, especially in Surakarta style, which is the style discussed here.

Gatra

So far, in everyday discussions on traditional karawitan, gatra is often understood to mean the smallest unit in a *gendhing*, a composition of Javanese karawitan, consisting of four *balungan* strokes.

Important karawitan figures have proposed at least two sets of terms to describe each part of a gatra; both are used in traditional Javanese karawitan circles. Ki Sindusawarno used the term *ding kecil* to describe the first balungan stroke (A), *dong kecil* for the second balungan stroke (B), *ding besar* for the third balungan stroke (C), and *dong besar* for the fourth balungan stroke (D). Sindusawarno's format for a gatra is thus:

ding kecil (A)
dong kecil (B)
ding besar (C)
dong besar (D)

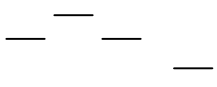
Ki Sindusawarno was a teacher with a background in the hard sciences; he mastered both theory and practical skills of western music. He had a great love and interest in the development of the theory of Javanese karawitan, and wrote *Ilmu Karawitan* [Theory of Karawitan], which became an important reference in the world of karawitan theory. Some of his ideas still reverberate in certain (conservative) karawitan communities, particularly [the national high school conservatory] Konservatori Karawitan Indonesia or KOKAR. (This school subsequently became known as Sekolah Menengah Karawitan Indonesia, or SMKI, and has now become Sekolah Menengah Kejuruan or SMK 8.) As of the year 2000, Ki Sindusawarno's book is still used as a main textbook.

Martopangrawit, with his background as a master artist or musician of karawitan, or *pengrawit empu*, and an intellectual pioneer in the field of karawitan theory, chose to use terms of a more artistic nature. This is particularly evident in his choice of terms related to (practical) karawitan treatment, in which he uses references drawn from

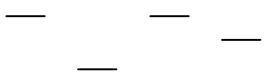
the *kosokan* (direction of bowing) of the rebab. Martopangrawit's format for a gatra is:

maju/forward	(A)
mundur/back	(B)
maju/forward	(C)
seleh	(D)

Judith Becker does not assign special terms to each separate part of a gatra but rather identifies gatra (or balungan) according to its contour, which is classified and distinguished by looking at the different orders of pitch in the balungan. For example, the gatra (with the balungan) 2321 has the contour:



This actually has the same contour as the balungan 5653, 3532, etc. The gatra 6365 with the contour:



has the same contour as the gatra (with the balungan) i5i6 or 5253, and so on.

These three scholars basically see the gatra more as an object with a fixed form, although I should note that Martopangrawit already sensed that gatra was something both alive and dynamic (for which see his concept of *irama*).

Hierarchy

From the names given to the parts of a gatra by Sindusawarno and Martopangrawit, we shall attempt to understand their concepts of a gatra. Sindusawarno more explicitly reflects that each part of a gatra has its own dimension or hierarchical role, with a different function or position, whose level depends on its position within the gatra.

The term dong, face to face with ding, clearly indicates a difference in dimension or level, in which dong is considered more important (higher) than ding.[2]

This will become clearer if we attempt to refer to and compare it with the same term, dong, which is used in traditional Balinese karawitan. Dong is a karawitan term that refers to the name of a pitch with the most important function in (most) Balinese karawitan compositions/gending, or the pitch often used for the final gong note (used to end most gending), whose role or function is more important than [the other Balinese pitch names] *deng*, *dung*, *dang* or *ding*. Ki Sindusawarno explicitly used the term dong to correspond to the western term tonic. He often used the term tonic in his discourse about the theory of karawitan (Sindusawarno, 1962: 22-23). The use of the terms *kecil* (small) and *besar* (big) together with ding and dong clearly show the difference in hierarchical function or role of each part of the gatra.

Although less explicit, Martopangrawit's concept of gatra also implies the existence of a hierarchy of role or function of each part of the gatra. The use of the word *seleh* [end of cadence or goal tone] for the final stroke of a gatra clearly shows his awareness of or intention to denote the important role of the final part of the gatra. Seleh is a musical point of reference; almost every instrument in an ensemble is orientated to the seleh note. *Seleh* also means terminal, the end point of a journey or action, or it can also mean a feeling of submission or resignation, to stop or end something with a feeling or relief.

There is a similarity of meaning between Martopangrawit's seleh and Sindusawarno's dong, in connection with its role or position as a musical reference point for instrumental and vocal treatment in traditional Javanese karawitan. Meanwhile, *maju* (forwards) and *mundur* (backwards), which refer to the bowing of a Javanese rebab, indirectly indicate that mundur is heavier than maju. This may be observed at almost every important point (especially seleh) in a gending, when the rebab player uses a backward bowing motion.[3]

If this assumption is correct, the hierarchical order of the balungan strokes in each gatra, according to these two karawitan experts, may be formulated as follows:

a) Sindusawarno gives the order of strength as D-B-C-A (dong besar is the strongest, dong kecil second strongest, ding besar weak and ding kecil weakest).

b) Martopangrawit gives the order of position or strength as D-B-A/C (seleh is the strongest part, mundur is the second strongest part and maju, in both position A and C, has the same weak position).

There is no outstanding difference between the two in the hierarchy of each part of the gatra. Both agree that D holds the strongest position, followed by B. A slight difference of opinion then appears as to the positions of A and C. In this case, Martopangrawit chooses to be more careful, not differentiating between the two, or choosing to place the two (A and C) on the same level, as is reflected in the name given to both: maju.

We can look more closely at gatra, by placing it as a concept with wider dimensions. In my opinion at least, I understand gatra to contain the following elements. A gatra:

1. Is a unit;
2. Has a long measurement, by dividing the unit into different parts;

3. Has each part with its own hierarchical function, position and role (aside from whether or not we agree with Martopangrawit or Sindusawarno's hierarchy) according to its place within the gatra;
4. Has a melodic journey or movement. It should be noted that although, at certain times, the balungan gending may be fixed on one pitch for a relatively long duration (possibly more than one gatra), as in the case of *balungan nggantung*, nevertheless the instrumental treatment does not always stay on the same pitch but may play around the pitch of the balungan nggantung.[4] It is this melodic movement of a gatra that is often presented as "types" of balungan arrangement (for example *balungan mlaku, nibani, nggantung, muleg, ngandhal, pacer, pin mundur, dhe-lik, maju kembar, mlesed* and so on), contour or direction of pitch. Due to these characteristics, a gatra:
5. Has both shape and form (including what is implied in Judith Becker's contour concept); a gatra also has:
6. A specific character;
7. And what is most important (and to my knowledge, has not yet been touched upon by karawitan theoreticians in various discussions on the theory of karawitan, which is reason enough to call attention to it) is that gatra also contains the meaning of something that is "alive". Gatra, like a shoot or an embryo, implies the existence of life, which should grow, change and develop, and whose degree of fertility is highly dependent on a number of factors, elements or aspects (including some outside the gatra itself, such as the artist/musician and various aspects surrounding his/her background) connected with the world of gatra or the world of karawitan in general.

I would like to present my opinion of the gatra as something which is alive and therefore constantly changing and developing. I prefer to look at gatra from a wider perspective, including various other elements of karawitan with a nature or character similar to or the same as gatra. One of these elements of karawitan is gending — a musical composition of Javanese karawitan, particularly in Surakarta style.

Martopangrawit describes gending as an arrangement of pitches with shape and form (Martopangrawit: 1975:3). In my opinion, gending is in fact something more complex than merely an arrangement of notes with form. Karawitan, which traditionally belongs to the family of oral music, is in fact a gending or new composition, which may only be enjoyed or observed (through listening) after being performed by a group of musicians (and vocalists when necessary, certain types of gending — such as *gending bonang* and *sampak* — do not include vocalists) to produce a sound. The written tradition only became known in the world of karawitan after karawitan notation appeared, especially Kepatihan notation, at the turn of the 20th century. (Prior to this, *ondo* or ladder notation and *rante* notation were used, although only in limited circles). After the written tradition entered the world of karawitan, especially with the large numbers of people making documentations or teaching or recording balungan gending with Kepatihan notation (some of which have even been published and distributed to the general public), many people began to call this balungan notation gending (Supanggah, 1988:3).

Gending is an abstract and imaginary concept. As I have already mentioned, a gending only exists when it is performed by a group of musicians through the treatment (*garap*) of karawitan. A gending is a tapestry or combination of the overall sound of the ensemble created by all the instruments and vocalists, through the musicians' interpretation of the karawitan composition (imaginary, inner melody[5], or unplayed melody[6]) according to the time and context of the performance. Thus, the materialization of a gending differs on each occasion it is performed, and is highly dependent upon its musicians and context.

Comparing Gending and Gatra

In his book entitled *Pengetahuan Karawitan* (Knowledge of Karawitan) Volume I, Martopangrawit names at least 16 (sixteen) forms of gending (Martopangrawit, 1975:7). Gending with the forms *merong kethuk loro kere*p and above (ketuk 4 kerep, ketuk 2 arang, ketuk 4 arang, ketuk 8 kerep, which incidentally are also called by the same term, gending[7], in Javanese karawitan), and *inggah* (ketuk 2 or ladrang, ketuk 4, ketuk 8, and ketuk 16) in fact display several characteristics similar to those of the gatra.

Like gatra, a gending is single unit with different parts consisting of gong units (phrases), commonly known as cengkok units. In a written composition, a gong unit is often analogous with a paragraph, a

part of a composition that implies a complete idea. The size of a gong unit varies according to the form of gending. The form of a gending, on the other hand, is partly determined by the number of balungan strokes in each gong unit[8].

As such, the form of a gending may be said to be parallel with the size of a gending. The existence of a gatra as a unit is also implicit in the way in which a gatra is written, with a space between each gatra and the next. For example, here is part of the *inggah* from Gending *Rebeng*, *kethuk* 8, laras pelog patet nem:

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·16· 1653 ·635 6126 ·123 ·123 6532 3565
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Compare this gong unit with a gatra unit, which consists of four parts, marked by balungan strokes in which each balungan stroke has its own different role or position.

We can divide the above gong unit into smaller sections (usually consisting of two or four sections) marked by kenong units (a structural or punctuating instrument). Javanese musicians consciously see the importance of the role of kenong units as smaller terminals. The kenong terminal is often considered analogous with a full stop in a written composition, indicating the end of a (musical) sentence, complete in both form and impression. The importance of the position of a musical kenong unit is visible from expressions, statements or questions asked by various musicians in practical karawitan situations on a day-to-day basis: "(*Wis tekan*) *kenong pira iki*?" (Which kenong unit [are we up to in this gending?]).

The importance of the role of a kenong as an independent unit is also visible from the way in which notations for Javanese gending are written. Usually a space is left between one kenong unit and the next, even when there is sufficient room to continue writing the next kenong unit on the same line; it is also the number of kenong units in a gong unit that distinguish between a ladrang (consisting of 4 kenong units in a gong unit) and ketawang (consisting of 2 kenong units in a gong unit) form of gending.

Here is an example of how a Javanese gending is usually written, with each kenong unit [*kenongan*] written on a separate line, as in ladrang *Mugi Rahayu*, slendro manyura:

3 6̣ 1 · 3 6̣ 1 2̂	first kenongan
3 6̣ 1 · 3 6̣ 1 2̂	second kenongan
3 5 2 3 6 i̇ 6 5̂	third kenongan
i̇ 6 5 3 6 1 3 ②	fourth kenongan

Each kenongan has a different function, position and role, and its hierarchy depends upon its position in the gending; this division seems to be identical with the role of the balungan strokes in each gatra.

Each kenong unit and gong unit consists of a melodic phrase or arrangement of melodic phrases. It is natural therefore that one way of determining or identifying the form of a gending is by looking at the structure of its melodic phrases. This structure covers the number, length, type and position of a melodic phrase within a kenong unit, gong unit or the entire karawitan composition – the gending. Since its characteristics make it similar to a gatra and cengkok, a gending therefore also:

Further, like a gatra, each gending has a particular character, nature or feeling.

These characteristics may be summarized to show that one gong unit of a gending has the same or similar qualities of a gatra: it is a unit divided into four (or two or three parts according to different view points), whose functional hierarchy has melodic movement (phrase) with a particular character, which may also be called a cengkok or gongan. In other words, a cengkok or gongan or gending may also be called a gatra, or cengkok, on a larger scale or format. This is why I say that the concept of gatra is "alive." It is a shoot or an embryo, which will grow and develop into something larger, a gending.

A gatra is a unit consisting of four hierarchical parts. The hierarchy of each part of a gatra is based on the consideration of two important factors in karawitan, namely:

a. Garap/Treatment

There is no doubt that the final part of a "gatra" (whether in a small format or large format, i.e. the fourth balungan stroke or kenongan/kenong unit) almost always has the most important position or role. The gong in a gending or the fourth balungan stroke in a gatra is almost always the most important point of reference, and often becomes the source of almost all the instrumental treatment. Martopangrawit has strong reason to call this part of the gatra seleh. Under certain conditions or in certain cases, such as in the arrangement of a balungan (which Martopangrawit also uses for the name garap or treatment) type mlesed, mbesut and several other cases, the strength of this final part of a gatra may be reduced or shifted.

This is also the case in the treatment of special cengkok, often known as cengkok mati (Martopangrawit) or cengkok adat (I first heard this term used by Pak Mloyowidodo, although I later realized that several other musicians also used the same term, while many others use the term cengkok blangkon), in which the last part of the gatra is not strictly the strongest, apart from the last part of the final gatra. This is visible in the treatment salah gumun in which the final note of a cengkok in an instrumental or vocal part deviates

from the seleh note of the gatra[9].

From the treatment we can also learn that the second part (balungan stroke) has the second most important position after the fourth part. This is signified by the application of a cengkok or pattern of treatment known as "separo" (half) - in particular on the gender and bonang instruments. In certain cases (balungan arrangements), a gatra may be treated as two separate halves, each half with its own seleh or terminal, requiring special attention as a small (seleh) terminal or seleh antara. This often occurs in a balungan arrangement or gatra, half of which uses the same balungan pitch, known as balungan kembar or nggantung, such as in the example: 2216 (in gending *Loro Loro Topeng*), in which the note 2 (*gulu*) is a small terminal or "seleh antara" requiring attention, in addition to the note 6 (*nem*), which as the final note of the gatra of course is given more attention. Also in the case of *balungan maju kembar* such as 6 3 6 5 (see ladrang Diradameta), note 3 (*dada*), as the second part of the gatra and note 5 (*lima*) as the final part of the gatra are given more attention than the note 6 (nem) on the first and third strokes.

Another example of a treatment which indicates that the note in the second part of a gatra is also important (after the note at the end of the gatra) is when there is a change in the treatment of irama, in particular changes in irama which lengthen (Martopangrawit describes it as "widening") the gatra, such as the change in irama from lancar to tanggung, tanggung to dados, dados to wilet and so on. In line with my opinion that gatra is something alive, I prefer to say that the consequence of a change in irama also effects the development or change of a gatra. The movement of one balungan stroke to the next is altered, both in content and in shape. In this development, it is possible for quite significant changes in the balungan arrangement, reflected in the new balungan arrangement.

Intermezzo

I have great respect for Pak Martopangrawit, who pioneered and provided a brilliant explanation about the concept of (changes in) irama, as a widening or narrowing of a gatra. In his opinion, if a change in irama occurs, this means a widening or narrowing of a gatra in a ratio of 1 to 2 and multiples thereof. If a gatra is widened, the gaps or distance between balungan strokes will be filled by the front instruments (or garap instruments, to use my own term). As a tool to measure the level of irama, Pak Martopangrawit uses the number of saron penerus strokes per gatra or per balungan stroke.

Once again, in line with my idea of the gatra being alive, I am more inclined to agree with him that the gatra actually changes and develops. I do not use the term widen or narrow but rather mulur mungkret, with a high level of tolerance or flexibility. Thus, there is also the possibility that a change in gatra is not always in the ratio 1 to 2 or multiples thereof. In reality, in the case of *gending sekar* (including *palaran*) and new gending in triple time (or *lampah tiga*, such as the Gending *Langen Sekar* by Ki RC Hardjo Subroto, which has been imitated by many other "composers"; *Ngimpi* by Pak Narto Sabdo, and *Parisuka* by Pak Martopangrawit), the gatra can develop according to the creativity of the artist or the requirements of the age. This embryo appeared long ago when past master musicians began to compose Gending *Montro Madura* slendro manyura and *Loro Loro Topeng*, also in slendro manyura (in which one gong unit consists of three kenong units), or Gending *Majemuk* slendro pathet nem, in which one gong unit consists of five kenong units. Another case is Ladrang *Srundeng Gosong*, pelog pathet nem, in which the fourth kenong unit has six gatras.

This connection with the concept mulur mungkret of the gatra is also reflected in the concept *padang ulihan*, in which the gatra in its larger format may be flexible in size and structure/composition of its padang ulihan, not always balanced as in the concept *maju-mundur-maju-seleh*, in which the second part of a gatra (in a flexible format) "must" have the second most important role after the seleh. The structure of padang ulihan may be P P P U, or P U P U, or P P P P P P P U, or a combination or these structures (using P for padang and U for ulihan).

There is one more point I would like to suggest in line with the concept of gatra as something alive. In order to identify the level of irama in Javanese karawitan, I am inclined not to use the number of strokes on the saron penerus, but rather prefer to use the keteg or ketegan (pulse or beat) of the kendang. My reasons for this are:

Firstly, the word *keteg* has a meaningful nuance suggesting life, such as the keteg or beat/pulse of the human heart. Incidentally, according to information obtained from a number of old kendang players (I am also a former kendang player), a standard reference for the speed of a normal irama (*irama dados*) is to play the ketegan of the kendang in the same tempo (*laya, irama*) at the speed of the normal adult heart beat.

Secondly, the kendang is used in almost all types of gamelan ensemble, whereas the *saron penerus* is not always present in a karawitan ensemble (such as in *gending kemanak, siteran, gadhon, palaran* and so on). It is true that at times the ketegan on the

kendang are not clearly audible, but the keteg is always present in the mind of the kendang player, in our minds, and in our imagination.

Thirdly, the use of *ketegan kendang* is in accordance with the tradition upheld by the traditional Javanese karawitan community, who place the kendang as the pandega, the leader (*pamurba*) of irama, both in terms of differences in gradation or level of dimension/size of gatra (in connection with the factor of space, time and content), and in terms of tempo or laya (concerned with the element of time).

We are all aware that a change in irama (not in the sense of laya or tempo) in traditional Javanese karawitan is a change in level (content) of the musical treatment in a ratio of 1 to 2 (or multiples thereof). When this occurs, then (in considerations of garap or treatment) the notes in the second part of each gatra will "go up in status", as if they become the fourth note of the (new) gatra. As such, the status of these notes is like that of a seleh note. The importance of the new fourth note, as usual, is followed by the second note of each gatra, and this is acknowledged and felt by almost every practicing musician and theoretician of Javanese karawitan.

In cases of changes in irama, it is possible that each part of the (original) gatra may have a new, more important function, or may even become independent. However, it is necessary to note that in cases of changes in irama or changes in balungan due to the change in form (from *merong* to inggah), although in principle the garap instruments can and may quite legitimately use the same *cengkok* with different *wiledan*, in practice many alterations are made by the musicians to adapt to the new balungan. See the example of Gending *Bujanggonom* slendro manyura[10]:

Merong (with *balungan mlaku*)

3 **3** **.** **.** 6 5 3 2 **.** **.** 2 **3** 5 6 5 3

In the inggah (becoming *balungan nibani*)

. **5** **.** 3 **.** 5 **.** 2 **.** 3 **.** **2** **.** 5 **.** 3

With the change or adaptation to the new balungan, especially when there is a change in irama, there is a new orientation of treatment on the garap/treatment instruments, taking into account the new balungan. In the example of gending *Bujangganom*, the garap instruments change their orientation to suit the balungan changes shown in bold: 3 to 5 (at the end of the first gatra), and 3 to 2 (at the end of the third gatra).

In this case, is there actually a change in hierarchy of the position of the first and third balungan notes, and their relationship with the second and fourth balungan notes of each gatra? Through an observation of the treatment, there are signs of this difference in hierarchy. The first part (balungan stroke) of the gatra appears to have a more important position than the third. This is evident from the frequency with which the first part of the gatra is used as a reference point for the treatment. This can be seen in *mlesed* or *plesedan* treatment.

The various types of *mlesed* in Javanese karawitan, such as *mlesed*, *mbesut*, *mungkak*, and *njujug*, have been discussed in depth by Martopangrawit in his book *Tetembangan* (1970). *Mlesed* is basically the way in which one or several instruments are played — usually kenong, bonang, rebab, gender, vocal (especially sindhen) and so on, where the final part or seleh note is not always the same as the balungan gending, in particular the seleh note, but rather these instruments are inclined to go past the seleh notes and lead towards the notes, tuning or register of the next gatra or next part of the gending. *Mlesed* style of playing, or *plesedan* as it is often called, usually occurs when a seleh note is followed by balungan nggantung or balungan kembar (twin balungan notes). The instruments or vocalist playing the mlesed style usually refer to the balungan nggantung or balungan kembar coming after the seleh note. An example of this type of balungan is:

5 6 3 5 1 1 · ·

In such a case, the mlesed playing of a number of instruments and vocalist do not lead towards the seleh 5 (lima) but refer to or lead towards note 1 (barang) (as the first note in the balungan kembar or nggantung). Cases of balungan nggantung or kembar may not yet give a clear enough example of the importance of the first note in a gatra, since in these cases, the first note is the same as the second, which already has a strong position in the gatra. Another example is in the case of Ladrang *Wilujeng*:

6 5 3 2 5 6 5 3

in which the seleh note 2 (gulu) is followed by note 5 (lima); or

Ladrang *Eling-eling Kasmaran*:

3 2 1 6 5 6 1 2

where the seleh 6 (nem) is followed by note 5 (lima); and

Ladrang *Moncer*:

6 5 3 2 1 6 5 3, and

other examples in *cengkok blangkon* such as: \

2 2 . 3 5 6 5 3,

where the first notes following the seleh note often become the reference point for the direction of the instrumental and vocal playing of a number of traditional Javanese karawitan artists, although in these cases, the first balungan stroke is not the start of a balungan nggantung.[11]

On the contrary, the third notes of each gatra, as

far as I can observe, are very rarely, or even never, used as a reference point for the direction of the garap instruments or vocalist. The third balungan stroke or part of the gatra often even uses notes which have the weakest position in the pathet used for that gatra or gending.

Thus, the hierarchical order of the role or position of different parts of the "Gatra" (in its large format as a gong or gending) in traditional Javanese karawitan (Surakarta style) is as follows:

A_ as the first part (note) of the gatra, has the third strongest position,

B_ as the second part (note) of the gatra, has the second strongest position,

C_ as the third part (note) of the gatra, has the weakest position, and

D_ as the final part (note) of the gatra, has the strongest position.

Or the hierarchical order of the position of strength of the different parts of the gatra is as follows:

D _ B _ A _ C

b. Composition (Structure) of Gending

If we wish to make an analogue between gatra and cengkok (in the sense of gongan or gong unit) and gending in (traditional) Javanese karawitan, it appears that the above concept of hierarchy in the parts of a gatra can also be applied to the cengkok (in the sense of gongan) and gending (which is considered a gatra on a macro scale or with a larger format). The first kenong can be compared with the first part of the gatra, the second kenong with the second part of the gatra, the third kenong with the third part of the gatra, and the gong can be compared with the fourth part or seleh note of the gatra.

As a simulation, we can observe several examples of gending:

Gambirsawit, slendro pathet sanga[12]:

```
· 3 5 2  · 3 5 6  2 2 · ·  2 3 2 1̂
· · 3 2  · 1 2 6  2 2 · ·  2 3 2 1̂
· · 3 2  · 1 6 5  · · 5 6  1 6 5 3̂
2 2 · 3  5 3 2 1  3 5 3 2  · 1 6 (5)
```

A summary of the kenong tones in one gong unit is: 1 1 3 5.

Loro-loro, slendro pathet manyura:

```
. . . .  3 3 2 1  6 5 3  . 3 5 1 6̂
. . . .  3 3 2 1  6 5 3  . 3 5 1 6̂
3 3 . .  3 3 . .  3 3 . 2  3 1 2 3̂
.12 .13  3 2 1 6  . 6 5 3  2 1 2 (6)
. . . .  6 6 5 3  2 2 . 3  1 2 3 2̂
6 6 . .  6 6 5 3  2 2 . 3  1 2 3 2̂
3 3 . .  3 3 . .  3 3 . 5  6 1 2 1̂
. . . .  1 2 6 5  3 3 . 5  6 3 5 (6)
```

A summary of the kenong tones in the Gending *Loro-loro* (gendong) is: 6 6 3 6 (in the first gong) and 2 2 1 6 (in the second gong).

The above examples are taken at random from popular gending (*adhakan* or *srambahan*) as an illustration to support my hypothesis about the profile of gatra in Javanese karawitan. I would like to show that the third part of a gatra or (kenong unit of a) gending is the part with the weakest position; weak in terms of the notes in the seleh position for the kenong — especially from the perspective of garap or treatment — but also weak in the context of the function of the note in the perspective of a particular pathet. It is believed that each note has a particular hierarchical function in each pathet.[13]

Although until now there is no strong consensus about which note has what function in a particular pathet, nevertheless the hierarchical function of a note is still felt and believed to be present. Research and discussions on this topic are always interesting and still necessary.

Whether we realize it or not, the tradition of making the third part of a gatra or gending the weakest part can be understood logically (at least according to the reasoning of the writer, as both a practitioner and composer of new traditional and new experimental gending). It is because of its weak position, on the third stroke immediately before the end of the gatra or the final kenong (approaching the gong), that this part of the gatra has the function and position as a preparatory part or bridge to strengthen or solidify the position of the seleh or gong as a terminal with the strongest position. For this purpose, it is necessary to have two contrasting positions side by side, or in other words weak followed by strong.

Also in connection with the need to strengthen the position of the final part of the gatra or gong of the gending, it is sometimes also necessary to "lengthen the duration" of the seleh part, for example, by repeating the final note or part of the gatra or gong. In Javanese karawitan, this lengthening is realized in the form of nggantung or repetition. This is frequently used in Javanese karawitan gending in the form of short extensions (one balungan stroke) or longer extensions (several balungan strokes or several gatra, or even several kenong).[14]

It is necessary to explain that the understanding

of balungan nggantung is not merely limited to balungan kembar or balungan pin (empty), but also includes other balungan arrangements which give the impression of "remaining" or staying on (around) a particular area of sound (note). Inexperienced musicians sometimes have trouble identifying this type of balungan nggantung, as feeling plays an important role in this identification, even more so in balungan nibani and also in balungan tikel. A few examples of balungan nggantung are:

```
3 3 .  .          (Wilujeng)

3 2 1 .           (Umbul donga)

3 5 2 3           (Mugirahayu)

6 3 5 6  7 6 5 6  (Tropongan)

.1.6 .5.6 .5.6    (Gonjang-ganjing)
```

A number of illustrations of balungan arrangements of the nggantung type are as follows:

Kawit, slendro manyura, after gong 3 (dada):

```
· · · 3  · 1 2 3  · 1 2 3 etc.
```

In this example from Gending *Kawit*, the gatra `· 1 2 3` is shown with an empty balungan (*balungan kosong*) in the first part of the gatra, which is a short extension (one balungan stroke) of the seleh in the previous gatra – note 3 (dada). This example also illustrates the importance of the position of the first part of the gatra, by filling it with the same note as the seleh note, note 3 (dada). This type of balungan is much more frequent in thousands of other (parts of) gending than a balungan with nggantung (pin or empty) in the third balungan stroke (part) of a gatra, such as the example: `1 2 · 3`. In Gending *Kawit*, there is also an example of a longer extension of a seleh note, lasting one gatra plus an extra balungan stroke, such as the example: `3 · · · 3 · 1 2 3`. This type of balungan is also found in thousands of other Javanese gending. A longer example may be seen in Gending *La-la*:

```
5 · · · · 5 5 · · 5 5 · 3 5 2 3 5 etc.
```

In a larger format, the form of extension may be a repetition of a kenong phrase, in which the final note of the kenong is same as the gong note. An example is Gending *Kutut Manggung* is as follows:

```
(1) . . . . 1 1 2 3  5 6 5 3  2 1 2 1⌢

    . . . . 1 1 2 3  5 6 5 3  2 1 2 1⌢
```

Similar examples can be found in hundreds of other gending in the Javanese karawitan repertoire, such as in *Titipati*, *Majemuk*, *Widasari*, *Lobong*, and *Loro-loro*. Some repetitions last for more than two kenong units, such as in Gending *Damarkeli*, Ladrang *Bedhat*, Ladrang *Sumirat* and Ladrang *Bolang-bolang*.[15] Likewise, the part repeated also varies. It may be the first, second or third kenongan or the gong, as well as other parts (the middle) of the gending.

An example is gending Ladrang *Sumirat* slendro manyura:

```
A   5 6 5 2  5 6 5 3⌢
    5 6 5 2  5 6 5 3⌢
    5 6 5 2  5 6 5 3⌢
    i 5 6 ·  i 6 5 (3)
B   i 5 6 ·  i 6 5 3⌢
    i 5 6 ·  i 6 5 3⌢
    i 5 6 ·  i 6 5 3⌢
    5 6 5 2  5 6 5 (3)
```

The first kenong is repeated in the second and third kenong, or since a performance of a gending in Javanese karawitan may be repeated in every part, the three above kenong units may be considered a repetition of the fourth kenong. This kind of example occurs in many gending, for example in: Ladrang *Wilujeng*

```
2 1 2 3  2 1 2 6⌢

3 3 · ·  6 5 3 2⌢

5 6 5 3  2 1 2 6⌢

2 1 2 3  2 1 2 (6)
```

in which the first kenong is a repetition of the fourth kenong, not the fourth kenong a repetition of the first kenong.

From the above illustrations, the parallelism and similarity of the hierarchy of the gatra (and its parts) and the gending become more evident. It is natural and cannot be denied that the larger the format (such as in an example of a gending in the form kethuk 4 awis or kethuk 8 kerep), the more difficult it is to trace this parallelism or similarity. This is, once again, due to the live nature of the gatra, whose changes and developments are extremely flexible according to its time, place and function, and also depend on the musician or artist, which is also connected with its cultural context (Supanggah, 1985). Nevertheless, the hierarchical regulations within the gatra, both in its small and

large format, are basically consistent with, and do not fall far short of, this discussion.

Changes in Format or Scale

In the tradition of Javanese karawitan, a change in format or scale is not uncommon. This may be seen in the reduction or diminution of a number of gending, such as Gending *Rondhon* kethuk 4 arang, which is reduced to *Rondhon Cilik*, kethuk 2 kerep, Gending *Renyep* kethuk 4, which is reduced to Gending *Renyep* kethuk 2 kerep, *Sangupati* kethuk 4 arang, which is reduced to *Sangupati* kethuk dua kerep and so on. This reduction or diminution of gending also occurs in long gending, which are shortened while retaining the same form, such as in the version of Ladrang *Playon* pelog lima with 13 gong units, which is shortened to become Ladrang *Playon* with three gong units, or *Gonjang-ganjing* (*Lik – Tho*) slendro sanga with three gong units, which is shortened to become *Gonjang Ganjing* (bedayan) with two gong units.

Changes in format can also occur in the opposite direction, in the form of enlargement or expansion of format. Many cases of this can be found in gending yasan Kepatihan (from the first half of the 20th century). One example is Gending *Wilujeng* kethuk 2 kerep, which is an enlargement of Ladrang *Wilujeng*. Other examples are Gending *Siyem*, Gending *Brongtamentul*, Gending *Kapidhondhong* and so on (Mloyowidodo, 1976 vol. 3). This enlargement of format accompanied by a change in form can also be seen in certain cases of gending sekar, which are basically a change or development in form from a vocal performance (usually *sekar macapat, tengahan* and/or *bawa*) in irama *mardhika* or free irama, which are then treated to become more fixed and at times even metric, according to the frame of the gending, which already has a certain form, such as ladrang, *ketawang*, or other forms such as *ayak-ayakan* or *srepegan*. From this point of view, in fact, gending palaran can also be included in this category of gending sekar. Gending *palaran* is also a concrete example of a case of developing the gatra with the concept *mulur mungkret*.

Changes in format and/or form occur or are specifically used when there is a change in function, use or contextual change of a gending/karawitan. Cases of gending *Bedhaya, Srimpi* and *Wireng* are clear examples of a change in function of gending *klenengan* to become gending *beksan*. Likewise, examples of gending dialogue used in theatre or the performing art forms *Kethoprak* and *Langendriyan* show a change in function from vocal pieces or tembang to become gending sekar: gending Ketoprak and gending Langendriyan.

Whatever the direction of the change in format and form (whether enlargement or reduction), the results of the change still appear to adhere to the norms of the concept/character of gatra, which is also the core idea or concept of gending in Javanese karawitan.

Character

In connection with the fact that gatra (in all its formats and dimensions) has a form or shape, determined partly by its step, structure, contour, register and especially treatment, there are a variety of different characters of a gatra (or gending). In the tradition of Javanese karawitan, these characters are often described as *rasa* (feeling). There are gending with the character *regu* (powerful), *tlutur* (sad), *sigrak* (joyful), *gecul* (humorous), *prenes* (romantic), *gobyog* (lively, fresh and entertaining), *sereng* (angry), and so on. In accordance with my belief that a gending only exists when it is performed by a group of musicians or vocalists, in fact the feeling of a gending is relative and highly dependent upon the artists themselves (and the various factors influencing their backgrounds), within the framework of its space, time and function – both aesthetical and contextual.

However it cannot be denied that the character of a gending can also be determined by its gatra or arrangement of gatra. Numerous gending may be identified by the arrangement of gatra, which sometimes may be found only in a particular gending. An example is:

5 5 . . 5 5 . . 5 5 6 5 3 5 6 1

. . 3 2 . 1 6 5 3 5 . 2 3 5 6 5

A musician will quickly identify this balungan or arrangement of gatra as Gending *Laler Mengeng* slendro sanga. Likewise, the balungan or arrangement of gatra:

4 3 4 . 4 3 4 . 4 3 4 6 4 3 4 2

will be identified as Gending *Tukung* pelog barang, or:

· · 7 6 5 3 2 6 · · 7 6 5 3 1 2

will be identified as Gending *Miyanggong* pelog nem, and so on.

On the contrary, the balungan or arrangement of gatra such as:

2 1 2 · · 1 2 6 3 5 6 i 6 5 2 3 or

· 6 5 · 5 6 1 2 1 3 1 2 · 1 6 5 or

2 3 2 5 2 3 5 6 6 6 7 6 5 4 2 1

and many other examples may be found in almost all gending in that particular pathet. This type of balungan or arrangement of gatra is what I have

described as balungan *adat* or *blangkon*.

The method of identification of a gending from the arrangement of its balungan/gatra with a particular character, whether highly specific, rather specific, or with gatra or cengkok adat, was often used by old master musicians (at least until the 1970s), when they were training or teaching their pupils to memorize, master or treat "new" gending. For example the teacher would shout "*Klewer*!" when the pupils were playing gending *Endol Endol* pelog pathet barang. This meant that there is a particular part of gending *Endol Endol* that should be treated in the same way as gending *Klewer*, which has a part similar or the same as part of gending *Endol Endol*. Likewise, the teacher would shout "*Adat*!" when the student reached the part of a gending similar to that found in many other gending in the same pathet. Complete or total identification (of the balungan/gatra arrangement, irama, patet, and instrumental treatment or garap) became an important part of the oral system used.

In order to obtain accurate results, it is necessary and in fact essential to carry out more in-depth research, accompanied by statistical analysis of the entire population of gending in the Javanese karawitan repertoire. It is important to be aware too that karawitan, as with other art forms, also has some works or actions containing exceptions, for creative or innovative purposes, to create a surprise, or for other purposes of artistic expression. However, as a branch of the traditional arts, karawitan is also inclined to display certain regularities, similarities and regulations or even rules, all of which provide a unique character for traditional Javanese karawitan.

Epilogue

Although the material in this paper is not yet supported by data covering the whole repertoire of Javanese karawitan gending, I would hope that the reader could gain a picture of the gatra as an important concept in the vocabulary of karawitan "knowledge". The gatra, with its various elements and characteristics, is also the core of the conception of cengkok (gongan) and also traditional Javanese karawitan gending. The gatra can no longer be separated from the cengkok, wiled, kenongan, gongan, gending, and so on.

The understanding of the core of (the cengkok, or gongan, of) the gending is not necessarily the same as the understanding (with a nuance of meaning similar to the gatra) of theme or motif in the world of western music. The theme or motif in the world of western music is also the core of a western (classical) musical composition. The theme or motif is a musical idea (melodic or rhythmic), which provides the basis or frame of a composition. This theme or motif is often repeated, imitated, altered and developed by the instruments, in the hope of unifying the composition by reminding or "binding" the listener so as not to break free from the composition. It is the highly flexible and imaginary nature of the gatra that distinguishes it from the concept of theme or motif, the realization of which is clearly identifiable to our ears, in addition to its other characteristics mentioned above. It is quite possible too for the idea of theme or motif (in traditional western music) to be applied to the world of karawitan, especially in new works which are beginning to be more individualistic. It is clear that Sri Hastanto in his composition *Ro-lu-ma-nem* (2356) and Supardi in his composition *Lu-ro-ji-nem* (3216) used an approach with a sense of theme or motif commonly used in western classical music. This is especially evident in Sri Hastanto's composition, while Supardi develops the concept of the gatra 3216 in a more variational and complex exploratory way.

I have carried out this small scale and incomplete research independently and in a relaxed way in the time available amidst my day-to-day activities. I hope that it will provide both stimulation and a contribution to the formation of karawitan theory, and also for the purposes of creative activities such as the appearance of new karawitan treatment and or new karawitan compositions. If this research is continued, in a more serious and proportional way, we will of course obtain much better results (and perhaps also theories). Hopefully this hypothesis will become positive and be accepted.

We are aware of the importance of this concept of gatra as a starting point for subsequent work, such as a tool for the analysis of treatment (garap), pathet, composition, and other types of analysis in the field of karawitan. At least from the explanation of the concept of gatra, we are able to understand the position of (the concept of) gatra and relate it to other concepts in the constellation of concepts in Javanese karawitan. As we have all read, at present many theoreticians of karawitan carry out their analysis using the balungan or gatra as the object of analysis. Without knowing more about the gatra, with its character, nature and form, including on an imaginary level, I can guarantee that their results will be far from satisfactory, however good the methodology used.

Karawitan knowledge or theory is a new theory, which is beginning to grow, be built and developed in Indonesia. Its material, knowledge and concepts are in fact quite complex and abundant, and still scattered all over the place. These conditions provide a challenge and also an opportunity

requiring our willingness to approach, collect, compile and develop them into a firmer cluster of theories. In such a situation, we believe that however small the result achieved, it will still have great value and significance in the development of the world of karawitan theory.

In the world of practical karawitan, the gatra also has an important role as a point of reference for the work of karawitan artists or musicians in playing and treating their instrumental and vocal performance. This is also the case in efforts to develop creative activities such as creating new compositions or gending, new vocabulary for garap (cengkok or wiledan), and so on.

For this reason, once again with all limitations and with the classic reason — time and costs — I would like to put this small and simple observation of one of the important concepts of karawitan, gatra, to the reader, to obtain a response, criticisms and suggestions. I would be delighted if these ideas manage to rouse us all into undertaking more intense research or studies for the sake of developing our knowledge of karawitan.◗

Notes

[1] Its use was made popular through theory and practical karawitan lessons at KOKAR, by R.M. Panji Sutopinilih.

[2] It is customary in Javanese society to associate the vocal sounds "o" or "ong" with greater importance than the vowels "u", "a", "e" or "i", or each of these vowels with the ending ng. As an example, the Javanese often refer to the sound gong (with the vowel "o") as more impressive than the sound gung (with the vowel "u"), as is often used to describe the sound of a *kempul*, even more so compared with the sound ging (with the vowel "i"), which has the impression of something even smaller or with a higher pitch, such as the sounds of the kempul with *barang* pitch (1) and *manis* (2).

[3] Although some people believe that the regulations or standardization of treatment or garap, including the bowing for the rebab, were established during the Kepatihan (Wreksodiningrat) era, at the turn of the 20th century.

[4] In this nggantung, a high degree of creativity is demanded of the musician. As in the case of gending pilaran, the level of artistry of a gender/gambang/siter/kendang player is visible from the way in which they treat the nggantung part.

[5] Sumarsam, *Inner Melody*, Master's Thesis in Ethnomusicology, Wesleyan University, 1976.

[6] Marc Perlman, Unplayed Melody, dissertation in Ethnomusicology, Wesleyan University, 1993.

[7] As we know, other types and forms of gending smaller than kethuk loro kerep are usually called by the form or name alone, such as *Ayak-ayakan slendro manyura,* or *Ketawang Sinom Parijatha* or *Jineman Uler Kambang*, and are rarely called by the name of *Gending Ayak-ayakan slendro manyura* or *Gending Ketawang Sinom Parijatha* or *Gending Jineman Uler Kambang*, or by the name *Sinom Parijatha, Gending Ketawang* or *Uler Kambang*, *gending jineman*, such as in the case of *Onang-onang, gending kethuk kalih kerep minggaah kethuk sekawan*, and so on. It is possible that in former times, musicians consciously only regarded a composition of Javanese karawitan as a ("standard") gending if it was kethuk loro kerep or above. Other compositions would then be categorized merely as "songs" ("lagu" or "lagon").

[8] As we know, the form of a gending, in addition to being determined by the number of balungan strokes in each gong unit, is also determined by the "tapestry" or structure/pattern of the structural instruments (ketuk, kempyang) and the compilation of musical phrases within a gong or kenong unit.

[9] *Cengkok mati* or *adat* or *blangkon* are usually a series of treatments (melodic or rhythmic) requiring a framework for treatment or performance time longer than a single gatra (measuring the performance of a gending in irama dados).

[10] See also Supanggah "*Balungan"*in *Balungan*.

[11] In writing these examples, the seleh notes are written in bold print and the nggantung notes are underlined.

[12] Take the example of *Gambirsawit*, as not only is this gending known among all karawitan practitioners and theoreticians but it is also considered to have a *pathet* which is "pure" *slendro sanga*.

[13] See also Sindusawarna, Martopangrawit, Mantle Hood, Judith Becker, Sri Hastanto, and others.

[14] A more detailed explanation of nggantung can be seen in Marc Benamou's thesis (Benamou 1990).

[15] See also Gending Gongjang Anom Pelog Nem, ketuk 8 kerep minggah ketuk 8, the longest gending in the repertoire of Javanese gedning in Surakarta style.

TRADITIONS

Wayang Wong Priangan: Dance Drama of West Java

by Yus Ruslaiana

Translated, edited, and augmented by Kathy Foley

The relationship between human performance and puppetry in Indonesia is strong. If *wayang wong jawa* (Javanese dance drama) is a reflection of *wayang kulit* , the leather shadow puppetry of Central Java, which uses humans as actors (Soedarsono, 1997:1), then wayang wong Priangan, the dance drama of Priangan—the mountainous highland area of West Java— can be spoken of as a personification of *wayang golek,* the wooden three-dimensional puppetry of the Sundanese speakers who live in this highland area of West Java.

Performances borrow from the repertoire of this important puppet theatre in which stories of the Mahabharata, Ramayana, Arjuna Sasra Bahu and Menak cycles are performed. As in wayang golek a *dalang* (puppet master) delivers narration and mood songs. The musical repertoire of wayang golek's gamelan is used the performance structure adopts pupptry's patterns. Differences are that in wayang wong (called wayang orang in Indonesian) the choreography performed by individual dancers is more complex than that executed by the wayang golek dolls; the dialogue is usually delivered by each dancer representing his or her character rather than by a solo narrator/puppeteer; and the performance is more streamlined, lasting a mere two to four hours rather than the seven or eight of a puppet play.

Wayang wong Priangan developed in the late nineteenth century, peaked in the regencies of Bandung, Sumedang, Garut and Sukabumi in the period before World War II, and receded by the late l960s as audiences waned. This article will introduce wayang wong Priangan, detailing its history and aspects of performance practice and repertoire.

History

Wayang in Kawi (Old Javanese) means "shadow" and *wang* means "human." *Wayang wang* was a performance in the style of *wayang kulit*, the shadow theatre of Central Java wherein actors and actresses took the puppets roles. The first written reference to the form is on the stone inscription Wimalarama from East Java dated 930A.D. (Soedarsono, l997: 4-6) The genre is currently done in masked and unmasked variations in Central Java, Bali, and Cirebon (a city on the north coast of West Java), as well as in Sunda (West Java).[1] Since Cirebon's wayang wong is the direct antecedent of wayang wong Priangan, understanding Cirebonese practice is important to the discussion.

Wayang Wong in Cirebon

Cirebon has two styles of wayang wong. The first is a village version in which the performers are masked. [2] The second is a palace variant where the performers dance unmasked. Cirebonese wayang wong developed in the beginning of the nineteenth Century and fed into the wayang wong Priangan by the end of that century.

From 1811 to 1816 the English were a colonial presence in Cirebon. When they left, they were replaced by the Dutch. In this period the palaces of the Kanoman and Kasepuhan were centers of cultural conservation and artistic development.[3] These *kraton* (palaces) encouraged the artistic practice of the village performers as well as supporting presentations by artists who were of noble descent. For example, the Kanoman Palace records note a performance in 1842 of a *badaya* (female court dance) done by six performers which drew on the *Menak* cycle, a legend that tells the history of Amir Hamzah uncle of the Prophet Mohammed (Soedarsono l972: 115-6). Later, during the reign of Sultan Raja Zukarmaen (l873-1934) and Sultan Anom Nurbuat (l934-5), attention to the arts continued at the Kanoman. Palace choreographies included a *badaya rimbe* (a female group dance performed by the Sultan's female daughters), which was last performed in l966 at a Kanoman circumcision. Wayang wong, presenting tales from the Amir Hamzah repertoire. Kanoman dancers performed wayang wong without masks and characters spoke their own dialogue while the dalang

delivered only the mood songs (*kakawen/ suluk*), and narration (*nyandra*). Performers were generally village artist who were given rights to work lands and considered *abdi dalam*, retainers of the ruler. Some artists, especially dalang, were given the title Nata Prawa. Palace performances were open to the public by l925, but as the patronage of the palace faltered with independence and economic dearth, wayang wong ceased by l966 due to lack of funds.

The wayang wong which was favored at the Kasepuhan palace was different. There a village troupe which would be invited into the palace to perform for Islamic holy days, for life-cycle celebrations, and for exorcistic ceremonies (*ruwatan*). In the period of Sultan Raja Atmaja (1880-1899) the troupe of Dalang Resmi was most noted. There were many artists especially from the surrounding villages of Mayung, Gegesik, Palimanan, Slangit, and Suranenggala. These performers were allowed to work royal land and might be given titles. For example, Dalang Kandeg, one of the most noted Cirebonese artists of the last generation, was given the title Patmadjawinata, while Dalang Dirja received the title of Ngabehi. Such individuals also were given the honorific title Ki or Kyai . These two dalangs and their troupe were frequent performers in the palace performance halls, Pringgondani and Srimati, between l939-l942. Their performances included well known *wayang* stories such *Pergiwa-Pergiwati, Jabang Tutukla, Gandamanah, Brajamusti*—stories named after their featured character—*The Forest of Alas Amer*, *Somantri Breaks his Vow, Partakrama* (Arjuna's Wedding*), Campang Curiga, Prabu Kuliti Kunmbang Ali-Ali (Mintaraga*/ Arjuna's Meditation), and, for the exorcism, *Batara Kala* (The God/Demon Kala). Costumes and masks for these performances followed the iconography of the wayang kulit shadow theatre of Cirebon. (Pigaud, l938: 120). The batik cloth in which dancers would wrapped themselves was painted with the traditional designs of Cirebon. In the Kasepuhan performances the dalang delivered all the dialogue as well as the mood songs and narration, as he would in a puppet performance. Movement was in the style of Cirebon *topeng* (mask dance). Palace performance used both the *slendro prawa* and *pelog* orchestras. Performances outside the palace, by contrast, were more modest would use only one set of instruments tuned to either the slendro or pelog scales.

The Kanoman Palace developed an aristocratic, unmasked variant of wayang wong where performers were nobles or their retainers. The masked Kasepuhan Palace model was dominated by villagers and these performances were more suffused with a village aesthetic. The former style needed many trained palace performers, but the latter style was the purview of professionals/semi-professionals. This second group would in the late nineteenth century carry the art to the Piangan highlands, travelling for parts of the year as itinerant troupes.

Wayang wong in the Priangan area

According to Pak Kandeg, the most authoritative Cirebonese wayang wong dalang of the last generation, a dalang by the name of Ki Kempung was the first to tour the genre outside the palace and to Priangan while the second was Nagbehi Natawigunan (Maman Suriaatmaja 1970: 236). Performances could be of two types: firstly, that hired for a set fee by a family or group holding a ceremony or celebrating a festive occasion, or, secondly, paid for by viewers who purchased individual tickets. The latter type of presentation was called *bebarangan* or *ngamen* (itinerant performance). As these groups traveled, wayang wong spread to major cites of the Sundanese area such as Sumedang, Garut, Sukabumi, and Bandung.

The dalangs of this time who were best known were Wentar and Koncar. Wentar's given name was Kundung, but he received the nickname Wentar (*kawentar*, "famous") from R. A. A. Martanegara, the regent of Bandung at the turn of the twentieth century. Wentar was patronized by the aristocracy and was known for teaching *topeng*-style mask dance of Cirebon to highland nobles. Meanwhile Koncar who was closer to the commoners, focused on performing wayang wong with his troupe for his lower class audience. Originally the dialogue used by such troupes was in the Cirebonese dialect of Javanese, but soon the local Sundanese language, which could be understood by the viewers, was employed. According to Dalang Kandeg, the real name of Koncar was Ki Konya. The moniker Koncar comes from *kakoncara*, meaning "well-known." Wentar helped lay the groundwork for what would become known as wayang wong *priyayi* (literally, "civil servant" [i.e., upper class] wayang wong) as he trained members of the aristocracy in dance performance. Koncar whose work was later continued by Dalang Kamsi, popularized the genre among the hoi poloi. Due to this pair and their followers, by the end of the nineteenth century we find wayang wong

Priangan developing in the highlands of West Java as an indigenous performance.

On January 1, 1871 the Dutch colonial administration implemented re-organization of the Priangan area by assigning a Dutch resident officer to oversee several regents, called *bupati*. It was in cities overseen by these bupati, that wayang wong later flowered. Let us consider some of the developments looking at the cites closer to Cirebon first.

Sumedang is the gateway to Priangan from Cirebon on the north coast. Prince Suria Kusumah Adinata (l836-l882), the *bupati* of Sumedang was a wayang aficionado and ordered palace dancers to be trained in wayang wong. He determined that the female dancers would wear masks while headdresses for his troupe were made of copper or tin (Pigeaud 1938,121). In 1893 it was similar headdresses that the next Bupati of Sumedang sent to the Colombia Exposition in Chicago along with the *gamelan* set called Sari Oneng Parakan Salak, a set of nineteenth century instruments (Abdullah Kartabrata l996: 9, 41).[4]

Garut is also close to Cirebon. This was where Wentar and Koncar had found audiences at the end of the l9th century. The dance training given by Wentar contributed to the development of wayang wong among the upper classes in that city. During the time of Bupati R.A.A. Suryakartalegawa (l915-1931) there was a group of wayang wong priayayi. In the l920s it was sponsored by the *kabupaten*, the government of the area, and all performers were civil servants, who were the elite of that time. *Mahabharata* stories were performed on major holidays. No masks were used and dancers spoke their own lines. No clown roles were included, perhaps because it was difficult to find *priyayi* who were the right types and/or willing to play the comic roles. Also in Garut, Dalang Bintang ("Star") from Tarogong began to perform wayang wong Priangan after he married a daughter of Dalang Koncar, who was his teacher. Dalang Bintang performed with his *wayang golek* apprentices. The group used masks. All the dialogue was initially delivered by the dalang. But, in time, the group discarded masks and performers began to present their own dialogue. *Mahabharata, Arjuna Sasra Bahu* and some *sempalan* stories were in their repertoire.[5]

Bandung, the present capital of West Java, is further from Cirebon and the coastal influences arrived here a bit later. Here the arts were supported by Bupati R .A. .A. Martanegara who ruled l893-1918. A building in the official complex of the *kabupaten* was called the Hall of Priangan Culture. Here dance, music, and theatre were practiced. The arts were linked to status and class. By the l920s, Bupati R. A. A. Wiranatakusumah V, known as Dalam Haji, (1920-31 and l935-42) led the regency (Nina H. Lubis, l998: 315). Under Wiranatkusumah's leadership *priyayi* presented maskless *Mahabharata* episodes with the dialogue spoken by the dancers. Costumes followed *wayang golek* iconography and the group performed for congresses and major holidays. R. Sambas Wirakusumah excelled as the knight Laraskonda and R. Tjetje Somantri as Baladewa (R. Tjetje Somantri 1948: 4). These two individuals were to become the most noted dance masters of the twentieth century and their legacies in Sundanese dance and theatre remain profound. While the bulk of performers at the *kabupaten* in Bandung were *priyayi,* musicians and female performers were drawn from the lower class.

Outside the *kabupaten*, these *priyayi* artists sometimes developed their own ensembles, as did R. Sambas Wirakusumah when he became headman (*lurah*) of Rancaekek near Bandung. In the l930s in Cimindi to the east of Banding, another group was established by Ibuk, who himself was a pupil of Dalang Oneng from the city of Sukabumi. This troupe was known for its cross-gender casting. Women presented refined knights and men played female comic roles. In l938 in Babakan Tarogong Kotapraja Bandung, another troupe, wayang wong *Kayat*, led by Pak Kayat was established. This group was often hired to provide entertainment for family ceremonies. It also staged ticketed performances. Dancers presented their own dialogue with the dalang providing only mood songs and narration. The performance, as with other troupes, followed wayang golek's model.

After independence the *pendapa*, the open air pavilion, of the Bandung *kabupaten* was no longer used as a performance or training space, and wayang wong's future was fully in the hands of the common people. Many of the great artists of the period participated in the genre. R. Sambas Wirakusumah continued to be active. In l957 he gave a performance which included music by the noted artist R. Nugraha Sudireja, narration by Dalang Iding Martawisastra, and direction by Enoch Atmadibarata (a major choreographer and scholar of the present) in a performance of *the Birth of Gatotkaca.* (Yuli Sunarya, l997:99) This performance was more structured than those of an earlier period. The dialogue was based on a set text rather than improvised in performance as

earlier was the norm. The choreography and positions on the stage were predetermined rather than left to the discretion of the performers, and the transitions were worked out. In such performances the fluidity of the past with its reliance on the choices of the trained individual artist was being replaced by a more unified and predetermined aesthetic. In the post World War II period, Kayat revived his group and it became a training ground for many artists of the present. But by the late 1960s there was little demand for performances of this genre. By l968 Wayang wong *Kayat* found annual independence day celebrations the only call for its artistry. Unneeded, artist retreated to *wayang golek* or migrated to other genres such as *sandiwara* (improvised drama where dance is deemphasized and the repertoire is not confined to the *wayang* tales) and *sendratari,* which forgoes dialogue in favor of mimed action.

The Troupe

A troupe of wayang wong Priangan would include dancer-actors (*penari)*, a dalang to narrate, musicians (*wiyaga* or *nayaga*) to play the *gamelan*, and a female singer (*pasinden* or *juru kawih*) whose lyrics complemented the show and filled in during

the scene transitions. Dancers were usually assigned roles by the troupe leader, often the dalang, who in casting took into consideration the performers ability in dance and speaking. Seasoned performers usually had a character that was considered their specialty (*kostim*). All roles were not equally demanding and performers fell into three groups. Primary players (*wayang utama*) played the core roles in the story presented. The dancer who played a heroic roles was apt to become the idols of the viewers. The antagonist was equally necessary for the conduct of the story and would portrayed the villain. Secondary characters (*wayang pamanggul*) supported the hero or villain. Supporting characters (*wayang pangeuyeub*) took minor roles such as rank and file ogres.

The dalang was usually not responsible for the dialogue, but provided the mood songs and narration. Additionally this performer cued the *gamelan* with the wooden hammer (*cempala*) and metal plates (*kecrek*) which he used to accent the movement of the dancers and to make sound effects which enlivened the energy of the scene. Unlike *wayang golek* which since the l960s has allowed female dalang, the dalang of wayang wong was always male.

There were about ten musicians who played the *gamelan* instruments which consisted of a bowed lute (*rebab*), drums (*kendang* and *kulanter*), metalophones (*saron* I, *saron* II, the deeper-voiced *panerus*), the horizontal gongchimes (*bonang*, *rincik*), a xylophone (*gambang*) and set of large hanging gongs (*goong, kempul*). One female singer who was called *pasinden* or *juru kawih* was customary. Among the musicians, the drummer had a preeminent role as he set the rhythm and provided percussive accent for the movements of the dancers.

Chart A: Character Types

The following chart details the character types that would be found in wayang wong Priangan with examples of well-known characters that fall into that type and notes on their movement and vocal practice. (Characters from the Mahabharata are designated by an M, Ramayana with an R and Arjuna Sasra Bahu by ASB.)

Type	*Characteristics, Dance Steps, Voice*	*Characters*
Putri Lungguh	Refined female who moves in slow sustained style. Names of signature movements include adeg-adeg lontang nutpup (stance with closed arms), jankung ilo reundeuk (low approaching movement), keupat anca (refined walking). She speaks in suara biasa or regular voice.	Subadra (M), Drapadi. (M), Sita (R), Citrawati (ASB)
Putri Ladak	Semi-refined female who moves more quickly, but is still refined. Signature movements are adeg-adeg lontang buka (stance with open arms), jankung ilo batarubuh (approaching movement with shoulder movement), and keupat salancar (medium walking). She speaks in suara bengek or high voice.	Srikandi (M), Mustakaweni (M), Rarasati (M), Trijata (R)
Satria Lungguh	Refined knight who moves in a sustained, slow way but has a wider stance than the putri lungguh. Movements include keupat anca (refined walk), adeg adeg baplang (stance to the baplang rhythm), and tincak tilu (stepping in threes). He speaks in suara biasa or regular voice.	Arjuna (M), Abimanyu (M), Yudistira (M), Batara Guru (M), Rama (R), Arjuna Sasra Bahu (ASB)
Satria Ladak	Refined knight who moves in a medium tempo but more directly and energetically than the refined character. Movements included keupat satria (knight walk), ecek, santana (side stepping), and adeg-adeg sembada (semi-refined stance). He speaks in suara bengek or high voice.	Kresna (M), Karna (M), Somantri (ASB)
Monggawa Lungguh	Refined warrior who stands in a wide stance, his head low but his tempo even but rather fast. Movements include adeg-adeg capang (stance fixing armbands), jankung ilo cikalong (strong approach), gedut (striding), gedig anca (small stepping with weight transfer). He speaks in suara gangsa or deep voice created by tightening vocal cords.	Gatotkaca (M), Antareja (M), Hanoman (R)
Monggawa Dangah	Proud warrior who is aggressive and uses dynamic movement. Signature steps include adeg adeg capang sonteng (stance fixing armbands dynamically), pak blang (stepping forward and back to the pak blang drum pattern), and gedig salancar (wide stepping with weight transfer.)). He speaks in suara gangsa or deep voice created by tightening vocal cords but using a quick and somewhat forced tone.	Baladewa (M), Jayadrata (M), Suyudana (M), Inrajit (R)
Danawa Patih	Ogre minister who has a wide stance but whose head is down a bit, and moves in a steady and rather quick tempo, gazing straightforward. Movement include adeg adeg japang ngalaga (stance fixing armbands for battle), sirig and jankung ilo batarubuh (approach with shoulder tapping).). He speaks in suara gangsa with a deep voice created by tightening vocal cords.	Sakipu (M), Brajamusti (M)
Danaw Raja	Ogre king who has straight wide leg stance, energetic and fast rhythm, and straightforward and high gaze. Movements include adeg-adeg kiprahan (preening stance), banrongsayan, pak blang gancang (fast stepping forward and back to pak blang rhythm), gedig barungbang (strong stepping with weight shift).). He speaks in suara gangsa or deep voice created by tightening vocal cords, but voice can swoop up and down and the breath is forced.	Naga Percona (M), Niwata Kawaca (M), Rawana (R)
Pawongan	Clown servant with comical and exaggerated movements. Specific voices are prescribed for each of the clowns. They appear in all the story cycles whether Mahabharata, Ramayana or Arjuna Sasra Bahu.	Semar, Cepot, Dawala, Gareng

Performance Practice

Dance is especially important to depict battles, and these dance confrontations are of three types. Solo Battles called *perang tanding* (battle duel), which will be discussed at greater length below. *Perang rempugan* is when a hero or heroine fights 2-3 opponents simultaneously as when Abimanyu is slain by the Kurawa in the *Mahabharata*. *Perang balad* (battle of the rank and file soldiers) pits groups of low class characters against one another, as when the rank and file of the Kurawa army face the foot soldiers of the Pandawa in the *Mahabharata*.

Perang tanding is a pair battle that can take many variations. It may be a dance battle between nobles in which case it is called *perang tanding satria*. Two knights one refined (*lungguh*) and the second semi-refined (*ladak*) confront each other with the refined one winning, as when the refined Pandawa hero Arjuna fights his semi-refined half-brother Karna on opposing sides in the Bharata Yudha. Another example is when the semi-refined Ekalaya, an uninvited student, is defeated by the refined Arjuna at the order of their teacher Dorna. A final example is the refined Raja *Arjuna Sasra Bahu* in the epic cycle named after him, who is an incarnation of the god Wisnu (Vishnu) and defeats the semi-refined Somantri who will later become his minister. In each of these instances, the refined defeats the semi-refined. This loss supports the ideological order of the *wayang* universe. In *wayang*, the most refined always wins, in spirit if not always in fact.

It is not customary for knights of the same character type to battle. A *lungguh* character will not oppose another *lungguh* figure. Perhaps this is because the redundancy would contradict the ideology behind. A truly refined character is never the attacker, hence, there can be no challenge to battle when two *lungguh* characters meet

While not strictly *perang tanding*, another pairs battle pits two females against one another. The martial wife of Arjuna, Srikandi, often stars in these scenes—in one story she fights Mustakawi, in another story Rarasati. Such episodes are confined to the semi-refined (*ladak*) females. The refined (*lungguh*) females, by contrast, abstain from battle and are ideologically more valued by virtue of their non-violent nature.

Perang gagah (strong battle) is the term when a strong *monggawa* warrior fights another warrior, an ogre minister, or an ogre king. Examples would be *Gatotkaca (monggawa lungguh*) either fighting his demonic uncle Brajamusti (*danawa patih*) or, as a child, slaying the serpent King Naga Persona (*danawa raja).*

Perang Pancalan is the term used to refer to a battle between a knight (*lungguh* or *ladak*) and a strong figure (*monggawa* or *danawa*). For example the fight between the Pandawa hero Arjuna (*lungguh*) and the ogre king Niwata Kawaca (*danawa raja*) for the hand of the heavenly goddess Supraba would fall into this group as would the fight of Abimanyu (a *lungguh* young son of Arjuna) with the proud warrior (*monggawa danggah*) Jayadrata who slays him. Semi-refined knights might be Karna in his successful battle against the Pandawa hero Gatotkaca (*monggawa lungguh)* or Somantri, when minister of Raja *Arjuna Sasra Bahu*, against the demonic king, Rawana (*denawa raja*).

While the more refined character is not always the winner in these encounters it may be significant that the most important battles are between characters of different types rather than of the same category. This may result from the emphasis this form puts in showing us, through movement and interaction, a heirarchy that ranges from demonic to refined. All things being equal , the demonic always looses. When this order is violated, as in the death of Abhimanya at the hands of a boastful knight, the world is dark indeed. Aesthetically, however, the refined has still triumphed. The flowing movement of the refined opponent mesmerizes and the young Prince dies beautifully while the survivor mentality displayed by his coarse opponent is part of a universe that no member of the Sundanese audience would chose to inhabit. Refined is always where movement, plot, and the spectator's eye find their aim.

Other dance scenes are *tresnan* (emotional scenes of love or sorrow). Arimbi's anguish at the death of her son Gatotkaca by the hand of Karna in the story *Jaya Perbangsa* is an example. Another peak scene of emotion would be Jayadrata's heartless jubilation on defeating Abimanyu as he dances gloatingly above the bleeding body.

In wayang wong dances the essence of certain situations or characters was distilled and, over time, these moments *sans* story were from the twentieth century presented as solo or duo dances to be

savored before the longer episode of an evening with its full narrative. These dances have remained very influential as a source for further development in Sundanese dance. While choreographers of the last generations have expanded and refined the movement repertoire, they have often chosen to do so by portraying some of these specialty dances that emerged from the wayang wong Priangan. Solo wayang wong dances take a name of the particular character, while duets bear the name of both characters. The following table gives the major dances. Those versed in Sundanese dance will realize that these themes persist in the Sundanese dance repertoire to the present. Dances from the *Mahabharata* (M) predominate, but two *Ramayana* (R) episodes make the list, and one from the cycle concerning *Wong Aging Menak* (WAM) is included. There are additionally two group dances which are not tied to any particular epic cycle.

Chart B: Specialty Dances

Name of Character Dance	*Character Type*	*Explanation*
Solo Dances		
Subadra (M)	Putri Lungguh	refined wife of Arjuna
Jayengrana (WAM)	Satria Lungguh	refined Uncle of Mohammed and hero of Islam
Gototkaca (M)	Mongawa Lungguh	a warrior in love protecting the nation
Sencaki (M) also called Bima Kuntet ("Little Bima)	Monggawa Dangah	proud nephew of Kresna (Wisnu")
Anterja (M)	Monggawa Lungguh	a warrior son of the Pandawa Hero Bima
Baladewa (M)	Monggawa Dangah	the proud strong King of Madura who supports the Kurawa
Rahwana (R)	Danawa Raja	the demon king of Alengka who kidnaps Rama's wife
Duet Dances		
Jabang Tutuka Sakipu (M)	Monggawa Lungguh and Danawa Patih	young Gototkaca defeats the minister of the serpent king
Srikandi Mustakaweni (M)	Putri Ladak (2)	Arjuna's wife Srikandi fights Mustakaweni
Nakula Sadewa (M)	Satria Ladak (2)	the twin Pandawa heroes
Pergiwa Pergiwati (M)	Putri Ladak (2)	twin ladies representing perfect harmony who catch the heart of Gototkaca and friend
Sugiwa Subali (R)	Monggawa Dangah (2)	battling monkey brothers in the Ramayana
Group Dances		
Badaya	Putri Lungguh	court ladies entertaining the ruler
Perang Monggawa	Monggawa (Lungguh/Dangah)	warriors training for battle

Major dances might be included in a court scene in which case the dance would be called *tari jejer kembangan* (Court ornamentation dance) or might precede a battle in which case the dance would be called *tari ngalaga* (battle dance).

These dances, even when divorced from the narrative context continue to carry an implicit message about character. In the world of *wayang*, a large body, a loud commanding voice, wide, fast, and large, wide, quick movement do not symbolize the character is *sakti*, endowed with the spiritual force which in Sundanese thought has real world impact. The small stature, modulated voice, and smooth movement is featured. Power is not grasped from the outside with eye or ear, power resides within as is exemplified by the internal focus of the *lungguh* character, be he Raja Arjuna in *Arjuna Sasra Bahu*, Rama in the *Ramayana*, or Arjuna in the *Mahabharata*.

Dialogue

Antawacana or dialogue was improvsed according to the parameters derived from wayang golek. It is considered to fall into three categories*: guneman, nangtang* and *tresnan*. An short example of each is

provided:

Guneman is ordinary dialogue between characters as in this example from *Jayan Tigasan* (Death of Abimanyu) between Abimanyu and his second wife Utari.

Abimanyu: My beautiful wives, Sondari and Utari, the chief reason I meet with you, is nothing more than to report that I have been named by the Pandawa elders to serve as general-in-chief and lead the Pandawa soldiers in the Bharata Yudha as we enter the thirteenth day.
Utari: What is it I hear, you want to fight?
Abimanyu: That is right my beautiful wife.
Utari: Alas, like lighting striking midday…

Nangtang is challenging an opponent. Take this example spoken by Jayadrata on defeating the Pandawa.

Jayadrata: Pandawa! If you really need this kingdom, then overthrow first my right and left arms. You'll first have to step over the corpse of this Kurawa.

Tresnan gives an insight into the heart of the speaker. Consider this example spoken by the serpent king Naga Persona in love with the goddess Supraba.

Naga Persona: Supraba, Supraba! my adored, where you are is beauty, . . .golden beauty. Don't tease me, I am confused. Don't' weep, my beauty! You make me worried, rather let us two make love as sugar is one with sweetness, as salt is one with sourness.

Arrangement of Presentation

The material presented was dependent on the function of the performance, ranging from *manggung biasa* (ordinary performance for purposes of entertainment) to those for specific needs such as an exorcism (*manggung ruwatan*). An ordinary performance could be of two types: a short format lasting between thirty minutes and two hours, and a long format which would last three to four hours. In the long form, comic action and set dances unconnected with the content of the story would fill out the additional time. These dances were then called *tari lepas* (literally, "dances free [from the story]"). Examples are those given in chart B above, and these remain the part of the repertiore that has persisted to the present.

The structure of the performance would be as follows. The presentation would begin with the *tatalu* (the opening), the instrumental overture called *karawitan gendin*g or *gendingan*. The first song would be *Jipang Wayang* followed by other dynamic compositions which came from the part of the musical repertoire called "small songs," (*sekar alit*) in which the gong pattern is compact and gongs come quickly creating a lively impression. This overture served to gather an audience together.

The second part called *bubuka carita* (opening of the story) is marked by the percussive playing of the *cempala* and the *kecrek* by the dalang. The *cempala* hammer is held in the left hand and rapped against the puppet box in wayang golek. The *kecrek* is a set of metal plates, normally attached to the side of the puppet box. In wayang wong, there is no puppetbox and the dalang may instead use a slit drum, small wooden box or wooden stage as a resonator for these two instruments. Both are played in complex patterns to cue the orchestra, to start, stop, accelerate, create sound effects and add to the musical mix of the orchestra. The *cempala* cues the tune *Karatagan* which is followed by the song *Kawitan* or another song appropriate for the opening narration of the dalang which begins with the singing of the traditional opening mood song, the *kekawen murwa*, and ends with the opening narration (*nyandra murwa*), spoken rather than sung. The words and style of these pieces are taken directly from the puppet theatre where they have a semi-ritual function.

The third part is the actual show with its story; this part is called *ngalalakon*, "to present a story." Here we first see the skill of the dancers as they adapt themselves to the needs of the story which is presented. The story is generally be divided into four to seven scenes, called *bedrip* [a term borrow from the Dutch word for scene] or the indigenous terms *pembabakan* [cutting], or *penadegan* [scenes]. The performance can be roughly divided into three sections as it moves from its introduction, to complication, and climax.

The last part of the presentation is the *bubaran* (scattering), which is an purely instrumental piece played by the *gamelan* using the song known a *Jiro* or *Kebo Jiro* ["Crazy Water Buffalo"]. This song accompanies the exit of the audience from the place of the performance.

Ornamentation

Mamanis, "sweetening," is the term for the ornamentation of this essential structure. Important for this elaboration is the role of the clown, Semar and his sons—Cepot, Dawala, and Gareng. They are called *panakawan* (literally, "those who accompany" [the hero]) or *pawongan*, "the people". The are servants to the aristocrats who will triumph over the evil that besets them and the world. Additionally the clowns help clarify the story or scene by dialogue either between themselves or together with the *gamelan* players with whom they converse in a comic style. Their comedy may come either from their humorous dialogue or from the exaggerated, distorted movement of their dance.

There are other types of *mamanis* activity which can be included, for example after the musical overture, a group female dance called a *badaya* might be presented.[7] This interpolation is similar to what we find in the dance drama style of Surakarta, wayang wong *panggung*, where after the overture a female dance called a *gambyong* is presented (Murgiyanto and Bandam, l983: 88). Also, in a three to four hour performance we would also find more *sekar gending* or songs of the female singer inserted during the transitions from scene to scene.

Exorcism as a Special Case

The presentation of the performance is somewhat different for a *manggung ruwatan*, an exorcistic performance which follows the traditions of this ceremony in Sundanese culture. It is stated in *Traditional Customs of the Sundanese* [*Adat Istiadat Orang Sunda*}, that a *ruwatan* or exorcistic ceremony is undertaken as a way of tricking fate and preventing danger in all sorts of cases, for example for only child, for a new house, etc. (R.H Hasan Mustapa: 112.). One kind of an exorcisic performance is only performed when a boy who is an only child is circumcised. This practice was frequent in Kabupatan Garut in the past. To accomplish the ceremony with a wayang wong Priangan, certain stipulations had to be prepared by the troupe.

First, *tutuwuhan* (Th Pigeaud: 113) must be gathered. These are fruits of the earth such as sugar cane, sweet potatoes, cassava, rice, banana, coconut, peanuts, and vegetables tied to the roof around the stage. Secondly, offerings (sasajen) are prepared along with an incense burner. Additionally, a sheet of white cloth about one and a half by three meters is found. The offerings to accomplish the ceremony are the same as are required for a performance of the *wayang golek* when, under the title Dalang Kandabuwana the dalang subdues the demon, Batara Kala.[8] As in a wayang golek *ruwatan* there is holy water for washing in which are placed flowers of seven colors. In the same way, the body of the person for whom the ceremony is held must be covered with the white cloth. Thirdly, the ceremony requires *saehu* (ritual specialist) to conduct it. This role is usually filled by the leader of the wayang wong troupe who, in turn, is accompanied by assistants (*catrik*) who carry the white cloth. The fourth necessity is the special story which must be performed, namely, *Jaya Perbangsa (The Death of Gatotkaca),* an episode from the epic story of the Bharata Yudha, the great war which is the culmination of the *Mahabharata*. It is at the end of the performance that the ceremony is conducted as follows.

After the death of Gatotkaca, Arimbi his mother gets permission from the Pandawa heroes to make a funeral pyre. As he is placed on it the following progression ensues

Chart C: *Ruwatan* Progression

Material Presented	*Explanation*
The body of Gatotkaca is onstage with his mother Arimbi in the bowed position, called calik deku, near him.	
Sanduk-sanduk (Prayer asking God's permission to execute the ceremony.)	Accompanied by the tune Kidung, the person who will execute the ceremony (saehu) enters carrying the offerings and the incense burner, while one or two assistants come behind bearing the white cloth. As he enters, the saehu recites the mantra agnisita paramarta ("that which can defeat passion is the greatest victory") and repeats the mantra over and over until he stops in a standing position facing the viewers behind the figures of Gatotkaca and Arimbi. One or two additional assistants guide the child for whom the ceremony is being enacted onto the stage. They position him in front of the two wayang characters with his back to the audience. These assistants then join the other helpers behind the saehu.
Titiwah or Nyirnakeun raga nyapurnakeun sajatining rasa ("Annihilate the body and sanctify the spirit")	To the tune Kidung, the saehu sits cross-legged with the offerings to his left and the incense burner in front of him. Then all the assistants spread the white cloth in a rectangle suspending it above the heads of the two wayang characters and the child. The saehu begins to burn incense and as the smoke billows, he says the mantra "Amaragati Arimbi putra, Arimbi putra adisura. Amaragati Hidimbi, Hadimbi prawerti apsari." (Arimbi's child has reached his goal, Arimbi's child has become a hero true. Hidimbi (Arimbi) has reached her goal, Hidimbi smelling sweet like a heavenly goddess.") The mantra which follows is "Titiwah sioloka subagiakarma, titiwah siloka sadyawirat, titiwah siloka mahasudra." ("A spirit that is pure is a symbol of happiness, a spirit that is pure is the symbol for which we aim. A spirit that is pure is the symbol of self-strengthening.") Then, the assistants drop the white cloth, covering the two wayang characters. The assistants sit cross-legged on the stage. Meanwhile the child continues to stand facing the two figures now covered with the white cloth.
Nyinglareun Kala (Banishing misfortune	The tune Kidung stops and the saehu says another mantra: "Nirwana naya nugraha ("May you be received at the place of the greatest holiness.") Finally the saehu says the du'a salamet (the prayer of safeguarding) which is taken from the Koran and the response comes from the entire audience with an overwhelming, "Amen," which resounds at the end of the prayer. Only the two wayang characters covered by the white cloth are silent. With this prayer of safeguarding, the exorcism is complete.
Scattering of the Audience	The tune Jiro plays as the audience leaves.

A *mangung ruwatan* arises from the traditional belief system. As is noted by Koentjaraningrat, the *ruwatan* ceremony is conducted to prevent calamities which are said to threaten a person. People still believe that these dangers forebode as long as the ceremony has not occurred (1985: 109). The local audiences who watch the performance of the *mangung ruwatan* to its finish believe they will be blessed. On the other hand, if a viewer leaves before the ceremony is complete, it is believed they experience misfortune. Before they arrive home, it is said, they will encounter an apparition, *malakalmaut (mala*," evil,, *maut,* "death*")* which is really the ceremony's white cloth. The cloth will then transform into a *kain kafan* (a shroud).

Repertoire

The story presented in a performance of *wayang* is called a *lakon* (play). The story presented in wayang wong Priangan can be a root story (called *pakem* or *galur*) from the Mahabharata including the

Bharata Yudha or from the *Arjuna Sasra Bahu* Cycle, and corresponds to the stories of *wayang golek*. The majority of stories are from the trunk part of the repertoire (*pakem*/*galur*), but there are also some stories that come from the *carnage* or branch episodes. The *sempalan* or twig stories have not played a significant part in the repertoire.

The performance does not try to represent all of the events of the epic. This is different from the Javanese performance of wayang wong in the palace of Yogyakarta where the story *Mintaraga* (Arjuna's Meditation) was presented in l926 and l937, requiring two days and two nights to present (Soedarsono, l997: 217). Wayang wong Priangan uses four to seven scenes, and usually only shows the highlights of the story. Scenes which are chosen usually are those which are best presented through the rich medium of dance, and the rest of the story is delivered through dialogue. The stories included are usually only fragments of larger epics. The repertoire in the middle of the last century was represented by two stories from the Arjuna Sasrabahu cycle, one from the *Ramayana*, and ten from the *Mahabharata*, with six of these derived from the Bharata Yudha, the great war that is the climax of this epic. The following chart gives a brief idea of this repertoire.

Chart D: Repertoire

Epic and Title	Content
Arjuna Sasra Bahu	
1. *Arjuna Wijaya* (Arjuna Sasra Bahu's Triumph)	The story of how King *Arjuna Sasra Bahu*, an incarnation of Wisnu (Vishnu) defeats the demon Rawana winning the hand of Citrawati, an incarnation of the rice goddess, Sri.
2. *Patih Suwanda* (Minister Suwanda)	Somantri, the cousin of Arjuna Sasra Bahu with the new title of Patih Suwanda becomes the prime minister of Maespati under the title Minister Suwanda, but is killed by Rawana 's arrow which contains the spirit of a sibling that Somantri killed in his youth.
Ramayana	
Anoman Pebancasuta	Anoman the white monkey and son of a god blocks the sun.
Mahabharata	
Jabang Tutuka (Birth of Gatotkaca)	The infant Gataokaca, son of the Pandawa hero Bima, rescues Suralaya, the abode of the gods, from King Naga Persona, a serpent king.
Brajamusti	The death of Brajamusti, an uncle of Gatotkaca at the hand of this nephew. Gatotkaca receives supernatural strength from this encounter.
Srikandi-Rarasati	Lady Srikandi, spouse of the Pandawa hero Arjuna, learns archery from him and battles the princess Rarasati.
Srikandi-Mustakaweni	The Pandawa's powerful heirloom the Layung Jamus Kalimasada has vanished and Srikandi helps get it back.
***Mahabharata*/Bharata Yudha**	
Jaya Renyuan (Death of Abimanyu)	Abimanyu is attacked by the Kurawa and killed by Jayadrata.
Jaya Tigasan (Death of Jayadrata)	Arjuna slays the murderer of his son Abhimanyu.
Jaya Perbangsa (Death of Gatotkaca)	Gatotkaca is killed by his Uncle Karna.
Jaya Jambakan (Death of Dursasana)	Death of Dursasana, second eldest of the Kurawa at the hands of his cousin Bima, the Pandawa hero.
Karna Tanding (Death of Karna)	Death of lord Karna at the hand of his half brother Arjuna.
Jaya Pupuhan (Death of Suyudana)	Death of the Kurawa king at the hands of his Pandawa cousins.

Most of these stories concern the struggle between the Kurawa and the Pandawa in the *Mahabharata*. All of the stories address major themes of heroism and moral instruction. The repertoire is narrower than that of *wayang golek* which serves as its antecedent. Wayang wong is more focused on *pakem,* canonical stories. The additional human resources which it takes to mount a dance performance with the numerous dancers required, may make the repertoire more conservative than that of the *wayang golek*, where, by virtue of a single performer executing the show, invention of new repertoire is facilitated. In wayang wong, a large group must agree on the course of the narrative (without necessarily having numerous rehearsals to work out the agreements). Actors dialogue carries much of the storytelling. Older, set stories may work better in this situation of shared narration keeping everyone figuratively on the same page. Class may also have contributed to the conservative repertoire. The association of the genre with the elite *priyayi* who found deep resonance in the older *lakon* may have contributed. The period in which the form developed may also explain the static repertoire. Wayang wong Priangan is a genre of the 19th and 20th century, not an active form at present. Dalang report the *wayang golek* of the pre-independence period laid more emphasis on traditional stories than does present practice. Wayang wong*'s* canonical repertoire responded to the constraints of its performance, the influence of class, and the preferences of the time.

These are stories which, because of their portrayal of important moments in the lives of iconic characters, remain "*abot*" ("heavy," i.e., laden with meaning) for the Sundanese. For example the birth and coming of age of Gatotkaca are associated with his transformation from an ordinary child. First is boiled in the crater Candradimuka to make him strong enough to defeat the serpent Naga Persona as is detailed in *The Birth of Gatotkaca* (*Jabang Tutuka*). Then the Brajamusti episode comes as Gatotkaca is educated by facing the enormous powers of his demonic uncle, Brajamusti. After defeating Brajamusti and drawing his demonic power into Gatotkaca's own body, this young hero is ready to serve justice and truth. Shamanic images of transformation abound as Gatotkaca's ordinary sinews are replaced by innards of iron and steel, he returns again and again from death, and he gains the power to fly and see and hear through the multiple layers of heaven and earth. Such stories contain powerful symbols of magical transformation and hint about the reappropriation of chthonic power in service of the social order.

The *Death of Gatotkaca* may have been chosen for the *ruwatan* due to his lowly heritage and personal history of transformation. Gatotkaca is born of a noble but rather coarse father, Bhima the third Pandawa brother. His mother is a demoness who began life among ogres, but, through personal initiative, raised herself, experienced a *ruwatan* (exorcism) transforming her into a human form. These are heroes who are not born but made. Both Gatotkaca and his mother Arimbi are like normal human beings coming from below, driven by the senses. Each is reborn though transformative forces , whether love (Arimbi) or the struggle for righteousness (Gatotkaca). The mantra: "Arimbi's child has reached his goal, Arimbi's child has become a hero true. Adimbi has reached her goal, Adimbi smelling sweet like a heavenly goddess," may provide a clue as to why this *lakon* is borrowed for the *ruwatan* ceremony. As the white shroud descends on the characters (Gatotkaca and Arimbi) mounted on a funeral pyre, the symbolic death and rebirth of the child experiencing the ceremony and viewers is signaled. Those who watch the *wayang* learn to let all that is demonic, rough, low and of this earth fall away from the body-mind-heart. Engulfed in the smoking swirl of incense, the self-seeking and transitory burn away along with the body of the hero on the funeral pyre. Though it is the characters who are covered with the white "shroud" and they who "burn" in the story, it is the viewer who contemplates the meaning of death and knows transubstantition. Via narrative, ceremony, symbol, and mantra, we arrive where we have been heading all our life, we reached our goal—death. Having lived though it in the nexus of art we are finally ready to dance with refinement to the music that plays for the world that is seen and that which is unseen.

Wayang wong Priangan is a rich genre for understanding the nature and history of Sundanese arts. Though it first came to Sunda from the Cirebon area, it was reworked in the highlands and became an important indigenous theatre. It is hoped that now, while the last generation of wayang wong Priangan artists in still alive, research

and reconstruction can take place so this exemplary art may survive. ◗

Notes

1. For discussion of Balinese variants see Holt l967: 124. Javanese wayang wong is discussed in Sediawati 1981 and Soedarsono l997.

2. Cirebonese wayang wong is sometimes called *wayang topeng* (masked *wayang*). The masks used in Java generally are held by the performer biting on a piece of leather attached to the inside of the mask's lip. Since a closed mouth is required to hold the mask in place, it is rare for the dancer to speak his/her own dialogue in this form. The dalang speaks for all the actors with the exception of the clowns who wear half masks and speak for themselves.

3. Cirebon has four palaces: the Kasepuhan , Kanoman, Kaprabonan and Kacirebonan. All these houses trace their lineage back to Sunun Gunung Jati, the Muslim saint (*wali*) and founder of the Sultanate who is said to have used *wayang*, music, and dance to spread Islam in the 16th century. Village artists in many Cirebonese genres consider themselves to be the descendants of the *wali*, the nine Islamic saints who converted the island.

4. The headdresses and the *gamelan* which were used at the Javanese village at the Columbia Exposition can be seen in the Field Museum of Natural History in Chicago and are similar to the performing objects available for inspection in the collection of the Museum Pangeran Guesan Ulun in Sumedang.

5. The repertoire of *wayan*g is customarily divided into *pakem*/*galur* (trunk), *carangan* (branch) , and *sempalan* (twig) stories. The trunk stories related the given events of the epic. The branch episodes show those characters in new stories that expand out from those circumstances. Twig stories are one step further from the core events, and can be whimsical developments with tangential relation to the epic. For example, if we were to apply these terms to the western cannon, Shakespeare's *Hamle*t would be *pakem*/*galur*, Stoppard's *Rosencrantz and Guildenstern* would be *carangan*, and an actors comical invention on the life of the gravedigger which might in passing show a scene of the child Hamlet riding piggy back on Yorick would be *sempalan*.

6. For discussion of dialogue in *wayang golek* style see Foley l979. Other sources are Atik Soepandi and M. A. Salmun.

7. The Sundanese *badaya*, like the *badhaya* in Central Java, is a refined female dance but the number of performers, choreography, costume, and other features differ from the models of the Javanese courts.

8. See Foley 2001 for a script of a *wayang golek ruwatan*.

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INTERVIEW

Divining The Diva: an interview with Nyi Tjondroloekito

by Nancy I. Cooper

"There are all kinds of flowers in the world, and a beautiful flower can grow from bird droppings."

Nyai Riyo Mardowolaras

Nyi Tjondroloekito[1] *was undoubtedly Java's most popular* pesindhen*. After a long and varied life centered on music and family, this amazing woman passed away in 1997. For decades, cassette recordings featuring her voice and periodicals with her face on the covers have dominated the gamelan section of local music stores. Her version of the perennial singer's piece* Jineman Kuthut Manggung *is often imitated in wayang kulit performances all over Central Java and her distinctive voice (broadcast from radios or cassettes) still graces the night air in cities like Yogyakarta.*

Bu Tjondro [from the honorific title Ibu, meaning mother] was also a teacher of singers, devoting much of the latter part of her life to rural women who aspired to singing careers, but who did not have the opportunities or resources to pursue their talents. She also tried to instill in her students the courage and strength to resist the temptations of fame, wealth and attention which could easily overwhelm a young innocent embarking on an exciting public career.

Although greatly respected, and in contrast to the tremendous outpouring of affection for her by the listening public, Bu Tjondro was not considered a musician's singer by Java's musical elite, whose aesthetics do not easily accommodate idiosyncratic styles. In a way she was a folk singer in a classical genre, and a crossover such as this is not always fully appreciated or understood by one's peers.

Bu Tjondro was an innovator, but, unlike other notables such as K.R.T. Wasitodiningrat and the late great Ki Nartosabdho, she did not have the gender or pedigree, whether by birth or formal musical training, nor the personal connections that might further have legitimized her innovation. The relatively recent inclusion of women singers within karawitan about 100 years ago derived from the centuries-old singer-dancer genres of questionable repute — it would be naive to think that this association had no effect on Bu Tjondro's reputation. Additionally, the musical styles associated with Yogyakarta have declined in favor of developments in Surakarta.

The author (right) with Nyi Tjondroloekito.

I first interviewed[2] *Bu Tjondro at her home in Jakarta on August 16, 1990 during a break from my fieldwork on women singers in a rural area near Yogyakarta in the cultural heartland of Java. Although officially retired at that time, she was still occasionally performing and giving lessons. When I visited her again five years later she was fully retired and her husband, R.M. Tjondroloekito, had passed away in the interim. Still mentally alert in her mid-seventies, her voice was not as strong as I remembered it and she had some difficulty remembering parts of the numerous texts she had memorized and composed over the years.*

Nevertheless, her comments were punctuated with lapses into song and laughter, much as they had been before. Although smaller in stature and slightly frail, Bu Tjondro epitomized to me the positive features of longevity.

*When she looked back upon her life experiences as a farm girl, a young singer in the Palace, a wife, a produce seller, a mother, a grandmother of 29, a great grandmother, as well as a recording star, she betrayed not a trace of regret, resentment, or arrogance. What was apparent instead was an abiding spirituality and philosophical acceptance of the good and the bad of a life fully lived and shared with family, friends, colleagues, and the public. Bu Tjondro said that "a society without artistic expression (*kesenian*) would be cold and lifeless" and, in spite of the reservations some musicians had about her liberal musical style, everyone I asked praised her kindness, generosity and great humanity. As a kind and talented person, she will be missed. But thanks to the rows of her cassettes that now share space with those of recent trends such as Campur Sari, her voice lives on.*

Cooper: What was your life like when you were growing up?

Tjondro: My parents were poor so we lived in a house made of bamboo walls (*gedheg*), earthen floors, and a tiled roof in the dhusun Pogung, Sleman, Yogyakarta. Our source of water was a well about 15 meters deep. We used a lever with a bamboo dipper suspended on one end (*senggot*) to fetch the water. In the evenings we hung a kerosene lamp on the wall.

Cooper: How did you first learn to sing?

Tjondro: When my parents were working in the fields, I would tend to my younger siblings by singing songs (*kidung*) my father had taught me. When they cried, my singing would soothe them.

Cooper: How did you eventually become a professional singer?

Tjondro: One day when I was singing in Kinanthi verse, in order to calm down one of my brothers or sisters, the singing master of the Palace, Bapak Lurah Sumbogo, happened to be hunting nearby. When he heard the singing he stopped hunting and followed the sound of my voice. He introduced himself to my parents and me. My name was Turah at the time, and he commented on the quality of my voice, saying it would be a shame if I did not develop it properly. My father said that he was willing to send me anywhere training was available, but that he could not afford it.

The very next day my father was invited to escort me to the residence of K.R.T. Joyodipuro on the east side of the Palace wall. All the traditional arts were taught there including Javanese gamelan music (*karawitan*), voice (*sindhen*), dance, painting, drawing, etc. For three consecutive days we rehearsed, after which I was taken to sing for Kangjeng Patih Danurejo. Since this was in the time of Sultan Hamengkubuwono VIII, the position of Patih (chief minister) still existed. His wife was related to the Sultan and I sang for them both. None of this was really difficult for me. I was 12 years old[3].

Later I learned how to do the Golek dance. Ibu Riyo Larasati gave me guidance and encouraged me to study at Kepatihan (the minister's residence and offices) where we would perform together, pieces such as in Langen Mandra Wanara. Bu Riyo would play Tri Jatha and I would be Sinta. Kangjeng Patih gave me the name "Penilaras" which he explained meant "good pitch" (*laras bagus*). This was a happy and humbling experience for me. After I had participated at Kepatihan for four years, Kangjeng Patih passed away and at his wife's request I was given a letter stating that I should become a performer at the Palace. When I had done that for three months, I was given the name Padha Sih by the Sultan.

Cooper: How did you meet your husband?

Tjondro: Although Pak Tjondro's mother was a commoner, his paternal lineage was royal and for this reason he studied dance under the tutelage of Prince Tejakusuma. Once during a performance, when Pak Tjondro was dancing and I was singing, our eyes met. At that time I was young and rather pretty and he was handsome.

After we were married, we had 12 children, one after another. As Nyi Tjondroloekito, I lived with my family near my parent's home and performed outside of the Palace. But my husband forbade me to continue singing, so for years I sold produce in the market. But with so many children times were rough. I finally said to my husband, "I am a human, not a beast of burden (lit. water buffalo: *saya manusia, bukan kerbau*), and I must help support my family." Eventually he relented.

I started singing again, for *uyon-uyon*, wayang kulit and so forth, for family and village commemorative events. In 1955 I joined my husband in Jakarta where he had been given a position. Straightaway I started singing for RRI

Jakarta, the national radio station.

Cooper: It is well known in karawitan circles that your singing style is unique. How did you develop this style?

Tjondro: From the very beginning, when I was memorizing a piece, I had an urge to create my own melodic patterns (*cengkok*). So I asked Nyai Riyo Mardowolaras, "Do you think it would be permissible for me to sing my own creations? (*Bu,...apa sekiranya diizinkan kalau saya mengeluarkan...getaran jiwaku sendiri*)? She answered, Wwhy not? What could be the harm in that? There are all kinds of flowers in the world, and a beautiful flower can grow from bird droppings."

This made me feel better about my innovations but I asked one more person, just to be certain. That was Kangjeng Madu Kusumo who was an advisor in the Palace. "Kangjeng, if for instance, I used cengkok of my own creation, is that forbidden?" "Of course not", he replied, "who told you such a thing?" Finally I felt that I was free to follow the God-given vibrations of my spirit rather than only repeating what already existed.

After I retired from RRI, I started to write verses in the poetic forms *Wangsalan* and the various kinds of *Macapat*. I wrote down whatever flowed from my heart. In my heart of hearts, whenever I sang I hoped it would make people happy. In other words, when I sing, I do so not from my thoughts, but from my feelings. And I do it not just for myself, but for others. That is what guides me.

Cooper: Which type of performance do you prefer to participate in?

Tjondro: I like *uyon-uyon* [music performed by itself] the best and then *wayang kulit* [shadow puppet theater]. There is more freedom for the singer in an uyon-uyon.

Cooper: When you teach singing, is there a particular aspect which is most difficult for your students?

Tjondro: On average, the irama, or changes in time, poses the most problems. When faced with the full ensemble, many singers become confused.

Cooper: We have all heard stories questioning the moral character of singers. What are your thoughts on this issue?

Tjondro: In times past if a woman had a good voice and could dance, she became a *teledhek*, which was a lowly occupation. When I started singing my father said to me, "You may become a singer as long as you have only one husband. You may not conduct yourself like the others." So this became the standard by which I guided myself. And when I teach young women, such as those from Gunung Kidul [a rural part of Yogyakarta known for its singers], I always offer moral guidance as well.

Through the organization Widya Lestari Budaya, at least 20 some women from rural areas were funded to come to Jakarta and study with me for approximately two years each. I told them that learning the music itself, how to dress, and how to behave on stage only constitutes half of what they need to know. They are in danger if they do not learn to cultivate right thinking. I tell them they must be careful not to fall because if they do, they may never get up again. This is how it is, Nak Nancy, many of them are not strong and can be easily shattered. Who are these women? They are the women who sit in the center of the gamelan, many first rate singers, who may not be aware of the dangers of glancing to the side.

Cooper: What sources do you use for these lessons?

Tjondro: I do not teach from existing texts. Rather I talk to them about a debt of honor towards their parents who are unique in the world. No one can replace them. I impart this kind of knowledge to my students: devotion to parents, submission to God, and love of humanity. And we must also be generous towards our country.

Cooper: What is the place of gamelan and karawitan in Javanese society?

Tjondro: I think of gamelan as a sacred heirloom (*pusaka*) which should be respected. I never like it if the gamelan is placed below rather than raised up. Music surpasses language —one must understand the precise meaning of words, but music appeals to feelings which are more universal. ◗

ENDNOTES

[1] I have used this spelling over "Condrolukito" because it was the spelling used on her personal name card.

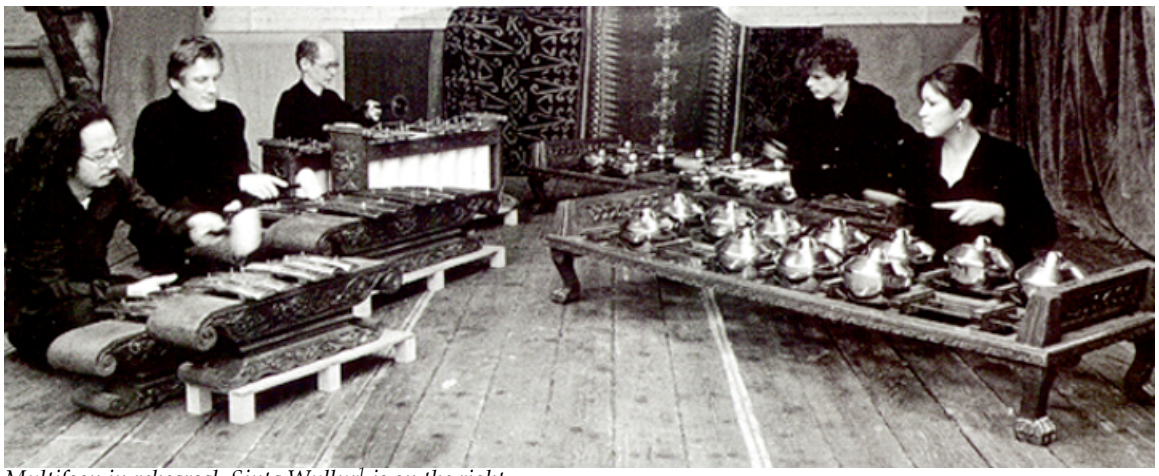
[2] I have translated pertinent sections of much longer interviews which were conducted in Indonesian with some Javanisms mixed in. My method of interpretation and translation is to capture the intended meaning of the speaker and communicate it in English as faithfully as possible.

[3] Based on her birth date in the 1920s, this would have taken place in the 1930s.

INTERVIEW

Sinta Wullur and the Diatonic Gamelan

by Huib Ramaer



Multifoon in rehearsal. Sinta Wullur[1] is on the right.

This is the story of a new gamelan tradition that was born in 1998 on western soil. On the 11th of November 1998 a fascinating musical event took place in the Tropical Museum in Amsterdam. Sinta Wullur presented the official premiere of her new project with the gamelan group Multifoon. They used a new set of gamelan instruments, built in Indonesia and tuned in the western diatonic system. This tuning allowed Sinta Wullur to invite a string quartet to join her gamelan group in an crossover experiment for which music still had to be written, or perhaps we should say 'invented', as there was no precedent. Wullur and the other composers were pioneers in creating and notating this new music.

How did Sinta Wullur happen to order gamelan instruments in tune with the piano? What led her to this idea? Of course she didn't get there "crossing one night's ice" as they say in Holland (where ice skating is a national sport). Sinta development as a musician and as a composer is as crossover as anyone's career could possibly be: western influence in the east, followed by eastern influence in the west. She was born in Indonesia on November 16, 1958. Her mother was a piano teacher, so classical piano playing was Sinta's main musical influence. At home in Indonesia she heard Schubert and Beethoven, whilst outside or on the radio sometimes the sounds of the gamelan got to her from a distance. By then she couldn't possibly know those instruments would determine her future life as a composer. When she was ten years old, she moved with her parents to Holland and after high school, she ended up at the Amsterdam conservatory, studying classical piano. When she saw a set of glittering gamelan instruments in the percussion department of this institution her perspective changed on the spot. She thought, instead of endlessly practicing the piano, it might be far more exciting to embark on a musical journey to her homeland, by playing the gamelan and so it appeared to be. We'd better let her tell us the story of how she developed as a gamelan musician and composer herself.

> "Though I was born Indonesian, l only started to play the gamelan in Holland during the Javanese gamelan workshops led by Elsje Plantema when I was studying classical piano at the Conservatory. After getting my piano degree in 1983, I decided to study composition with Ton de Leeuw. A couple of months a year I went to Bali to study Balinese gamelan, [although I believe that] in search for new composition techniques using Indonesian characteristics, one should get

acquainted with the gamelan traditions of Java as well as Bali.

"I started to study gender wayang in Denpasar with I Nyoman Sudarna, learning the basic repetoire. When I returned to Holland I taught these pieces to the gender wayang ensemble "Irama", which I set up with Henrice Vonk. After a few years I extended the gender wayang-repertoire to include the gender wayang Batèl-repertoire (with added percussion parts). The "Irama" group had reached its peak in 1994 with a Wayang Tantri production wih the participation of the dalang I Wayan Wija and gamelan leader I Nyoman Sudarna."

After ten years of experience with playing gamelan music in Holland, Sinta wanted to explore new areas, expanding her own possibilities as a performer as well as the musical possibilities of the gamelan itself.

"I started to get interested in vocal techniques in Indian and Javanese traditional music.s, which I learned and practiced in Amsterdam. [My interest in vocal music] was one of the reasons I left the Balinese gamelan ensemble. The other reason was the rise of a new idea—to set up a chromatic gamelan orchestra in well-tempered tuning. This idea came to me after I composed crossover pieces for both the Javanese gamelan and the western ensembles I worked with in Holland. For the modern gamelan group "Ensemble Gending" I composed two pieces Ganantara and Kaleidoscope. For the percussion ensemble "Slagwerkgroep Den Haag" I made the piece 10 Bulls, which uses a mixture of western percussion instruments, gamelan instruments and female voice.

"Each time I made a composition I searched for a creation that could carry the identity of Indonesian as well as Western culture. But when I composed for a traditional gamelan orchestra I missed the possibilities of the 12 tones in an octave, and felt limited by the tuning problems when combining western instruments with the gamelan. When I composed for a western ensemble though, I missed the tone qualities of the gamelan instruments. Which percussion instrument can replace the sarons, the slenthem and the bonang? Certainly not the tubular bells or the vibraphone!"

A colleague of Sinta's told her of a chromatic gamelan ordered by Danish percussionist Ivan Hansen.

"During my visit to Denmark in 1990 I got the opportunity to see and hear this chromatically tuned set of Balinese gamelan instruments. After that I was convinced that the chromatically tuned gamelan would solve a lot of my problems in the search for the ideal crossover music.

"I ordered a basic set of chromatically tuned Javanese gamelan instruments from Pak Suhirdjan [of Yogyakarta]. To determine the tuning, I gave him a set of tuning forks that are normally used by piano tuners The cases were built to hold the equivalent of "white and black keys."

Demung (left) and bonang (below). Note the top row of groups of two and three corresponding to the "black notes " of the piano.

Multifoon performing with string quartet.

The gamelan instruments and their ranges[2] were:

2 saron barung (c2 - c3)
2 saron demung (c1 - c2)
1 slenthem (c - c1)
1 peking (c3 - c4)
2 bonang (c1 - c2 and c#2 - c3)

"In 1995 the instruments were ready for the first concert. My composition *Lingkaran* for chromatic gamelan and percussion was performed as a part of an international ESEM conference for ethnomusicologists in Amsterdam. This project was called Gongs & Strings, and the group was called Multifoon, meaning "varied tones". I created four new works for chromatic gamelan and string quartet, one work for chromatic gamelan alone, and one piece which is a sort of concerto for chromatic gamelan and cello solo. "

After the concert series, Multifoon and the Odyssey String Quartet recorded those pieces [making perhaps the] first chromatic gamelan CD, with compositions for chromatic gamelan and string quartet by Christiaan Détlefsen, Hans van Zijp and Sinta Wullur.

In the composition *Mata Angin* Sinta explores the possibilities of integration between eastern and western musical cultures. In this respect *Mata Angin* isn't any different from her previous works for western ensembles or traditional gamelan ensemble.

Mata Angin in Indonesian means "the direction of the wind" and in the different sections of this work the "wind" of musical tradition in turn blows from the east as well as from the west. The first part functions as an overture and shows influences by Barton and Stravinsky set in a traditional gamelan framework. The second movement slowly starts with melodic lines derived from Javanese gamelan tradition, and colored by expressive chords. This is followed by a very fascinating metrical section in which the gamelan instruments translate the Javanese tradition to modern times, whilst the strings feed the music with glissandi and trills, spiced with quartertone deviations in tuning. The last movement grasps the listener with a mixture of fighting music from the gamelan repertoire and the heroic gestures that are so typical for western romantic piano tradition. This also has a political connotation. While composing this piece Sinta Wullur followed the hectic revolution that was taking place in Indonesia, the developments of which are mirrored in *Mata Angin*. The overture is optimistic and shows the relief felt at the end of the Suharto regime. The middle section is a sad *funebre*, lamenting the victims of the Suharto regime, but also the new innocent victims of the revolution, like the Chinese inhabitants of Indonesia who are blamed for their welfare and education. With the fighting spirit of the last section Sinta Wullur stresses the fact that the atmosphere of dissatisfaction and chaos has not yet come to a halt. The following months Sinta Wullur starts a concert tour with the second project around the chromatic gamelan which is called "A Meeting of Two Traditions." In the compositions and arrangements for this project, the characteristics of western and Indonesian musical tradition confront each other. Existing traditional music of Indonesia as well as Europe is rearranged for chromatic gamelan in combination with the clarinet and violin. For instance Debussy's *The Snow of Dancing* will be brought to life on the chromatic gamelan whilst a Sundanese song will get an accompaniment on chromatic gamelan, violin and clarinet, in a musical style for which

the treatment of folksongs of the Italian composer Luciano Berio serve as a source of inspiration. Another arrangement is the composition *Kyrie* of the Dutch composer Jan Rokus van Roosendael, originally composed for carillon. The project also features premieres of new works for chromatic gamelan and clarinet and/or violin by Christiaan Dètlefsen, Renadi Santoso, Sinta Wullur and the British composer Symon Clarke. Wullur's new chromatic gamelan has caused quite a stir in Dutch musical life. The fact that Peter Schat, one of Holland's most outstanding composers, has already written a composition for the "Koninklijk Concertgebouw Orchestra" with a chromatic gamelan as the percussion section proves that we are only at the beginning of a new refreshing period in music history. As the borders between European countries are torn down, so are the musical borders between east and west. ◗

Notes

[1] For more information on Sinta Wullur and Multifoon, see *http://www.sintawullur.nl/*.

[2] As listed on their website *http://www.sintawullur.nl/* on July 31, 2004, the chromatic gamelan instruments of Multifoon consist of:

- 2 extended saron with a range of 2 and a half octaves: c" - f111

and one each of the following

- gendèr panerus
- gendèr barung
- slenthem: c – c1
- peking: c"1 – c""
- bonang panembung: c# - b
- bonang barung divided in 2 frames: c1 to c" and c#" to c"1
- bonang panerus divided in 2 frames: c" to c"1 and c1111 to c""
- set of kempul: c – c1
- set of kenong: c1 – b1

INTERVIEW

Komang Astita: the performance of sound

by Elaine Barkin

August 20, 1990
STSI, Denpasar, Bali

Barkin: Maybe we should start with these pieces that you just finished: *Pencon* [Knobbed Gong] and –— what was the other?

Astita: *Ngombak Buluh* [Waves of Bamboo].

Barkin: Tell me about the influences in *Pencon*, where the various rhythms and the sounds and the timbres came from.

Astita: Well, first we have to choose the kind of instrument, so what we do is observe what instruments we have.

Barkin: What you have *here*? [at STSI, Bali's Advanced Academy of the Arts]

Astita: What we have around that's possible to use, the kind of instruments we have at school: Balinese, Javanese. And finally I saw the gong … it's interesting to make something different from what we usually do for the *karawitan*, in Bali or Java. Instead of using many kind of instruments, my idea is make it more simple. I like to make the material more effective, rather than just doing too many things. [*Karawitan* refers here to the codified system of traditional Balinese gamelan music.]

Barkin: So you mean to limit the timbre, limit the kind of instrument?

Astita: Yeah. Limit the kind of instrument, the timbre, and also limit the musician.

Barkin: Okay. A small group.

Astita: Yeah, a small group. For a big group our music is no problem. We can have doubling, or include different kinds of instrument, and that makes it very crowded.

Barkin: You mean like for a traditional Gong Kebyar ensemble?

Astita: Uh-huh, or Gong Gedé which needs many more musicians I got these ideas from my first piece, actually [a first] in Balinese contemporary music. That was *Eka Dasa Rudra*, the first piece I made for the young composers' concert [*Pekan Komponis*] in Jakarta in 1979. And that time I used many more instruments

Komang Astita at UCLA, 1995

The ideas came from the one very big ceremony in Bali, for Balinese Hindus, at Besakih [Bali's mother temple]. That ceremony [meant to purify the universe] only comes once in a hundred years. Of course, in that kind of ceremony, there's just too many things going on. There's a lot of special activities, music, dance, different kinds of religious ceremonies. What impressed me is the organisation of the ceremony. The process starts maybe six months before.

Barkin: To prepare for the ceremony?

Astita: Yes. And, you know, what is very attractive is the performance of sound. People

sounds, walking sounds, and gamelan from many, many different ensembles that we have in Bali, including instruments for performing both sacred and secular music.

Barkin: All going on at the same time?

Astita: Yes. That situation gave me an idea: to put it together, to combine all these different kinds of activities. And that time I used many instruments. It's based on gamelan Semar Pegulingan; why Semar Pegulingan? Because Semar Pegulingan has a seven-tone scale. I can manipulate that with a different kind of ensemble, angklung, add some other big cymbals, so it becomes a Belaganjur [marching band ensemble].

Barkin: I see.

Astita: It's a different kind of gamelan. Also, with the seven-tone scale, we can make more mood changes, according to the theme of the ceremony. Of course, this is still based on the Balinese character, the technique of playing, the music, the composition. What is new is the way of arranging the instruments, the structure of the composition, and how the gongs were hung.

Barkin: Oh, Michael [Tenzer] told me about this. You had a lot of people moving around?

Astita: Yes. Usually when we play gamelan in the Balinese tradition, we stay on one instrument. But I made the players move.We didn't have many instruments or people, but we can move things around. This concept is like theatre music. That was my first success. After that, I made things a lot simpler, with fewer musicians …

Barkin: So that piece was for the full Semar Pegulingan plus the gongs...

Astita: — plus the rice-pounding instrument, and a lot of wood, what you call *sapu*—

Barkin: A broom?

Astita: A broom, from *sapulidi*, yes. And a big bamboo flute, a *gambuh*. I illustrated the music with some dance movements, which makes the concept more complete. There are a lot of new pieces from other composers like Windha, Rai, and my brother [Ketut Gdé Asnawa]. This brings the contemporary music scene in Bali to life. The challenge first came from the Arts Festival. The last five years, we have included a Balinese contemporary music program.

Barkin: Maybe before we talk about *Pencon*, we should return to *Ubitning Selunding*. The first performance was in 1988, and then there was the performance on the "Fantastic Gamelan" cassette. I was interested in the differences between the two performances. What were the circumstances of the first performance — were you trying something different? The voices in that are so different than on the subsequent cassette.

Astita: For the first performance, for the Walter Spies festival, I was trying to create a new piece for Selunding, because I know it is a very old gamelan … sometimes we feel Selunding is a very sacred instrument. In this piece, we don't think about the sacred, we think about the possibilities of the instrument, we can play different music from what is usually played in a ceremony. The piece has a fixed structure already, but the vocal part in that piece comes from *kidung* style.

Barkin: Kidung?

Astita: Kidung is a ritual vocal part in Bali. And kidung has a free rhythm because the vocalist can sometimes take a lot longer to sustain a tone, or sometime it just depends on the situation. And this time, in *Ubitning Selunding*, that vocal of course should be fixed within the melodic theme I created. Sometimes it depends on the vocalist also. The first performance is different from the commercial cassette recording because the vocalist was different.

Barkin: But the style was also very different. In the first performance it was very avant-garde, you know? And then it gets much more conventional on the cassette.

Astita: Yeah, I think so. The first one is more free; I felt it was good that time. But in the second, the vocal is much more strict, more metrical.

Barkin: I had written a note to myself that in the first version, the rhythm was also freer in the ensemble. And then it gets to be more like a *Kreasi Baru* piece on the cassette. Is that right?

Astita: Yes, I think if I performed it again it would again be different. But if you compare the two, the second one is shorter.

Barkin: It's about two minutes shorter.

Astita: I mean the repetition is different, it's more free. I've already fixed the first one, because that's my first performance. And for subsequent [performances], I made a different order.

Barkin: What does *Ubitning* mean, by the way?

Astita: *Ubit*? That means a kind of intricate thing, for example in the carving; like leaves on a flower, right? Some parts of the leaf come out like this [he makes hand motions], what you call spiral.

Barkin: Spiral, that kind of pattern.

Astita: Yes, the pattern in fact. In Bali we have

patra, the name of different patterns. This is *patra Belanda*, which comes from Holland [he points to a part of the building decoration].

Barkin: So it's the different pattern, the ornamentation?

Astita: Yes. In that case, we have *ubit-ubitan*, kind of how the line comes from one center, for example, and starts on this end, and you make elaborate ornamentation. That is ubit-ubitan … [hand motions] the sense is like ornamentation.

Barkin: Let's talk about *Pencon*. That piece was such a success, you know. Everybody loved that piece. I would be interested to know how you started with the limited timbre and small group of players, and then where the ideas came from.

Astita: When I was exploring the ideas with my musicians, we were trying to feel what the sound was like … the sound is very deep, mostly soft. The possibility of playing the interlocking patterns has great breadth. I feel this music should not be very loud, if you play very loud, the sound is not right. [*Pencon* is for seven large gongs.]

Barkin: Yeah, the sound gets very diffused; it's not as clear as when it's soft.

Astita: In observing that, I tried some different patterns. We have a very rapid, very tight pattern. And the sound is not good, because if we hit too many — for example, with four gongs playing interlocking patterns, the sound is not so clear and we feel that the sound is not right.

Barkin: Are they all Javanese gongs?

Astita: Yes. I tried Balinese *trompong* from *Gong Gedé* [an older Balinese gamelan with very large instruments], but the sound was not deep enough.

Barkin: It's very resonant, so that's one of its characteristics.

Astita: After I saw that the rapid rhythm is not correct, we tried to make it more simple. What we do is not just hit the knob, but we compare it to hitting the body of the instrument, even on the rim.

Barkin: That's a new idea for playing those gongs for you?

Astita: Yes, yes. Before when we played a lot on the knob, the sound was not so good. We would like to have a more simple sound, and I'm trying to combine the body and the knob. The knob is still essential. We hit it a lot on the body, near the rim also. So, this idea is expanded and developed. It's very interesting when we try something like that.

Barkin: And hitting the stick of the *panggul* [mallet] on the rim was a wonderful passage.

Astita: We feel that if this is going to be played throughout with sticks, we should have another possibility, playing by hand. I think by slowing down, and using a different tempo, we play with a different technique. When we play that, something else comes up — we need vocal. First I tried it with *cak*, because the pattern of this is similar to the *Cak*. [A Balinese choral form of interlocking vocal parts, also known as *Kecak*.]

The players were saying "cak, cak, cak," each according to his rhythm. And my friend Pak Sumandhi comes in, and says we're abusing Cak. Cak already has its own character.

So we included the idea of [the sound of] frogs [and other birds and insects] in the rice field — you hear them at night. **T**hen you get the idea of the old *kotekan*. Kotekan [Balinese interlocking parts] is a combination of different sections, different parts, a combination of rhythm patterns and skill.

Barkin: I sometimes think that some of the patterns of Bali come from the frogs, because it sounds as if they're singing kotekan in the rice field.

Astita: Yeah, well, I don't know if that's true.

Barkin: Maybe not … Also, there were *many* different rhythmic patterns in *Pencon*. The tempi were different, slow and fast, and there were very different kinds of rhythm. Some of them sounded as if they were influenced by African jazz.

Astita: I think that type of sound is common in different kinds of music here. Also [in *Pencon*] there is a kind of slendro scale. You see the four of us are always playing interlocking parts … not four, five of us …

Barkin: Five of you and the two gong players.

Astita: Yes, the two [large] gongs. They play a colotomic [punctuating] part.

Barkin: Yeah, I know, because at the end they have that ostinato [sings] that went on maybe a little too long: that last part could be a little shorter. Don't you think so?

Astita: Yes. Lots of our friends also say that.

Barkin: *Just* at the end when you get to that ostinato pattern.

Astita: I think that's because of the repetition, you know. Maybe, if I don't repeat them, it's fine.

Barkin: So these are all slendro gongs?

Astita: Yeah, because that's the gong we've got.

Barkin: You don't have a pelog ensemble?

Astita: Well, there *is* a pelog, but when we explore the instrument, we[used what] we have … I don't think it necessarily has to be slendro.

Sometimes we may have only the pelog gong, that would be fine, too … the idea here is the pattern. We can make it even freer if we use some Western gongs, or Chinese gongs or something like that.

Barkin: Did the players have to learn a different playing technique?

Astita: They have a different kind of technique for playing *gangsa* or playing the drum, or playing cymbals. They just combine that. There are some drum ideas, playing on the rim. I think most of them are already experienced playing drum.

Barkin: I was very impressed with the players. I thought they were just wonderful.

Astita: Another possibility, if I play this on Western instruments, maybe we'd use a tom-tom, , and some big gong, that would be fine. There is no problem with changing the instrument set.

Barkin: But it was very special because of the resonance of that gong sound.

Astita: Well, the character of the sound can be different.

Barkin: And what about the *Jegog* [ensemble of bamboo tube instruments] piece *Ngombak Buluh*? What struck me was the part where *you're* playing a rhythm on the top and the others are playing something else — two rhythms simultaneously. That was very different, for me at least.

Astita: Well, I love jazz music also. I think that, to create a jazz character, it doesn't matter what instruments we use here. But the feeling of jazz is like that. For this piece we have melodic or rhythmic ideas and then we elaborate. That's the idea. We use the big bamboos to define the character of the piece. Also, the idea of this piece is to use a limited number of musicians.

Barkin: To get the most out of the least.

Astita: I like to do that now, you know, instead of playing with a lot of musicians.

Barkin: That was a good idea, to have three players on one instrument, and four players on the other. Was that a totally new idea?

Astita: Well, that's an idea I like, because what I did here is going to be observed by our students, you know, and they'll get some other ideas … Not just the conventional things they have been doing,. Sometime there will be a solo performance … this is really different from our music. We have a dearth of solo performance in Balinese music.

Barkin: Solo performance is such a Western idea.

Astita: Yes, I know, but sometime we can do that too. This is a way of expanding our ideas, exploring some more things. In this jegog piece, I have deep bass rhythm, a simple bass melody, then it is augmented by another rhythm; we also changed our tune; that makes the feeling different, changes the mood.

Barkin: Especially when you played the frame of the bamboo. What did you play with? It looked like angklung …

Astita: Well, it is part of *bumbung* instruments. [bumbung is the generic term for bamboo] We can hit with our palms, hit the instrument itself, or otherwise we use a stick. Bumbung can be slendro or pelog. But this time, I chose only four tones to express the rhythm, according to what we have on the big instrument.

Barkin: And the *jegog* itself is a four-tone scale, isn't it?

Astita: Yes. But in this piece, the scale is not necessary, just the sound.

Barkin: It's like layers of different rhythms happening simultaneously: that was very clear in the piece. So what do you think you'd be interested in going on to do? Any ideas?

Astita: I would like to do more new things.

Barkin: Would you to stay on this track of restricting yourself, to see how much you can get from a limited number? Or maybe mix something?

Astita: Maybe I'd like to mix, make something big. For me, I think a lot more is possible here, because we are getting used to new ideas.

Barkin: And what about the response to the new music, is it generally good?

Astita: I think it is very positive. I feel that, in the future, I would like to bring this kind of idea of music more to the village, you know?

Barkin: Absolutely.

Astita: Spread out the ideas, instead of keeping them in the academy.

Barkin: Yes, new music, whatever it is, is usually limited to an academic environment. Sometimes it goes out somewhere, but I had thought that it would be difficult to take it to the villages.

Astita: No, not so difficult. That's what we are now hoping to do more of, bringing our music to the villages. ◗

(transcribed by Wanda Bryant)

INSTRUMENTATION

Gambang cengkok in slendro manyura

compiled by Carter Scholz

Cengkok from T. Slamet Suparno's book as played by:
- Ws = Wignyosusastro
- Wm = Warsomloyo
- Ds = Darsono
- My = Mulyadi

Cengkok from other sources as played by:
- Wi = Widiyanto [aka Midiyanto]
- PC = Pak Cokro [aka Ki Wasitodipuro, aka Ki Wasitodiningrat, aka K.P.H. Notoprojo]
- BB = Ben Brinner
- KS = Ki Sudarto's book (Yogya)
- Su = Suhardi (Sutton's thesis)
- Ku = Kumuda cassette KGD-018 ("Pangkur Pamijen")

All cengkok are for irama wiled/dadi/III. Downbeats fall on the last note of each grouping. Cengkok for pathet sanga are simply transposed down one pitch level. Gendhing in pathet nem are generally a mixture of manyura and sanga cengkok. It is fairly common for sanga or manyura to "modulate" briefly one into the other (Gambirsawit, for instance, goes briefly from sanga into manyura during gatra ending on 3). Rebab, gender, and/or vocals are the best guide both to pathet and register at any moment; the gambang generally plays parallel to them, and may even borrow cengkok (especially from gender and gerong, and especially in irama wilet). Particular gendhing may have their own individual cengkok in places.

The balungan given for "special cengkok" are indicative, not exclusive. For instance, ayu kuning may be used for balungan other than 6i3ẋ 6321. For ayu kuning, as for other cengkok, the lagu (as expressed by gender, rebab, and pesinden) follows a characteristic shape, passing through high 1 to high 3, then falling to low 1. How this is expressed in the balungan is variable. (I have begun to think of the balungan as the shadow cast by the lagu, rather than the lagu/cengkok being an elaboration of the balungan. This viewpoint at least makes Javanese statements like "Asmaradana is just like Pangkur" more intelligible to me.)

In most of these transcriptions only one hand is shown. Octave playing is assumed. Some hand independence, contrary motion, and syncopation is always present, but the variants are too numerous to transcribe; they are best learned by listening to experienced players. Where such features seem to go beyond mere idiomatic variation, they have been transcribed in two-handed form.

Some future elaboration would do well to look more closely at the structural patterns within cengkok. Widiyanto classifies gambang figures into three classes: gantung ("hanging"), seleh ("cadential"), and "rambatan" (transitional). It is certainly more useful to think of the common 321y cengkok as "gantung 3, seleh 6" (or, even better, as tumuran) than as a 32-note phrase.

The degree and kind of variation possible within a constant structural unit is well indicated here by the numerous transcribed garapan of puthut gelut. Nearly all start with gantung 3, touch 6 at their midpoint, rise to high 3, and end on 2, with varying degrees of emphasis on these key pitches of the lagu. The other panerusan follow the same contour. (Gambang cengkok are frequently idiomatic derivations from the more numerous and better defined cengkok of the gender, rebab, and/or pesinden, which is where any comprehensive study of cengkok as structural elements should begin.)

It should be noted that many of the same 8- or 16-note modules show up again and again as components of longer cengkok, and many trivial variations arise in treating what is clearly the same module. (Consider these variations on the common cadence down to 3 from a high 1 or 6, as at the end of kacaryan: 2i2ẋ2ẋ5ẋ 6i653123 / 2i2ẋ2ẋ3ẋ 6i653123 / 2i2ẋ2ẋ6ẋ 6i563523. And the same module is found, transposed, at the end of dua lolo: 656i6i26 3532156̣1.) Widiyanto has said that there are only about 30 basic gambang patterns in 3 basic classes (gantung, rambatan, and seleh — hanging, transitional, and cadential), and while a refined player will certainly extend this basic vocabulary with creative garapan and borrowings from gender and vocals (or even bonang and kendang!), it still indicates that the gambang is not as central a carrier of lagu as the gender or the rebab, though more central than suling or siter.

Special Cengkok

These cengkok are named for vocal melodies. The other panerusan have similar cengkok, so named, which describe roughly the same melodic shape. They are usually the length of 2 gatra (or one gatra in minggah irama wiled).

Puthut gelut

(characteristic balungan: 33·· 6532 / 3356 3532 / 3323 6532 / ·3·6 ·3·2 / ·3·2 wiled)

vocal melody:

6̣16̣12323 216̣16̣123 563561̇2̇3̇ 3̇5̇2̇1̇62̇1̇6 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653216̣ 6̣16̣12356 61̇532312 Ds

6̣1216̣123 216̣36̣123 333561̇2̇3̇ 3̇5̇2̇1̇6666 61̇2̇3̇2̇3̇5̇2̇ 66662̇1̇63 ·5653216̣ 6̣16̣1216̣2 Ws

3̣3̣3̣5̣6̣123 333561̇2̇3̇ 3̇3̇3̇3̇3̇3̇3̇3̇ 3̇3̇2̇1̇62̇1̇6 3̇3̇3̇3̇2̇1̇3̇2̇ 66661̇653 216̣6̣6̣6̣6̣ 6̣6̣6̣126̣12 My

216̣16̣123 5323216̣1 216̣16̣123 32312323 6662̇61̇2̇3̇ 2̇3̇5̇2̇6633 65353216̣ 6̣16̣126̣12 PC

6̣16̣12323 216̣36̣123 563561̇2̇3̇ 3̇5̇2̇162̇16 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653216̣ 6̣16̣12356 61̇532312 KS

6̣1216̣123 216̣36̣123 333561̇2̇3̇ 3̇5̇2̇1̇6666 3̇3̇3̇3̇2̇1̇3̇2̇˙61̇653653 65353216̣ 6̣6̣6̣126̣12 KS

3̣3̣3̣5̣6̣123 333561̇2̇3̇ 3̇3̇3̇3̇3̇3̇3̇3̇ 3̇3̇2̇1̇62̇1̇6 2̇1̇63̇2̇1̇3̇2̇ 61̇2̇62̇1̇63 65353216̣ 6̣16̣126̣12 KS

6̣1216̣123 216̣36̣123 333561̇2̇3̇ 3̇5̇2̇1̇62̇1̇6 2̇1̇63̇2̇61̇2̇ 61̇2̇62̇1̇63 3361̇61̇2̇6 3236̣1312 KS

6̣16̣16̣16̣5̣ 3̣3̣3̣6̣6̣5̣6̣1 216̣26̣121 21232323 566561̇2̇1̇ 3̇2̇1̇2̇61̇63 56355216̣ 6̣16̣326̣12 Su

6̣5̣3̣3̣6̣5̣6̣1 222216̣16̣ 3363561̇2̇ 3̇5̇2̇16356 2̇1̇2̇3̇2̇3̇1̇2̇ 63653216̣ 6̣16̣12356 61̇5326̣12 Ku

216̣12123 5323216̣1 216̣16̣123 32312323 6662̇61̇2̇3̇ 2̇3̇5̇2̇6633 65353216̣ 6̣16̣12322 PC

6̣1216̣123 363561̇2̇3̇ 3̇1̇3̇2̇1̇653 35356356 3561̇2̇1̇3̇2̇ 63653216̣ 6̣16̣12356 61̇5326̣12 Wi

61216̣123 36356123 31321653 35356356 35612123 21326263 65321216 6̣16̣126̣12 Wi

12612123 21216̣123 333561̇2̇3̇ 3̇5̇2̇1̇6356 3̇3̇3̇3̇2̇2̇66 3̇3̇1̇1̇2̇2̇66 63653216̣ 6̣16̣12322 Wi

12612123 21216̣123 333561̇2̇3̇ 3̇3̇3̇2̇1̇656 2̇1̇63̇2̇1̇63̇ 2̇3̇5̇2̇62̇63 65321216 ··6̣·6̣·6̣2

6̣3̣6̣1232· Wi

Debyang debyung

vocal melody: ···· ···· ·123 ·126 ·123 ·126 ·123 3̣3̣3̣6̣

nyo tali nyo emping nyo tali nyo emping nyo tali jobangjabing

(balungan: 2 3253 6532 / ·3·2 wiled; often after puthut.gelut; Yogya name: *Tumpang Sari*)

6̣123216̣2 6̣123216̣2 6̣1216̣123 35216̣3̣5̣6̣ 3̣5̣6̣12356 3561̇2̇1̇3̇2̇ 1̇2̇653216̣ 6̣16̣126̣12 Ds

6̣123216̣2 6̣123216̣2 6̣1216̣123 35216̣3̣5̣6̣ 3̣5̣6̣12356 3561̇61̇2̇6 ·3653216̣ 6̣16̣126̣12 Ws

6̣123216̣2 6̣123216̣2 6̣1216̣123 35216̣3̣5̣6̣ 6̣6̣6̣12356 66661̇653 216̣6̣6̣6̣6̣ 6̣6̣6̣126̣12 My

22222222 6̣1235356 2̇1̇6̇5352̇1̇ 1̇2̇1̇2̇3̇1̇2̇3̇ 66626123 2̇3̇5̇2̇6633 65353216̣ 6̣16̣126̣12 PC

6̣1232312 6̣126̣1232 6̣1216̣123 35216̣3̣5̣6̣ 3̣5̣6̣12356 3561̇2̇1̇3̇2̇ 1̇2̇653216 6̣16̣126̣12 KS

·1·1··12 ·1·1··12 ·1·1·123 ·3565356 ·5612356 2̇1̇3̇2̇61̇63 65353216 61612212

6̣1235312 6̣1235312 6̣1235323 ·3̣5̣6̣5̣3̣5̣6̣ 3̣5̣6̣12356 21326163 65353216 61612612 KS

2121212· 2121212· 2121212· ·3565356 61612356 3561̇2̇1̇3̇2̇ 63653216 6·6·6·6·

23216̣12· 6̣123212· 23216̣12· ·3̣5̣6̣5̣3̣5̣6̣ 6̣16̣12356 35612132 63653216̣ 6̣12326̣12 Wi

Ayu kuning

vocal melody: .··· 6··2 1·23 3··521···3 · 26 3··3 53 23 1

ayu kuning bentrok maya maya

(balungan: 6132 6321)

61235356 3561216i 6i2321i2 i26i26i2 6i2321i3 i2653653 65321265 3635616121 Ds

66612356 6662i62i 6i216i23 3321i26i2 6i2i2i23 3521i2653 35353561 65656321 Ws

66612356 66663561 261i26i26 3333235261 666i2i23 i266i653 12663333 3335656161 My

61235356 3561216i 6i2321i2 i26i26i2 6633221i2 6i653653 65321265 3336352161 Ds

22666666 66356i6i 2i633333 6i26i2i2 6i2321652 6i653353 6i62i632 12636561 PC

21235356 3561216i 6i2333i3 3331i26i2 6i2333i3 i2653653 65321265 3335656161 KS

33356356 35612161 6i2333i3 3331i26i2 6i2i6i23 i2653653 65321265 3335616161 KS

23565656 3366216i i2212i23 3531i26i2 2i6i6i23 i2653523 65321265 5656161561 Wi

12161235 551215i6 66565612 2212i2i31 561656i2 6i532312 ·1321653 3535635616 Wi

(sanga; imitates gerongan)

Kacaryan

vocal melody: 6i2 36 565 6 6 i26 53

kacaryan ing gung di natur

(balungan: i 3265 i653)

6i232352 6i653532 25235612 2316565 2356i656 53232356 3521621 6261235 MS

6i6i2i6i 6i6i26i2 65653532 23235235 23532356 53232356 2i2326i2 6i653123 Ws

iii2266 3332612 5321i6i56 53235235 23532356 53232356 2i653532 6661235 My

6i233333 3331i26i2 2221i23·2 266563·5 22235356 53262356 6i233333 i2653333 KS

53262356 53262356 666ii332 26656335 22235356 53262356 6i233333 i2653333 KS

666iiii5 55566661 ii1662i1 i5523123 11123235 iii2i26i 52535216 5551561612 Wi

(sanga; imitates vocal)

ii12i1i6 6ii331i2 2212i332 2316523 5 23565356 53232356 2i2323521 6i653123 Wi

(imitates vocal)

Rujak-rujakan

vocal melody: 2233 3332 2/321 3332 2223 3 1216

rujak nanes pantes den wadahi gelas rujak tiwas tiwas nglabuhi wong ora welas

(balungan: 6 2321 3216 / 1 6 wiled)

35612123 21616123 12653653 33635616 21235356 35213212 61216123 35216356 Ds

35612123 21616123 61262163 65321261 61235356 63653212 61216123 ·3565356 Ds

66612123 21616123 61653653 35353561 61212123 33212612 61653653 35356356 Ws

66616123 21616123 33126633 33356561 11113333 33332352 ·2532165 3535635 My

61216123 21636123 65616126 63656321 61235323 3561i6i56 31321653 3535635 KS

Ora Butuh

vocal melody: ···· ···· 6565 6535 ···· 2566 ··3 $\overline{56}$ $\overline{35}$ 3

ora butah godong kayu butuhe golonging kalbu

(balungan: ·5 ·3 manyura wiled only)

6̣16̣12356 6̣1535235 23561̇61̇2̇ 2̇3̇1̇65635 23561̇656 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653523 Ds

3̣3̣3̣5̣6̣123 216̣16̣123 22233556 6556561̇5 53232356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 Ws

5̣5̣5̣6̣1235 55555555 33663522 22235235 53232356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 My

5̣5̣5̣6̣1235 55555555 33663522 22235235 23532356 53232356 2̇1̇653532 6̣6̣6̣12123 My

Dudukan

vocal melody ···· ··61̇ 2̇6 5 3 5 6 1̇23 21 2123 22 31

yo surako surak iyo surak iyo

(balungan: 5653 2121 5653 2126̣ manyura only; Yogya name: *Surako*)

6̣1235356 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653523 6561̇61̇2̇6 3532126̣1 3216̣5̣6̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣ Ds

53232356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 66665365 23216̣121 6̣16̣16̣123 35216̣6̣6̣6̣ Ws

·3532356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 6666561̇5 22225321 ·13216̣5̣3̣ 3̣3̣3̣5̣6̣3̣5̣6̣ My

6̣1235356 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653523 61̇2̇62̇1̇63̇ 1̇2̇653653 6532126̣5̣ 26̣2̣5̣6̣121 Ds

23235235 23232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 66665365 56562161 6̣16̣16̣123 216̣5̣3̣5̣6̣1 Ws

·3532356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 6666561̇5 22225321 6̣16̣5̣3̣3̣3̣3̣ 3̣3̣3̣5̣6̣5̣6̣1̣ My

6̣1235356 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653523 61̇2̇61̇263 33653353 653216̣5̣3̣ 3̣3̣3̣5̣6̣5̣6̣1 BB

65362356 53262356 61̇2̇3̇3̇3̇3̇3̇ 1̇2̇653653 6561̇61̇26 3532126̣1 113216̣5̣3̣ 3̣3̣3̣5̣6̣3̣5̣6̣ KS

23552355 23532356 53216̣6̣6̣6̣ 6̣1216̣123 216̣36̣123 216̣36̣123 216̣5̣3̣3̣3̣3̣ 3̣5̣6̣1216̣1 KS

Dudukan pelog nem

(balungan: 5653 216̣5̣)

6̣1235356 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653523 66665365 23216̣121 3216̣5̣6̣3̣2̣ 2̣3̣2̣3̣5̣2̣3̣5̣ Ds

53232356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 66665365 23216̣216̣ 6̣6̣216̣5̣3̣2̣ 2̣3̣2̣3̣5̣2̣3̣5̣ Ws

63535356 53232356 2̇1̇2̇3̇2̇61̇2̇ 61̇653123 6666561̇5 23523216̣ 6̣6̣5̣3̣2̣2̣2̣2̣ 2̣2̣2̣3̣5̣2̣3̣5̣ My

5̣5̣5̣6̣1235 55532356 2̇1̇2̇3̇2̇61̇2̇ 2̇62̇1̇2̇653 53265235 23525216̣ 16̣216̣5̣3̣2̣ 2̣3̣2̣3̣5̣2̣3̣5̣ KS

Ganggen kanyut (Yogya)

(balungan: 2126̣ ··6·)

6561̇61̇26 3532126̣1 321216̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣ 6̣6̣6̣12356 61̇2̇3̇3̇3̇3̇3̇ 3̇3̇3̇3̇3̇3̇3̇3̇ 3̇2̇2̇1̇6666 KS

Manggeng

(balungan: from 6̣ to 2)

<u>6621·1·6 2163·123 35353216 6·6·6·66</u>

6̣6̣216̣·6̣· 216̣·6̣123 35353216̣ 6̣36̣12·2· KS

Putut semedi

(balungan: . 3 . 2 dadi; often after ayu kuning)

216̣16̣123 ·3̣5̣6̣5̣3̣5̣6̣ 6̣16̣12356 61̇5326̣12 Wi

Tumuran 6

(balungan: 3216̣; to gong)

216̣36̣123 3561̇61̇2̇6 313216̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣ Wi

Ordinary Cengkok

These cengkok are used when the lagu does not call for special cengkok. They are all the length of one gatra (or half a gatra in minggah irama wilet) .

from low 6 to 3

6̣16̣12356 61̇532312 6̣1235356 61̇653523 Ds

3̣5̣6̣12356 3561̇2̇1̇3̇2̇ 61̇653216̣ 6̣16̣12123 Ds

6̣6̣6̣12356 65323565 53232356 61̇653653 Wm

222123·2 235563·5 55532356 1̇2653523 KS

from low 6 to 2

6̣16̣126̣12 6̣1235356 35216̣216̣ 6̣16̣126̣12 Ds

3̣5̣6̣12356 3561̇2̇1̇3̇2̇ 61̇653216̣ 6̣16̣126̣12 Ds

6̣16̣12356 3561̇2̇1̇2̇3̇ 3̇3̇1̇2̇6633 126̣126̣12 My

3̣5̣6̣12356 3561̇61̇2̇6 ·3653216̣ ·16̣126̣12 My

333561̇2̇3̇ 3̇3̇2̇1̇6216 ·3653216̣ 6̣16̣126̣12 ??

from 6 to high 1

61̇2̇3̇2̇3̇2̇3̇ 2̇1̇63̇61̇2̇3̇ 2̇1̇653653 363561̇2̇1̇ Ds

2̇1̇2̇1̇61̇2̇1̇ 61̇2̇1̇61̇2̇3̇ 2̇3̇2̇1̇6533 353561̇2̇1̇ Ds

2̇2̇2̇2̇61̇2̇1̇ 2̇1̇2̇1̇2̇1̇2̇3̇ 2̇1̇61̇6535 65656561̇ My

61̇61̇261̇2 21̇6361̇2̇3̇ 3̇2̇5̇3̇2̇1̇65 56561̇561̇ Wm

61̇2̇1̇61̇2̇3̇ 2̇1̇6361̇2̇3̇ 6·2̇·6·2̇· 6·2̇·6·2̇· KS

2̇1̇61̇61̇2̇3̇ 2̇1̇61̇61̇2̇3̇ 3̇3̇2̇2̇6633 6561̇6561̇ Wi

from low 6 to 1

6̣1235323 61̇2621̇65 6532126̣5̣ 3̣3̣6̣3̣5̣6̣1 Ds
3̣5̣6̣12123 6̣126216̣3 126̣5̣3̣6̣5̣3̣ 3̣6̣3̣5̣6̣121 Ds
6̣1216̣16̣1 6̣1212353 61̇62̇1̇62̇1̇ 63656321 My
216̣36̣123 216̣16̣123 6561̇61̇26 661̇56321 Wm
6̣6̣6̣12123 53565323 216̣1216̣5̣ 3̣3̣3̣5̣6̣5̣6̣1 Wm
6̣6̣6̣12123 363561̇2̇3̇ 1̇2̇653523 653215̣6̣1 Wi

from 6 to 6

61̇61̇2̇61̇2̇ 61̇2̇3̇2̇3̇1̇2̇ 61̇2̇3̇2̇3̇2̇3̇ 3̇5̇2̇1̇62̇1̇6 Ds
53232356 53232356 1̇2̇653653 35356356 My
61̇2̇3̇2̇3̇5̇2̇ 66563561̇ 1̇1̇·6·653 33·56356 Wm

from low 5 to low 2

32126132 16123212 22252356 61532222
3̣5̣3̣2̣3̣5̣3̣2̣ 3̣2̣1̣2̣3̣5̣3̣2̣ 2̣2̣2̣5̣2̣3̣5̣6̣ 6̣15̣3̣2̣·2̣· KS

from low 2/3 to low 6

3̣5̣6̣12123 126̣5̣3̣6̣5̣3̣ 3̣6̣3̣5̣6̣123 35216̣216̣ Ds
2̣1̣2̣3̣2̣1̣2̣3̣ 2̣1̣2̣3̣2̣1̣2̣3̣ 3̣6̣3̣5̣6̣123 35216̣216̣ Ds
2̣6̣2̣5̣6̣123 126̣5̣3̣6̣5̣3̣ 3̣6̣3̣5̣6̣123 35216̣3̣5̣6̣ Ds
3̣5̣3̣5̣6̣5̣6̣1 6̣1216̣5̣6̣· 3̣5̣3̣5̣6̣123 ·5216̣3̣5̣6̣ My

from 1 to low 6

12126̣123 126̣126̣12 6̣1232323 35216̣216̣ Ds
6̣16̣126̣12 6̣1232312 6̣1232323 35216̣3̣5̣6̣ Ds
6̣1232323 126̣5̣3̣6̣5̣3̣ 3̣6̣3̣5̣6̣123 35216̣216̣ Ds
6̣12326̣12 16̣5̣6̣16̣12 6̣126̣126̣3 ·5216̣3̣5̣6̣ My
6̣1216̣123 6̣6̣6̣126̣12 6̣6̣6̣26̣123 35216̣6̣6̣6̣ KS
126̣12123 3561̇61̇56 313216̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣ Wi

from 2 to low 6

6̣5̣6̣16̣126̣ 3532126̣1 3216̣5̣6̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣ Ds
6̣1232312 6̣1232312 6̣1235356 35216̣3̣5̣6̣ Ds
16̣5̣6̣15̣6̣1 6̣5̣3̣5̣3̣5̣6̣1 5̣6̣3̣5̣6̣123 ·5216̣3̣5̣6̣ My
53565615 313216̣5̣3̣ 3̣3̣3̣5̣6̣123 35216̣216̣ Wm

from 1 to 1

```
61235323 126535353 36352123 35321261  Ds
21612353 21616123 65321265 33363561  Ds
21612356 53216123 12653333 36352121  My
65656121 65656123 21612121 65656121  My
12126123 21636123 656i6i26 66i56321  Wm
61216123 21636123 21653333 33356561  KS
```

from 2 to 1

```
61216123 126535353 36352123 12653561  Ds
61235323 21636123 126535353 36352121  Ds
6i232352 6i653653 65321265 36352121  Ds
6i26i263 i2653523 65321265 33363561  My
61216161 61212353 6i62i62i 63656321  My
21616123 21616123 656i6i26 66i56321  My
6i232352 6i653653 6i262i63 65321261  Ds
6i2i6i23 2i6i6i23 65321265 35653561  Ds
21636123 21636123 356i6i56 32161561  Wi
```

from 3 to 1

```
65616126 35321265 36352123 35321261  Ds
6i26i263 i2653653 65321265 33363561  Ds
36356i23 i2653653 65321265 36352121  My
6i26i263 33653353 65321265 33363561  BB
```

from 2 to 2

```
61235356 356i2i32 6i653216 61612612  Ds
61235356 35216356 35612356 6i532612  Ds
12321212 16161612 32161656 16161612  ??
21616123 21616123 35321216 61612612  ??
61235356 35216666 66612356 6i532612  KS
```

from high 1 to 2

```
6i2323252 6i653216 61612356 6i532312  Ds
i2i26i23 i2653216 61235356 6i53261 2  Ds
6i2323232 2i653565 32161616 16161612  My
33332325 2 66336535 56532356 6i532532  My
33332 6i2 63653216 61612356 .3653212  My
32126123 35216666 66612356 6i532612  KS
```

from 3 to 2

```
21616123 12612356 35216216 61612612  Ds
36356i23 2352 6i63 65321216 61612612  Ds
66665i65 32123235 32121616 16161612  My
21612121 32121616 16161612 16161612  My
66665 6i5 32123235 56532166 61232612  My
6i2323232 2i326633 65353216 61232612  Wm
656i6i6i 65336535 53653216 61261612  Wm
61216123 21636123 35353216 66612612  KS
```

from 2 to 3

```
61235356 53232356 2i2323252 6i653523  Ds
61235356 356i6i23 i2653521 66616123  Ds
32121616 16123212 61235356 66532123  My
61216535 65656121 61235356 35216123  My
21636123 23535356 2i2326i2 6i2326 53  Wm
61235356 53262356 2i2323i2 2626i2653  KS
```

from 3 to 3

```
21616123 21616123 36356i23 i2653523  Ds
53232123 21212123 53235356 66532123  My
53232356 53232356 65i65321 11123123  Wm
23552355 2356i656 53216666 61216123  KS
```

from 5 to 3

23561̇656 53232356 2̇1̇2̇3̇2̇3̇5̇2̇ 61̇653623 Ds

2353561̇6 1̇6532356 2̇1̇2̇3̇2̇61̇2̇ 66552123 Ws

32356535 32123235 23212121 21212353 My

23535356 53232356 2̇1̇2̇3̇2̇61̇2̇ 2̇1̇2̇3̇2̇653 Wm

22235356 53262356 61̇2̇3̇2̇3̇1̇2̇ 2̇62̇1̇2̇653 KS

from 2 to 6

6̣1235356 3561̇2̇1̇2̇3̇ 1̇2̇653653 35356356 Ds

6̣1235356 3561̇2̇61̇2̇ 61̇2̇3̇2̇3̇2̇3̇ 3̇5̇2̇162̇16 ??

6̣1235323 216̣16̣123 563561̇2̇3̇ 3̇5̇2̇162̇16 Ds

6̣16̣126̣12 6̣15̣6̣15̣6̣1 5̣6̣3̣5̣6̣123 ·5356356 My

23561̇656 53262356 6662̇61̇2̇3̇ 3̇5̇2̇1̇6666 KS

from 3 to high 1

216̣16̣123 216̣16̣123 363561̇2̇3̇ 3̇5̇3̇2̇1̇2̇61̇ Ds

216̣12353 216̣16̣123 1̇1̇1̇61̇2̇1̇ 2̇1̇2̇1̇2̇1̇61̇ My

216̣3̣6̣123 563561̇2̇3̇ 3̇2̇5̇3̇2̇1̇65 56561̇561̇ Wm

Cengkok gantungan

Nearly all gantung patterns may be transposed to any pitch.

gantung 1

6531̇·561̇ 6531̇·561̇

6̣5̣3̣·3̣5̣6̣1 6̣5̣3̣·3̣5̣6̣1 KS

5 6 5 5 ·5· 5 5 5 6 5 5 ·5· 5 5

5̣ 6̣ 1 1 1·2 1 1 5̣ 6̣ 1 1 1·2 1 1 KS (also for 2)

gantung 2

612323·2 612·1232

6̣1232312 6̣126̣1232 Ds/Ws/Wm

· 11· 22· 11· 22 · 11· 22· 11· 22

3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 Ds (also for 6, high 1, low 2 p.nem)

1̇61̇2̇1̇61̇2̇ 1̇61̇2̇1̇61̇2̇

35323532 35323532 Ds (also for 6, high 1, low 2 p.nem)

gantung 3

```
2 11· 3 3 1 2 3  2 11· 3 3 1 2 3
2 1 6 1 6 1 2 3  2 1 6 1 6 1 2 3   Wi

· 1 2 3 2 1 2 3  2 11· 3 3 1 2 3
· 6 5 3 5 6 5 3  2 1 6 1 6 1 2 3   Wi

· 1 · 33· 1 · 33  · 1 · 33· 1 · 33
6 1 6 1 6 1 6 1   6 1 6 1 6 1 6 1  Wi
```

gantung 6

```
53·6·356 53·6·356
53232356 53232356  Ws/Ds/Wm/My
```

```
The KS pattern notated as 61216123 is actually:
6121·123
61235323
```

Some beginning gambang patterns and pieces

(These extremely preliminary notes were put together in Sept. 1992 at the request of Lou Harrison, for use in his gamelan class at Cabrillo College. — Carter Scholz)

This guide is meant to provide a beginner with the rudiments of gambang playing. The best way to become adept at any instrument, of course, is to study with a master. No amount of book learning can substitute for this, and this little primer doesn't attempt to do so. However, there are times when a master is not available, but one wants the sound & texture of the gamelan to be more or less complete and correct even if the desired expertise is, of necessity, lacking.

Most of the cengkok and garapan I have learned come from lessons with Mas Widiyanto. I am grateful to him for sharing his knowledge and many insights into karawitan with me. Any errors in transcription or interpretation are mine.

Patterns and cengkok

Basic gambang patterns are best thought of as groups of 8 or 16 notes. Cengkok are longer patterns made up of several such units, usually the length of one gatra (or two). Ultimately it is best to think of a piece in terms of its cengkok, but the beginner should learn patterns first. The patterns fall into three basic classes: gantung ("hanging"), rambatan ("moving"), and seleh ("cadence"). There are many variants and exceptions, but the beginning student should learn to play at least basic 8- and 16-note gantung and seleh patterns on any pitch as second nature. Gambang is the fastest instrument in the gamelan, and it's almost impossible to read a part at speed. But it is possible to read and play notations like "g.3, s.6" at speed if you know the basic patterns and how to put them together. (Better still is to memorize the whole piece.) The patterns presented here are representative; they are by no means exhaustive.

In the transcriptions, octave playing is assumed, except where otherwise noted. Patterns are usually notated as a single line, even though they are often played with a certain amount of hand independence and syncopation. The last note of each pattern is the downbeat.

The student should learn to play the basic patterns starting on any pitch. Once patterns are learned, they should be linked together into longer cengkok; try memorizing a complete piece one kenongan at a time. (Ladrang *Wilujeng* is an excellent beginner's piece.)

Garapan

You can easily learn a piece by rote from a teacher, tape, or transcription, and come to your own conclusions about how gambangan works.

Nonetheless, I offer some general observations for whatever they're worth.

A player invents his own garapan (treatment) for a part. Experienced players with a deep knowledge of karawitan will invent more complex and interesting parts with more variety of cengkok and technique, while a beginner will stick to a fairly small stock of predictable phrases. Nonetheless, all "correct" garapan for a piece, whether simple or complex, share certain features.

In general, a cengkok is one gatra long (or two). The gambang usually plays a seleh pattern to the last balungan pitch of the gatra (unless it is a 2-gatra cengkok). Gantung patterns are often used at the start of a gatra, and where the balungan repeats notes.

Although gambang patterns may be transposed freely, they do express pathet. Seleh 6 in manyura generally differs from seleh 6 in sanga (though seleh 6 in manyura is equal to seleh 5 in sanga moved up one). The garapan for a given pathet generally emphasizes the pitches important to that pathet. Thus pathet manyura, where 2, 3, and 6 are important, generally involves a lot of gantung 3 and 6, and seleh 6, 2, and some 3. Pathet sanga generally involves much gantung 2 and 5, and seleh 5 and 1 (and some 2). Pathet nem is a mixture of manyura & sanga, with some features of its own. Note how Srepegan nem (below) begins with gantung 2 (sanga-like), changes to gantung 3 (manyura-like), goes to seleh 5 (sanga-like), then seleh 2 (manyura-like), and finally tumuran sanga (gantung 2, seleh 5) to gong.

Seleh patterns to an "enemy" tone (1 and 5 in manyura, 6 and 3 in sanga) may be different from other seleh. (See seleh 1 examples below.)

Like bonang, gender, and rebab (and unlike balungan instruments), the gambang has a wide range and uses this range to indicate whether the lagu is high, middle, or low. It's important that the gambang play in the proper register. When in doubt, follow the rebab.

The best way to devise garapan is to learn as many different pieces from a master player as possible. The same gatra and cengkok come up again and again in various contexts and guises. Eventually a player can learn to concoct plausible garapan at sight from an unknown balungan, if need be. But the pitfalls in sight-reading a gending can be many. It's best to learn directly from someone who knows, at least for traditional gending.

A transcription of *Ladrang Pangkur* is attached, as garap'ed by four different players. It's instructive to compare their approaches (which can vary considerably from gongan to gongan even in the same performance!).

Irama and tempo

The speed of playing is determined by the drumming tempo and the irama. In irama II (tanggung), the gambang plays 4 notes per balungan tone; in irama III (dados), 8. In irama I (lancar), the gambang may simply play the balungan at double speed (or not play). Depending on the drumming tempo, the gambang will generally play between 4 and 8 notes per second. During transitions the player should shift irama when it is comfortable to do so, i.e. when staying in the old irama would feel too fast or too slow.

It is actually easier (for me, anyway) to play in irama III than in irama II. The 8-note units fit more gracefully into the 32-note gatra phrases, and there is more time to think of variations and more space to fit them into. I tend to think of irama III as normative, and of irama II as a condensation of an irama III part.

Technique

The most desirable trait in gambang playing is "smoothness". The part should be rhythmically regular and melodically flowing. Tabuh (mallets) should be held loosely, so that their natural rebound after impact aids the player's speed and doesn't muffle the timbre.

The gambang is in no sense a leader of tempo, and should defer to the kendang and gender, but the gambang player should also be mindful that its insistent pulse has a metronomic effect on the other musicians, for good or ill. In the absence of kendang, gambang can be an effective rhythmic leader. Contrariwise a lack of smoothness can be a saboteur of ensemble.

Although the transcriptions are notated as a single line, and assume octave playing, good gambangan always has a certain amount of hand independence and syncopation. For example, see the patterns for gantung 3 and seleh 6. The best way to learn these details is by listening to good players.

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Some basic patterns (manyura)

Patterns may be transposed down one pitch for sanga

Gantung

Gantung patterns may be transposed to any pitch.

gantung 3

notated: 3 21̣61̣6123 *or* 3 21̣633123

performed (for example):

3 2 11· 3 3 1 2 3 2 11· 3 3 1 2 3

3 2 1 6̣ 1 6̣ 1 2 3 2 1 6̣ 1 6̣ 1 2 3

variations:

· 1 2 3 2 1 2 3 2 11· 3 3 1 2 3

· 6̣ 5̣ 3̣ 5̣ 6̣ 5̣ 3̣ 2̣ 1̣ 6̣ 1̣ 6̣ 1̣ 2̣ 3̣ *(contrary motion)*

· 1 · 33· 1 · 33 · 1 · 33· 1 2 3

6̣ 1 6̣ 1 6̣ 1 6̣ 1 6̣ 1 6̣ 1 2 3

gantung 1

5 6 5 5 ·5· 5 5 5 6 5 5 ·5· 5 5

5̣ 6̣ 1 1 1·2 1 1 5̣ 6̣ 1 1 1·2 1 1

gantung 2

· 11· 22· 11· 22 · 11· 22· 11· 22

3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2

Seleh

seleh 6

notated: 3 ·1321̣65̣3̣ 3̣5̣3̣56̣3̣56̣

performed (for example):

3 33 · 3 2 1 6̣ 5̣ 3̣ 33 · 3 5̣ 6̣ 3̣ 5̣ 6̣

3 3 1 3 2 1 6̣ 5̣ 3̣ 3̣ 5̣ 3̣ 5̣ 6̣ 3̣ 5̣ 6̣

3 3521̣65̣3̣ 3̣5̣3̣56̣3̣56̣

3 356i̇6i̇26 3521̣63̣56̣

3 356i̇6i̇26 3521̣621̣6̣

·3̣3̣55̣3̣35̣ 5̣66̣3̣51̣56̣

seleh 3

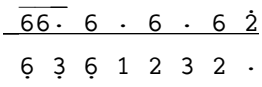
6 2̇1̇2̇3̇2̇3̇5̇2̇ 6i653123

seleh 2

3 ·1321216̣ 6̣1612612

6̣ 6̣1612356 6i532612

variation on 6̣1612612:



seleh 1

3 ·2532165̣ 5̣65̣615̣61 *(seleh 6 transposed)*

3 ·1321653̣ 3̣3̣5̣6̣5̣61

3 36356i56 3132151̣61

3 3322663̣3̣ 6̣5̣611̣61

3 1263̣6̣5̣61 6̣5̣3̣5̣3̣6̣1

Tumuran (gantung 3 + seleh 6)

3	2	1	6̣
2161̣6̣123	2161̣6̣123	3521̣61̣5̣3̣	3̣5̣3̣6̣3̣5̣6̣
2161̣6̣123	35212612	·1321653̣	3̣5̣3̣6̣3̣5̣6̣
2161̣6̣123	356i6i̇26	3132151̣61	3̣5̣3̣6̣3̣5̣6̣
356i6i̇26	3132151̣61	·3̣3̣5̣5̣3̣3̣5̣	5̣6̣6̣3̣5̣15̣6̣

Transcriptions

Srepegan pathet nem, irama tanggung
(garapan Widiyanto)

6 5 6 5̆ 2 3̆ 5 3̮̑

5̣5̣5̣6̣16̣12 16̣5̣·26̣12 6̣6̣6̣22123 216̣16̣123

16̣5̣6̣5̣6̣12

5 3 5 3̆ 5 2̆ 3 5̮̑

216̣16̣123 216̣16̣123 235·6532 23235235

1̇ 6 5 3̆ 6 5̆ 3 2̮̑

23561̇61̇2̇ 1̇62̇1̇6356 63653216̣ 6̣16̣126̣12

3 2 3 2̆ 3 5̆ 6 ⑤

26̣5̣6̣5̣6̣12 16̣5̣6̣5̣6̣12 26̣216̣5̣3̣2̣ 2̣3̣2̣3̣5̣2̣3̣5̣

ngelik (1st time only)

2 1 2 1̆ 3 2̆ 3 2̆ 5 6̆ 1̇ 6̮̑

5̣5̣5̣6̣1235 56561̇561̇ 561̇61̇61̇2̇ 1̇656561̇2̇ 2̇1̇3̇2̇1̇653 35356356

1̇ 6 5 3̆ 2 3̆ 2 1̮̑

1̇1̇1̇561̇61̇ 6561̇1̇561̇ ·561̇6561̇ 65·1̇1̇561̇

·3212321

3 2 6 5̆ 3 2̆ 3 ⑤

2̇1̇2̇3̇2̇3̇5̇2̇ 63653532 23235235 2316̣5̣5̣5̣5̣

Lancaran Ricik-Ricik, irama lancar
(balungan nibani; garapan Pak Cokro)

```
   3   2̂   6̆   2̂   6̆   2̂   1̆   6̂
6̣5̣5̣5̣5̣6̣ 12355555 2356i6i2 2̇3̇2i6356
5̣5̣6̣1235 555·3535 2356i2̇2̇ 2̇3̇2i6356
   3   2̂   6̆   2̂   6̆   2̂   1̆   6̂
66633335 55665535 656i2i2̇3̇ 3̇·2̇i6·56
6633333· 55523535 2356i2̇2̇ 2̇3̇2i6356
   3   1̂   3̆   1̂   3   1̂   1̆   6̂
66333332 2226̣1212 ·3232153̣ 3̣5̣3̣5̣6̣3̣5̣6̣
6̣6633332 2226̣1211 3226̣6̣153̣ 3̣5̣3̣5̣6̣3̣5̣6̣
   3   1̂   3̆   1̂   3   1̂   1̆   5
6̣6̣611112 22233332 ·3216̣153̣ 3̣5̣3̣5̣6̣3̣5̣6̣
6̣6̣612212 ·12·1212 2321̣6̣153̣ 3̣5̣3̣5̣6̣3̣5̣6̣
```

Lancaran Singanebah, slendro nem

```
   5   3    5   3    5   3    2   1
21̣6̣1̣123 21̣6̣1̣123 33356561̇ 5656i561̇   (high or low)
                    3322̣6̣3̣3̣ 6̣5̣6̣1̣5̣6̣1
gantung 3                       seleh 1
   2   1    2   1    2   1    3   2
65353561̇ 6̇5353561̇ 56321216̣ 6̣1̣6̣12̣6̣12
6̣5̣3̣5̣6̣1 6̣5̣3̣5̣6̣1 6̣6̣6̣12356 6i1532̣6̣12
gantung 1                       seleh 2
   3   2    3   2    3   2    5   3
1̣6̣5̣6̣5̣6̣12 1̣6̣5̣6̣5̣6̣12 6̣6̣6̣12356 6i1653123
                    6i2̇3̇i2̇65 3521̣6̣123
gantung 2                       seleh 3
```

```
   1   6    5   3    1   6    5   3    1   6    5   3    2   3    2   1
21̣6̣1̣123 21̣6̣1̣123 21̣6̣1̣123 21̣6̣1̣123 33356561̇ 2̇3̇2̇6̇2̇3̇2̇1 65353561̇ 65353561̇
   5   3    2   1    5   3    2   1    5   3    2   1    3   5    3   2
65353561̇ 65353561̇ 65353561̇ 65353561̇ 2̇i2̇3̇2̇3̇5̇2̇ 66336535 53653216̣ 6̣1̣6̣12̣6̣12
   6   5    3   2    6   5    3   2    6   5    3   2    5   6    5   3
1̣6̣5̣6̣5̣6̣12 1̣6̣5̣6̣5̣6̣12 1̣6̣5̣6̣5̣6̣12 1̣6̣5̣6̣5̣6̣12 6̣6̣6̣12123 666i2̇i2̇3̇ i2̇653521 6̣6̣6̣6̣6̣123
```

Ladrang Sri Karongron, slendro sanga

(garapan Pak Cokro, transcribed by Ben Brinner)

irama I

```
   2   1    2   6    2   1    6   5̂
5̣6̣1211̣6̣1 5̣5̣2̣2̣5̣3̣5̣6̣ 22221116̣1 5̣5̣5̣6̣1235
22221116̣1 5̣5̣2̣2̣5̣3̣5̣6̣ 22221116̣1 5̣5̣5̣6̣1235
   6   1    6   5̆    2   3    2   1̂
55i̇2̇56i̇2̇ 2̇3̇i65235 i̇2̇2̇i5522 252̇6̣1211
555i̇56i̇2̇ 2̇3̇i65235 2̇2̇i̇i5522 5̣6̣5̣6̣1211
   5   2    3   5̆    6   1    6   5̂
55555235 23523535 65·i̇6i̇2̇2̇ 2̇3̇i652·5
55552355 23523535 i̇65i̇2̇2̇2̇2̇ 2̇3̇i65235
   2   1    2   6̆    2   1    6   ⑤
i̇6i̇2̇5522 ·5̣5̣16̣5̣1· 22321116̣1 5̣5̣2̣3̣5̣2̣3̣5̣
i̇6i̇2̇6i̇52 2̣5̣1212̣5̣16̣ slowing to irama II…
                         2        1        6        ⑤
                   22222222 5̣6̣15̣6̣16̣1 ·2165̣6̣3̣2̣ 2̣3̣2̣3̣5̣2̣3̣5̣
       2       1        2        6
555̣·2222 5̣6̣15̣6̣16̣1 5̣6̣123212 16̣5̣2̣5̣156
       2 etc.
66̣222222 5̣
```

Ladrang Pangkur, slendro manyura

irama tanggung

```
   3   2    3   1    3   2    1   6̂
6̣1232123 12 6̣3̣6̣5̣6̣1 12 6̣12312 6̣6̣12356
   i̇   6    3   2̆    5   3    2   1̂
666̣2 6i̇2̇3̇ 3̇3̇3̇2̇2̇i̇2̇ 6i̇653353 216̣12 1 6̣1
   3   5    3   2̆    6   5    3   2̂
216̣1 6̣123 65353212 5321 6̣6̣1 6̣ 6̣12322
   5   3    2   1̆    3   2    1   ⑥
6̣1235323 216̣5̣6̣261 ·1321 6̣5̣3̣ 3̣5̣3̣6̣3̣5̣6̣
```

irama dados

```
      3        2        3        1        3        2        1        6̂
216̣1 6̣123 216̣1 6̣123 36356i̇32 63656321 12 6̣12323 35356i̇56 31321 6̣5̣3̣ 3̣5̣3̣6̣3̣5̣6̣
      i̇        6        3        2̆        5        3        2        1̂
6̣6̣12356 6i̇6i̇2̇3̇2̇3̇ 3̇i̇3̇2̇i̇2̇i̇6 6i̇6i̇2̇6i̇2̇ 2̇i̇2̇3̇2̇i̇2̇3̇ 2̇i̇6i̇6i̇2̇3̇ i̇2653623 65321 5̣6̣1
      3        5        3        2̆        6        5        3        2̂
216̣1 6̣123 216̣1 6̣123 356i̇2̇i̇2̇3̇ 3̇3̇2̇i̇6 2̇i̇6 3̇3̇3̇3̇2̇i̇3̇2̇ 63653216̣ 6̣1 6̣12356 6i̇532 6̣12
      5        3        2        1̆        3        2        1        6̂
6̣1216̣123 36356i̇2̇3̇ i̇2̇653523 65321 5̣6̣1 12 6̣12356 31321 6̣5̣3̣ ·3̣3̣5̣3̣3̣5̣ 5̣6̣6̣3̣5̣1 5̣6̣
```

irama wiled (ciblon)

```
      .        3        .        2        .        3        .        1̂
3̣5̣12356 356i̇2̇i̇3̇2̇ 63653216̣ 6̣1 6̣12 6̣12 216̣1 6̣123 216̣1 6̣123 32532 1 6̣5̣ 5̣6̣5̣6̣1 5̣6̣1
      .        3        .        2̆        .        1        .        6̂
12212123 ·3̣5̣6̣5̣3̣5̣6̣ 6̣1 6̣12356 6i̇532 6̣12 216̣1 6̣123 356i̇6i̇56 31321 6̣5̣3̣ 3̣5̣3̣6̣3̣5̣6̣
      1        1        .        ·̆        6        6        1        2̂
3̣3̣3̣6̣123 36356 56i̇ 65353 56i̇ 65353 56i̇ i̇2̇6i̇2̇i̇2̇3̇ 2̇i̇3̇2̇6 2̇63 65321216̣ 6̣1 6̣12 6̣12
      3        2        6        3̆        .        2        .        1̂
23212322 21232122 21633123 21232653 356i̇6i̇2̇6 36321 2 6̣5̣ 3̣3̣5̣3̣5̣6̣1 1 6̣232 6̣21
      .        .        .        3̆        6        5        3        2̂
12 6̣12123 36656i̇2̇3̇ 3̇3̇3̇3̇3̇3̇3̇ 3̇3̇2̇i̇166 356i̇2̇i̇2̇3̇ 2̇i̇3̇26263 65321216̣ 6̣1 6̣12 6̣12
      3        2        5        3̆        6        5        3        2̂
21212122 21212122 21212122 21265356 356i̇6i̇2̇6 3̇2̇i̇26263 65321216̣ 6̣1 6̣12 6̣12
      6        1        3        2̆        5        3        2        1̂
23235536 66 2̇6i̇2̇i̇ i̇2̇6i̇2̇i̇2̇3̇ 3̇5̇3̇i̇261 2̇ 6i̇2̇3̇i̇3̇2̇3̇ 2̇i̇6i̇6i̇2̇3̇ 65321 2 6̣5̣ 5̣6̣5̣61 5̣6̣1
      .        3        .        2̆        .        1        .        ⑥
12 6̣12123 ·3̣5̣6̣5̣3̣5̣6̣ 6̣1 6̣12356 6i̇532 6̣12 216̣1 6̣123 356i̇6i̇56 31321 6̣5̣3̣ 3̣5̣3̣6̣3̣5̣6̣
```

Ladrang Gonjang Ganjing, slendro sanga, irama dados

(garapan Pak Cokro, tr. by Ben Brinner)

. 2 . 1 . 6 . 5̂

5̣5̣5̣6̣1222 2226̣1212 2223216̣5̣ 5̣6̣5̣6̣1211 5̣6̣123212 16̣5̣3̣5̣15̣6̣ 6̣6̣3̣5̣·2̣2̣3̣ 3̣5̣5̣2̣3̣6̣3̣5̣

. 2 . 5̆ . 2 . 1̂

11222222 22252356 1̇61̇2̇2̇2̇2̇2̇ 2̇3̇1̇65235 2̇2̇2̇2̇1̇1̇61̇ 55225323 5323216̣5̣ 5̣6̣5̣6̣15̣6̣1

. 2 . 1̆ . 2 . 1̂

115̣5̣5̣5̣5̣1 5̣6̣123212 5323216̣5̣ 5̣6̣5̣6̣15̣6̣1 5̣6̣115̣6̣1̣2 32123212 5323216̣5̣ 5̣6̣5̣6̣1211

. 2 . 1̆ . 6 . ⑤

15̣6̣15̣6̣12 2126̣1212 5323216̣5̣ 5̣6̣5̣6̣15̣6̣1 115̣6̣5̣6̣12 5̣2̣5̣3̣5̣15̣6̣ 6̣6̣2̣3̣3̣2̣2̣3̣ 3̣5̣5̣2̣3̣6̣3̣5̣

to ngelik: . ①

5̣6̣123535 561̇561̇61̇

ngelik

. 3 . 2 . 6 . 5̂

1̇1̇1̇1̇1̇1̇1̇1̇ 1̇1̇1̇1̇1̇666 66666666 6661̇1̇1̇1̇2̇ 2̇2̇2̇2̇2̇2̇2̇2̇ 3̇6561̇561̇ 3̇2̇1̇65632 23235235

. 1̇ . 6̆ . 5 . 6̂

5551̇561̇1̇ 561̇2̇3̇2̇1̇2̇ 1̇6532222 22252356 66666666 5651̇561̇2̇ 2̇2̇2̇1̇3̇2̇1̇2̇ 1̇65351̇56

. 5 . 6̆ . 3 . 5̂

66666666 66653566 35635656 ·3232356 1̇652̇2̇2̇2̇2̇ 561̇561̇61̇ 3̇2̇1̇65632 23235235

. 2 . 1̆ . 6 . ⑤

1̇61̇2̇1̇2̇3̇1̇ 55225323 216̣5̣5̣6̣6̣5̣ 5̣6̣5̣6̣1211 5̣6̣123212 16̣5̣3̣5̣15̣6̣ 6̣2̣2̣3̣3̣2̣2̣3̣ 3̣5̣5̣2̣3̣6̣3̣5̣

Ladrang Pangkur, laras slendro pathet manyura

S=Suhardi (Sutton's thesis, pelog barang), W=Widiyanto, C=Pak Cokro
K=Kumuda cassette ("Pangkur Pamijen" sanga)

irama tanggung

```
3   2    3   1    3   2    1   6̂
6̣6̣332212 6̣6̣336̣5̣6̣1 11332212 6̣6̣612356  C
   1   6    3   2̌    5   3    2   1̂
666̣26i̇2̇3̇ 3̇3̇3̇2̇2̇i̇2̇ 6i653353 216̣1216̣1  C
   3   5    3   2̌    6   5    3   2̂
216̣1̣6̣123 65353212 5321̣6̣1̣6̣ 6̣1̣612322  C
   5   3    2   1̌    3   2    1   ⑥
6̣1235323 216̣5̣6̣261̣ 11355335 56635i̇56  C
```

irama dados

```
       3        2        3        1        3        2        1        6̂
216̣22123 35355212 6̣6̣22123 316̣5̣6̣5̣6̣1 216̣26̣123 35355212 23216̣15̣3̣ 3̣5̣3̣6̣3̣5̣6̣  S
216̣22123 6̣126̣1212 6̣1235323 216̣5̣626̣1 11333333 6̣126̣1212 53216̣6̣6̣6̣ 6̣6̣612356  C
       1        6        3        2̌        5        3        2        1̂
6i6i̇2323 566i̇6i̇2i̇6 6i̇2̇3̇3̇3̇3̇ 666i̇2̇6i̇2̇ 666i̇2̇2̇i̇2̇i̇ 666i̇3̇653 56321̣26̣5̣ 3̣3̣3̣6̣6̣5̣6̣1  S
666̣26i̇2̇3̇ 3̇3̇3̇3̇3̇3̇3̇ 65353216̣ 6̣1̣6̣12̣6̣12 6̣1232352 6i653353 216̣6̣216̣5̣ 3̣3̣3̣6̣3̣5̣6̣1  C
3̣5̣6̣12123 35356i̇2̇3̇ 3i̇3̇2i̇2i̇16 6i6i̇2̇3̇2̇2̇ 2̇i6i6i̇2̇3̇ i̇2653323 65321266̣ 3̣3̣6̣5̣6̣5̣6̣1  W
3̣5̣6̣12123 35356i̇26̣ 6i6i̇2i̇2i̇3̇ 3i̇26i̇2i̇2̇ 2̇i6i6i̇2̇3̇ i̇2653123 32532165̣ 5̣6̣5̣6̣15̣6̣1  W
       3        5        3        2̌        6        5        3        2̂
216̣22123 3521̣6̣216̣ 6̣1̣6̣116̣6̣1 12212̣6̣12 21235323 56316̣216̣ 6̣1̣612356 56532̣612  S
216̣22123 3521̣6̣216̣ 6̣1̣6̣116̣6̣1 12212̣6̣12 21235323 356i̇62i̇16 63355226̣ 6̣1̣6̣12̣6̣12  S
11126̣123 32312323 65353216̣ 6̣1̣6̣12̣6̣12 53232̣16̣1 13565356 21233333 6̣126̣1212  C
12212123 ·3̣5̣6̣5̣3̣5̣6̣ 6̣1̣6̣12356 6i̇532̣612 216̣1̣6̣123 216̣1̣6̣123 31321216̣ 6̣1̣6̣12̣6̣12  W
       5        3        2        1̌        3        2        1        ⑥
6̣6̣622121 21235323 56311163 316̣5̣6̣5̣6̣1 216̣26̣123 35353212 23216̣15̣3̣ 3̣5̣3̣6̣3̣5̣6̣  S
6̣6̣622123 6̣1232653 56311163 316̣5̣6̣5̣6̣1 216̣26̣123 35353212 23216̣15̣3̣ 3̣5̣3̣6̣3̣5̣6̣  S
6̣6̣626̣123 32312323 6i̇62i̇16i̇2i̇ 63656321                                  C
216̣1̣6̣123 216̣1̣6̣123 126̣5̣3̣3̣3̣ 3̣6̣3̣5̣6̣5̣6̣1 126̣12123 356i̇6i̇56 31321̣6̣5̣3̣ 3̣5̣3̣5̣6̣3̣5̣6̣  W
```

irama wiled (ciblon)

```
       .        3        .        2        .        3        .        1
35635635 6i̇2i̇3̇263 56355216̣ 6̣1̣6̣32̣612 566i̇2̇2i̇2̇3̇ 3̇3̇2̇3̇2̇163 563i̇i̇i̇63 316̣5̣3̣5̣6̣1  S
6̣6̣612356 6i̇2̇3̇2̇3i̇2̇ 63653216̣ 6̣1̣6̣12̣6̣12 216̣22123 216̣62123 32532165̣ 5̣6̣5̣6̣15̣6̣1  K
33363561 2i̇1i̇2̇3̇2̇3̇5̇2̇ 663̇3i̇2i̇6 6361i̇2̇3̇2̇2̇ 6i̇2i6i6i̇ 6i̇2̇3̇5̇3̇2̇3̇ 6i6i̇2i̇62i̇ 63656321  C
3̣5̣612356 356i̇2i̇3̇2̇ 63653216̣ 6̣1̣6̣12̣6̣12 216̣1̣6̣123 216̣1̣6̣123 32532165̣ 5̣6̣5̣6̣15̣6̣1  W
```

·	**3**	**·**	**2**	**·**	**1**	**·**	**6̂**	
6̣16̣22123	35216̣216̣	6̣16̣116̣6̣1	122126̣12	61̇1̇16655	1̇6321321	121226̣5̣3̣	3̣5̣3̣5̣6̣3̣5̣6̣	S
126̣12123	35216̣3̣5̣6̣	6̣16̣12356	61̇5326̣12	216̣22123	3561̇61̇2̇6	32126̣123	35216̣3̣5̣6̣	K
11116̣123	·3̣5̣6̣5̣3̣5̣6̣	216̣26̣123	63612322	6̣1235356	353215̣6̣1	321216̣5̣3̣	3̣5̣3̣5̣6̣3̣5̣6̣	C
12212123	·3̣5̣6̣5̣3̣5̣6̣	6̣16̣12356	61̇5326̣12	216̣16̣123	3561̇61̇56	313216̣5̣3̣	3̣5̣3̣5̣6̣3̣5̣6̣	W
1	**1**	**·**	**·**	**6**	**6**	**1**	**2̆**	
3̣3̣3̣6̣6̣5̣6̣1	11123561̇	61̇61̇2̇1̇2̇3̇	3̇1̇656561̇	61̇2̇2̇2̇1̇2̇3̇	3̇5̇2̇1̇62̇16	61̇61̇1̇661̇	1̇2̇2̇1̇2̇61̇2̇	S
6̣16̣5̣3̣5̣6̣1	12123561̇	6561̇6561̇	1̇62̇3̇2̇62̇1̇	653561̇2̇3̇	2̇1̇2̇3̇2̇3̇1̇2̇	63653216̣	6̣16̣126̣12	K
11111112	3561̇1̇1̇1̇1̇	561̇561̇61̇	·5353561̇	66662̇61̇2̇	3̇3̇3̇3̇3̇3̇3̇3̇	65353216̣	6̣16̣126̣12	C
3̣5̣6̣12356	6531̇1̇561̇	1̇61̇3̇2̇62̇1̇	65336561̇	1̇2̇61̇2̇1̇2̇3̇	1̇2̇61̇2̇61̇2̇	1̇3̇1̇2̇3̇1̇2̇6	61̇61̇2̇61̇2̇	W
3̣3̣3̣5̣6̣123	36356561̇	65353561̇	65353561̇	1̇2̇61̇2̇1̇2̇3̇	2̇1̇3̇2̇62̇63	65321216̣	6̣16̣126̣12	W
3	**2**	**6**	**3**	**·**	**2**	**·**	**1̂**	
2̇1̇2̇61̇2̇1̇2̇	2̇1̇2̇61̇2̇1̇2̇	63̇3̇2̇3̇2̇65	35216̇123	6662̇2̇1̇63̇	3̇3̇2̇3̇2̇1̇63	5632126̇5̇	3̇3̇3̇6̇6̇5̇6̇1	S
2223561̇2̇	2̇3̇2̇1̇2̇3̇3̇2̇	6661̇2̇1̇2̇3̇	3̇3̇3̇3̇2̇653	216̣6̣2123	·1216̣123	33662̇1̇65	55656321	K
2 2 2 22	6̣126̣1212	6̣1232352	61̇653123	6662̇61̇2̇3̇	61̇653353	216̣6̣216̣5̣	3̣3̣3̣6̣3̣5̣6̣1	C
2̇3̇2̇1̇2̇3̇2̇2̇	2̇1̇2̇3̇2̇1̇2̇2̇	2̇1̇63̇3̇1̇2̇3̇	2̇1̇2̇3̇2̇653	3561̇61̇2̇6	3632126̣5̣	3̣3̣3̣5̣3̣5̣6̣1	16̣2326̣21	W
6̣123561̇2̇	2̇1̇2̇61̇2̇1̇2̇	2̇62̇3̇2̇62̇1̇	65332123					W
·	**·**	**·**	**3**	**6**	**5**	**3**	**2̂**	
6̣16̣16̣16̣5̣	2̣2̣2̣6̣6̣5̣6̣1	·1·22121	21232323	566561̇2̇1̇	3̇2̇1̇2̇61̇63	56355216̣	6̣16̣3̣2̣6̣12	S
6̣5̣3̣3̣6̣5̣6̣1	222216̣16̣	3363561̇2̇	3̇5̇2̇1̇6356	2̇1̇2̇3̇2̇3̇1̇2̇	63653216̣	6̣16̣12356	61̇5326̣12	K
216̣12123	5323216̣1	216̣16̣123	32312323	6662̇61̇2̇3̇	2̇3̇5̇2̇6633	65353216̣	6̣16̣12322	C
126̣12123	366561̇2̇3̇	3̇3̇3̇3̇3̇3̇3̇3̇	3̇3̇2̇2̇1̇1̇6̇6̇	3561̇2̇1̇2̇3̇	2̇1̇3̇2̇6263	65321216̣	6̣16̣126̣12	W
			2̇1̇61̇61̇2̇3̇	2̇1̇61̇61̇2̇3̇	2̇1̇5̇3̇2̇1̇66	63653216̣	6̣16̣126̣12	W
3	**2**	**5**	**3**	**6**	**5**	**3**	**2̆**	
2126̣6̣212	21232326̣	6̣3232321	6̣3̣5̣6̣5̣3̣5̣6̣	6̣16̣22123	5661̇62̇16	53355216̣	6̣16̣126̣12	S
22123212	21232352	23126̣123	33̣5̣6̣5̣3̣5̣6̣	6̣16̣12356	2̇1̇3̇2̇6356	63653216̣	6̣16̣126̣12	K
22222222	6̣1235356	2̇1̇653521	12123123	6662̇61̇2̇3̇	2̇3̇5̇2̇6633	65353216̣	6̣16̣12322	C
6̣123561̇2̇	2̇62̇3̇2̇1̇2̇2̇	2̇62̇3̇2̇165	3216̣5̣3̣5̣6̣	6̣16̣12356	3561̇2̇1̇3̇2̇	63653216̣	6̣16̣126̣12	W
21212122	21212122	21212122	2126̣5̣3̣5̣6̣					W
6̣123561̇2̇	2̇62̇3̇2̇1̇2̇2̇	2̇62̇3̇2̇653	216̣6̣2123	3561̇61̇2̇6	3̇2̇1̇2̇62̇63	65321216̣	6̣16̣126̣12	W
6	**1**	**3**	**2**	**5**	**3**	**2**	**1̂**	
6̣6̣6̣12356	66566561̇	1̇1̇61̇61̇2̇3̇	3̇3̇61̇2̇61̇2̇	6662̇2̇1̇2̇3̇	3̇3̇2̇3̇2̇1̇63	5632126̣5̣	3̣3̣3̣6̣3̣5̣6̣1	S
23212356	62̇635631̇	653561̇2̇3̇	3̇3̇2̇3̇2̇5̇3̇2̇	61̇2̇1̇61̇2̇3̇				K
22666666	663561̇61̇	2̇1̇63̇3̇3̇3̇3̇	61̇2̇61̇2̇1̇2̇	61̇2̇3̇2̇3̇5̇2̇	61̇653353	61̇62̇1̇632	126̣3̣6̣5̣6̣1	C
23565656	33662̇1̇61̇	1̇2̇2̇1̇2̇1̇2̇3̇	3̇5̇3̇1̇2̇61̇2̇	2̇1̇61̇61̇2̇3̇	1̇2̇653523	6532126̣5̣	5̣6̣5̣6̣1̣5̣6̣1	W
23235536	662̇1̇61̇2̇1̇	1̇2̇61̇2̇1̇2̇3̇	3̇5̇3̇1̇2̇61̇2̇	61̇2̇3̇1̇3̇2̇3̇	2̇1̇61̇61̇2̇3̇	6532126̣5̣	5̣6̣5̣6̣15̣6̣1	W
				2̇1̇61̇61̇2̇3̇	2̇1̇61̇61̇2̇3̇	1̇2̇653521	6̣6̣3̣3̣6̣5̣6̣1	W
6̣1235356	3561̇2̇1̇61̇	1̇2̇61̇2̇1̇2̇3̇	3̇5̇3̇1̇2̇61̇2̇	21̇61̇61̇2̇3̇	12̇65351̇2̇	6532126̣6̣	3̣3̣6̣5̣6̣5̣6̣1	W
·	**3**	**·**	**2**	**·**	**1**	**·**	**⑥**	
6̣16̣22123	35216̣216̣	6̣16̣116̣6̣1	122126̣12	2323561̇2̇	2̇3̇2̇1̇62̇16	61̇61̇1̇661̇	1̇2̇2̇1̇2̇61̇2̇	S
216̣16̣123	·3̣5̣6̣5̣3̣5̣6̣	216̣32123	6̣16̣12322	6̣1235356	353215̣6̣1	113̣5̣5̣3̣3̣5̣	5̣6̣6̣3̣5̣6̣5̣6̣	C
126̣12123	·3̣5̣6̣5̣3̣5̣6̣	6̣16̣12356	61̇5326̣12	216̣16̣123	3561̇61̇56	313216̣5̣3̣	3̣5̣3̣5̣6̣3̣5̣6̣	W

SCORE

Tetabeuhan-Sungut (Onomatopoeia) for unaccompanied voices

by Slamet Abdul Sjukur

Performance notes and pronunciation guide

1. The vertical lines indicate the beats of ♩ ± 60.
   There are units of 8 beats separated by horizontal lines and numbered 1 - 54.
    at the end of the piece means unlimited duration.
    at the 12th line means a rest.

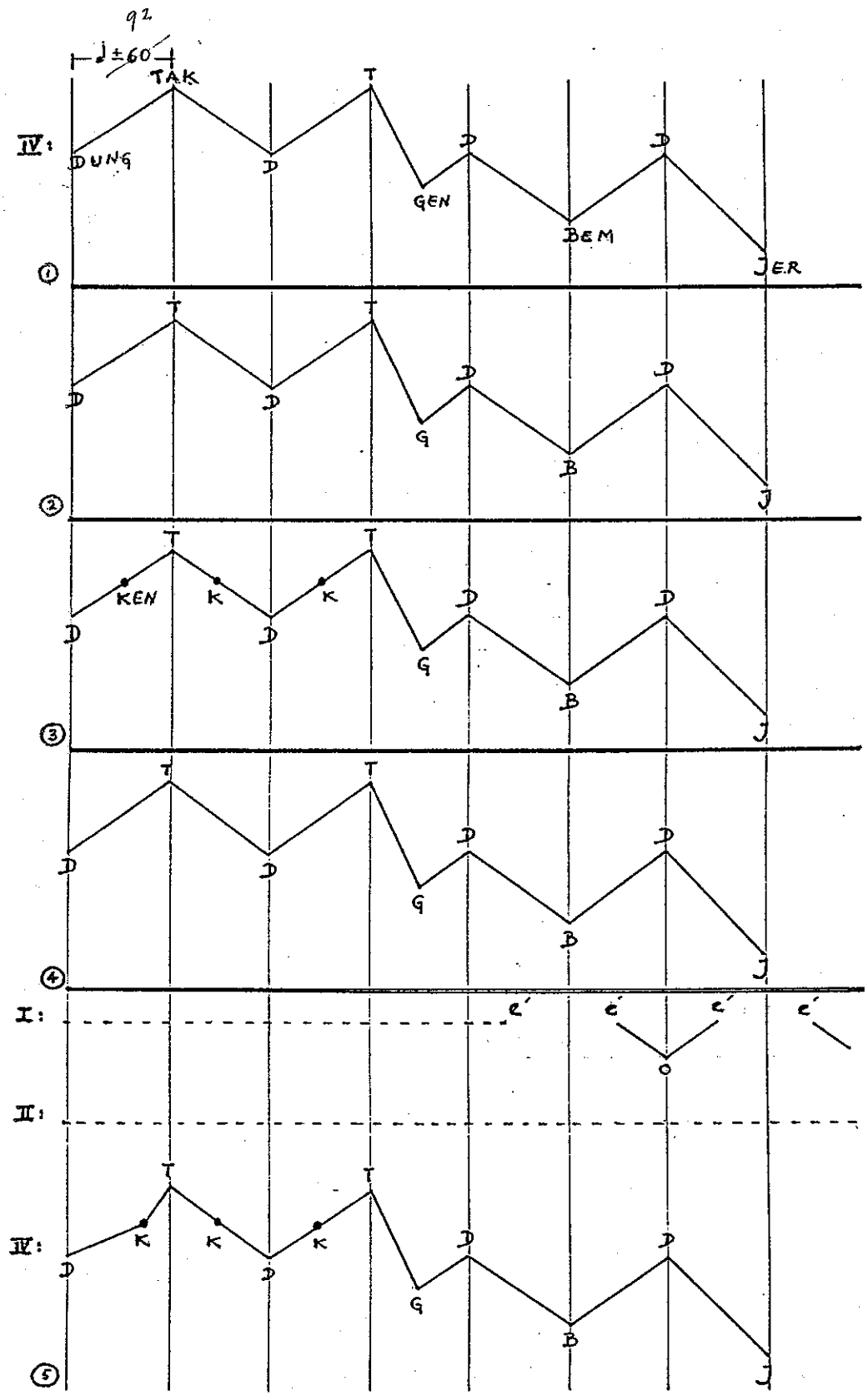
2. The pitch is not fixed and represented either graphically (from the very beginning) or by cipher 1-2-3-5-6 (lines 8 and 31) which simply means Do-Re-Mi-Sol-La, that is the 5 degrees selected from any major scale. Graphic notation does not necessarily means glissando; there are only 3 glissandi in the piece, in line-23:DU⁄NG, line 37: é⁄ and line 48: ).

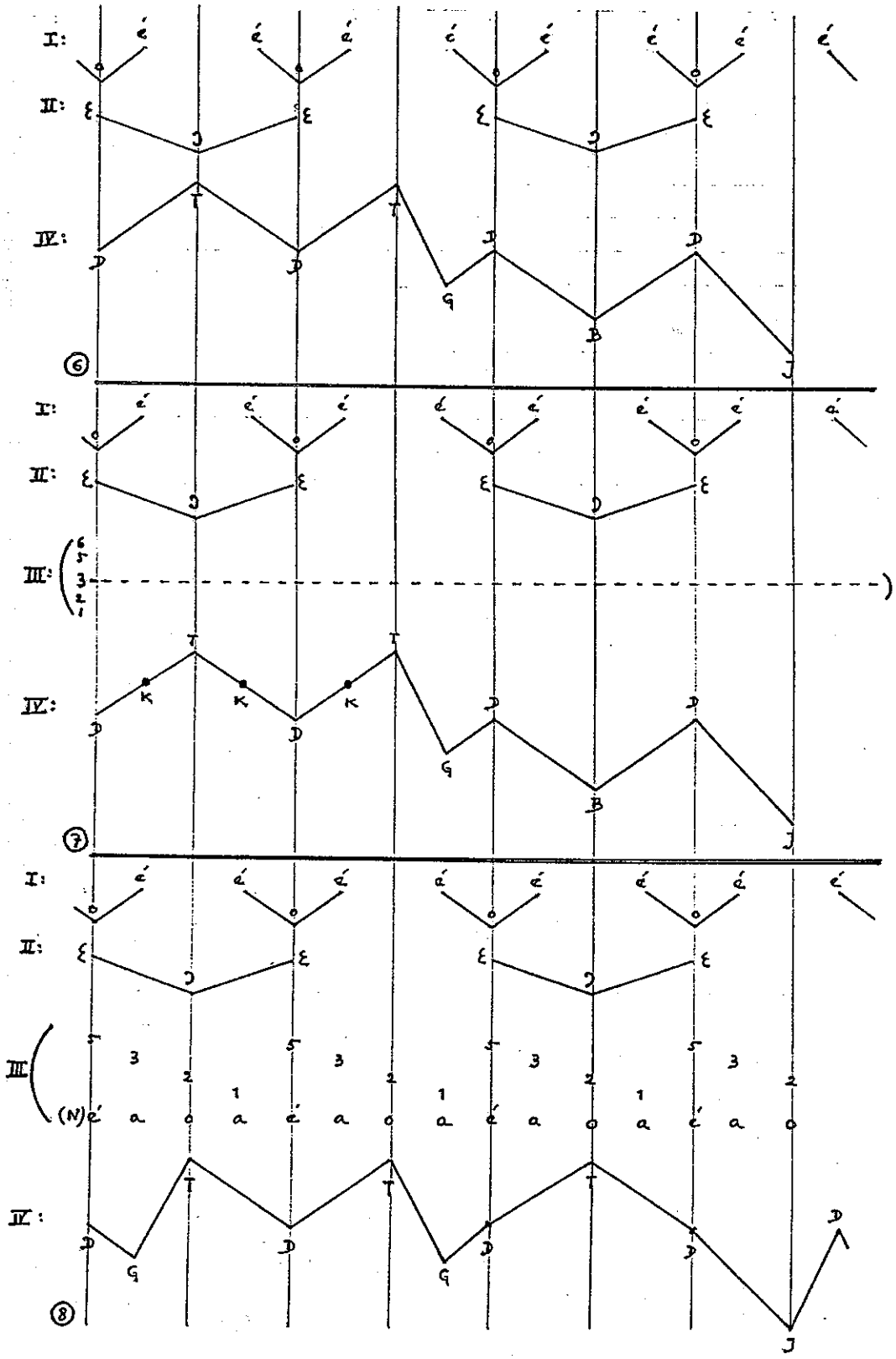
3. Vocalizing the sound of some gamelan instruments, namely kendang, kemanak, saron and gong or bedug:

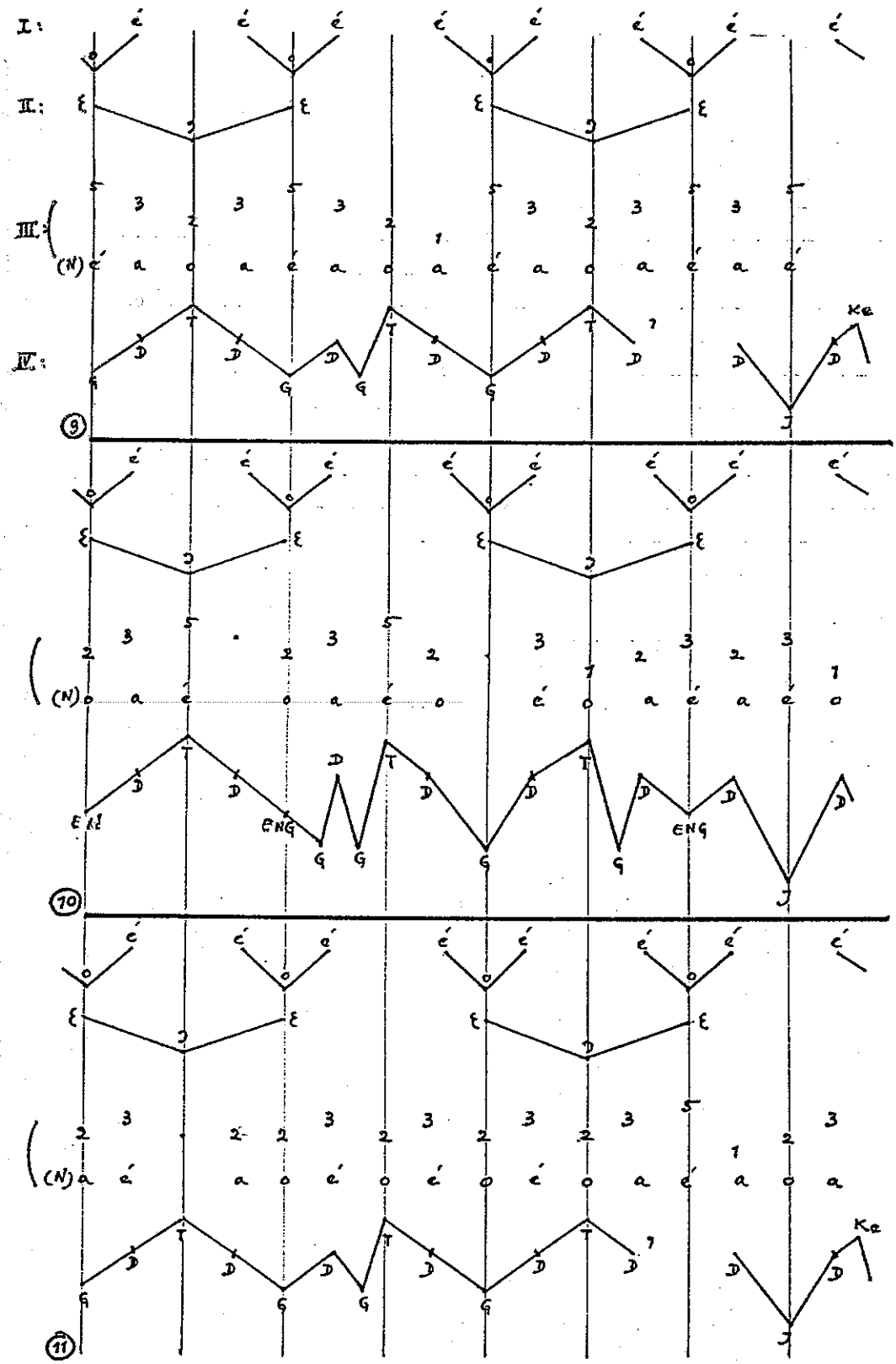
   * B for short of BEM (B in Bad; E in mothEr; M in calM),
     D " " " DUNG (D in Day; U in fUll;NG in loNG),
     DL " " " DLUT (DL; U in fUll;T in eaT),
     G " " " GEN (G in Go; E in mothEr; N in maN),
     J " " " JER (J in Jam;E in mothEr; R in Rhythm),
     T " " " TAK (T in Teach; A in fAther; K in talK),
     KE (K in Kick;E in mothEr),
     KEN(=KE+N; N in maN),
     EN (E in mothEr; N in maN),
     ENG(E in mothEr; NG in loNG),
     é in kEy,
     ɛ in lEt,
     o in Open,
     ɔ in brOad,

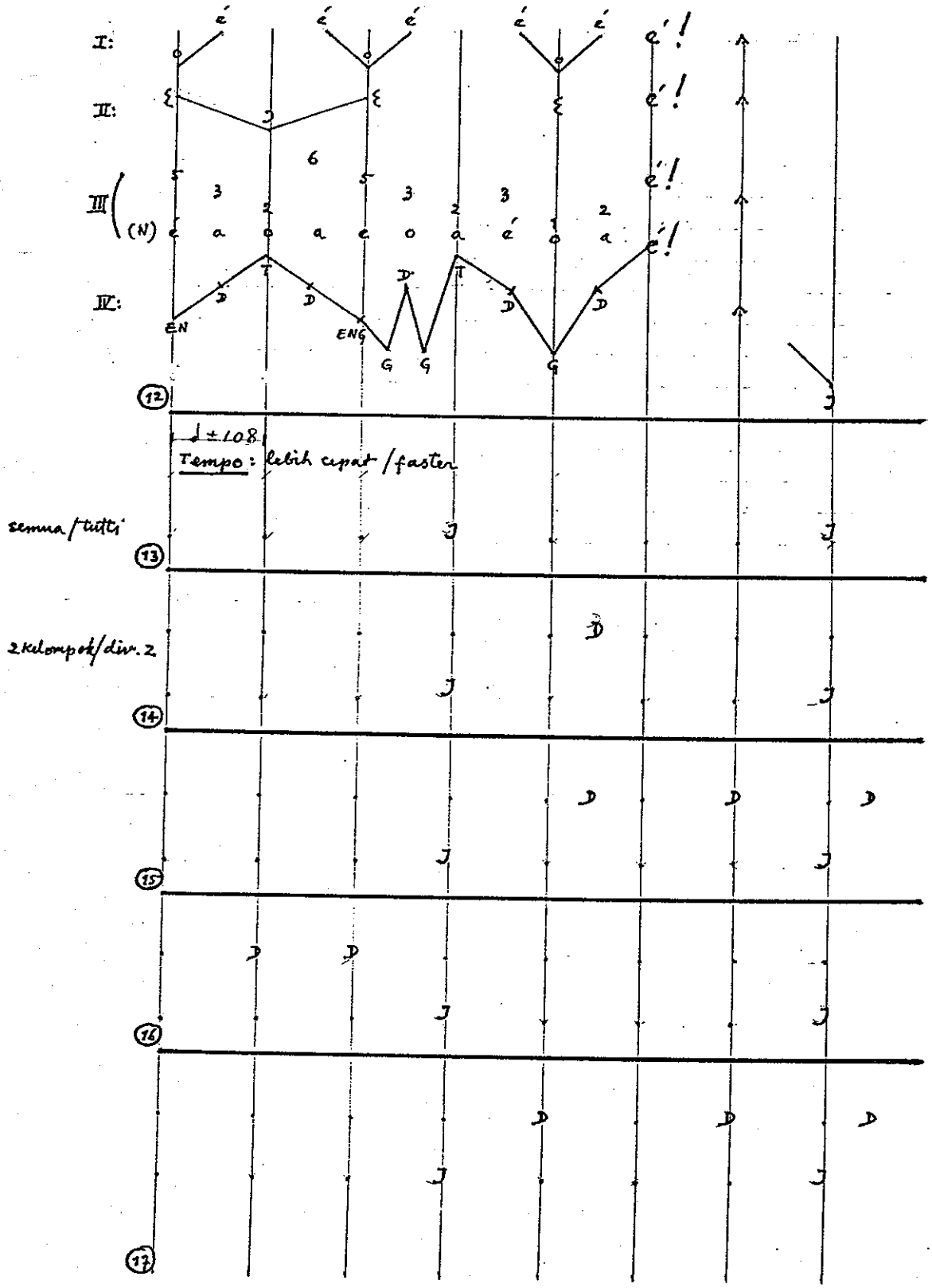
   * lines 8-12 and 31-37:
     é, a, o should be pronounced Ne, Na, No.
   * lines 43-48:
     i for short of NI-nge; ɔ for short of NJ-nge.

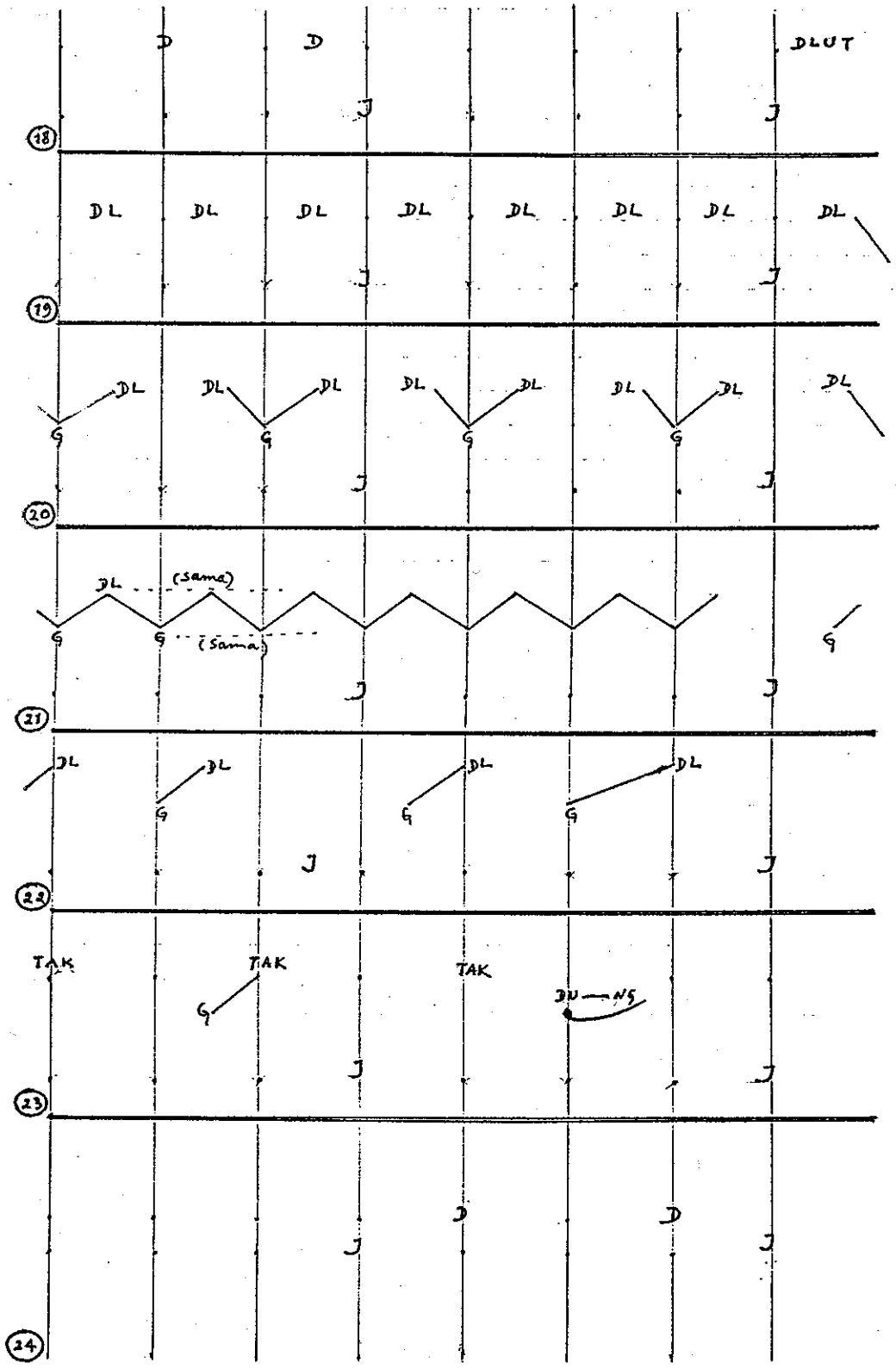
4. Sama = similar,
   Semua= tutti, all together,
   Kelompok=divisi, divided.
   Solo.
   Wanita= female,
   Pria= male.

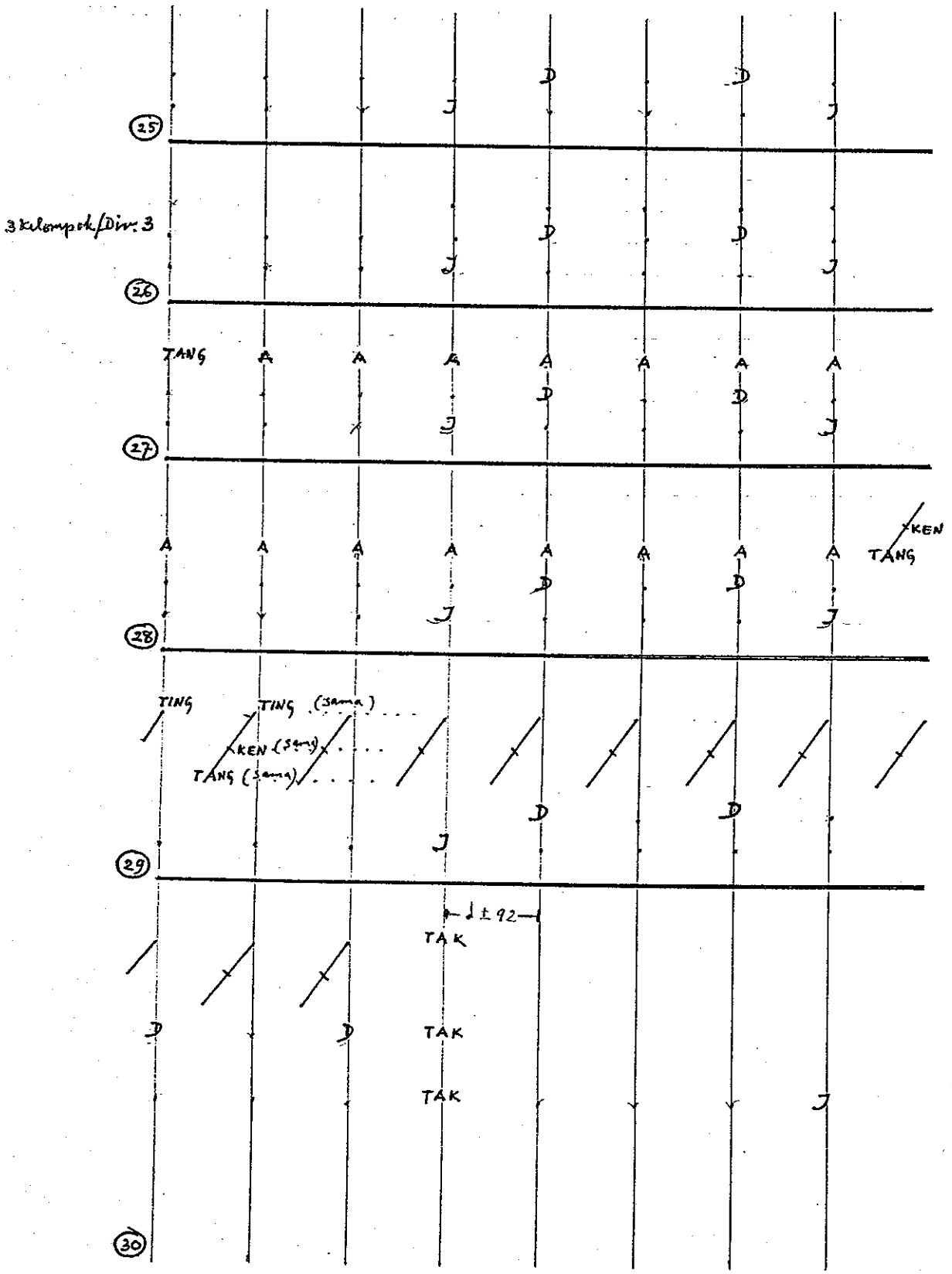

92
♩=60
TAK
DUNG
GEN
BEM
JER
KEN
IV:
I:
II:
IV:
①
②
③
④
⑤

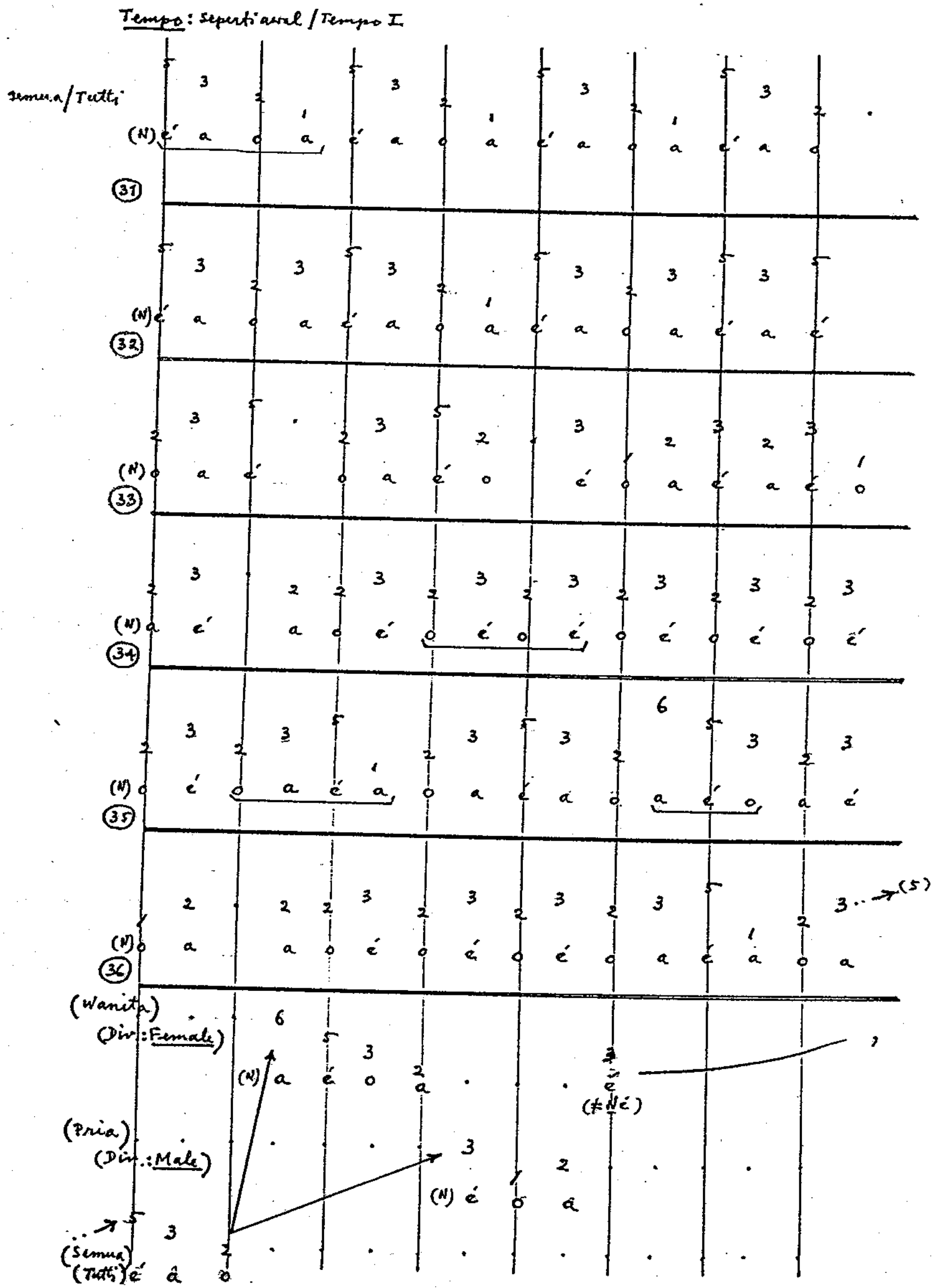

I:
II:
IV:
⑥
I:
II:
III:
IV:
⑦
I:
II:
III
(N)
IV:
⑧

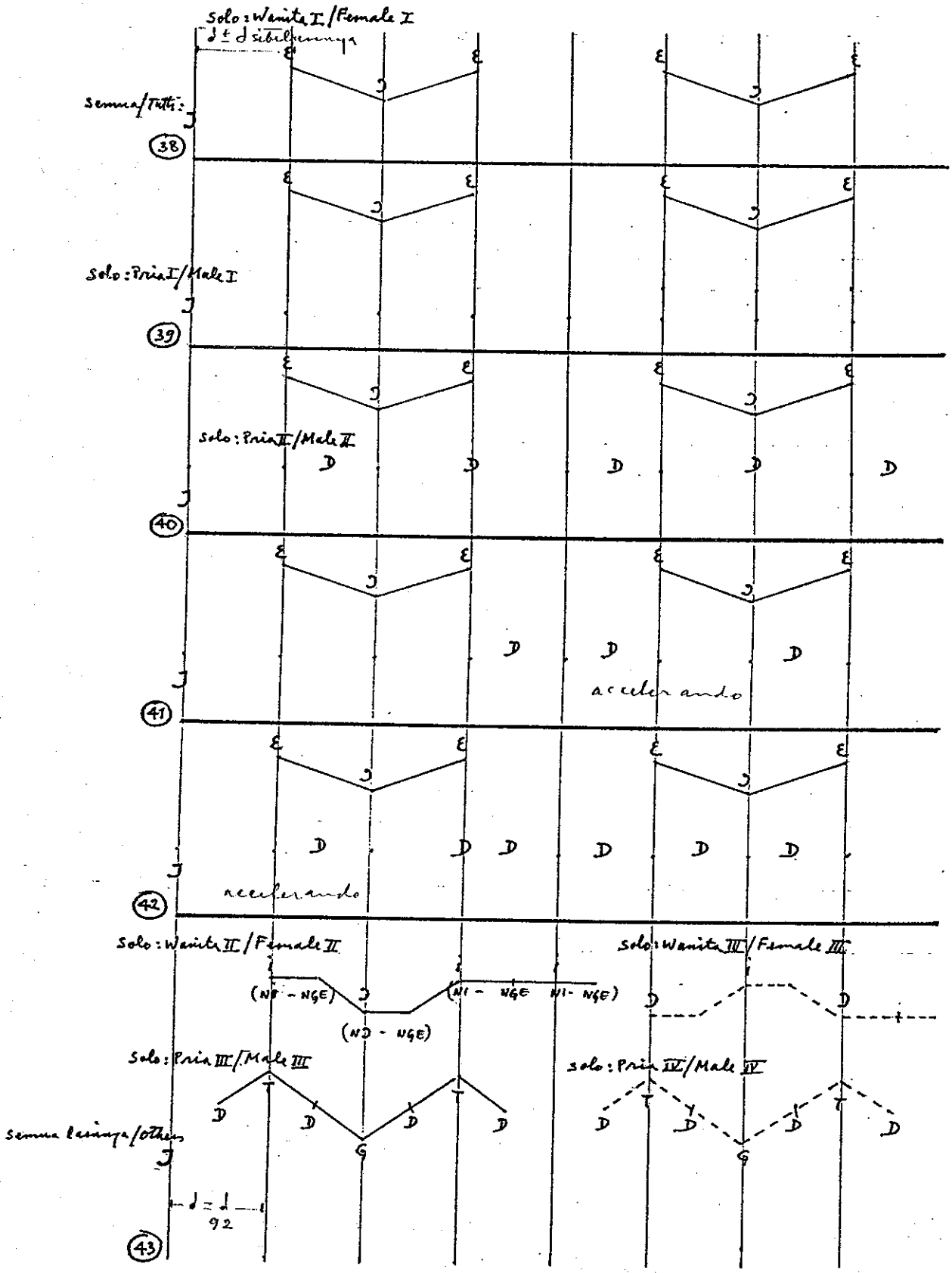

I:
II:
III:
(N)
IV:
Ke
9
ENG
ENG
70
Ke
11

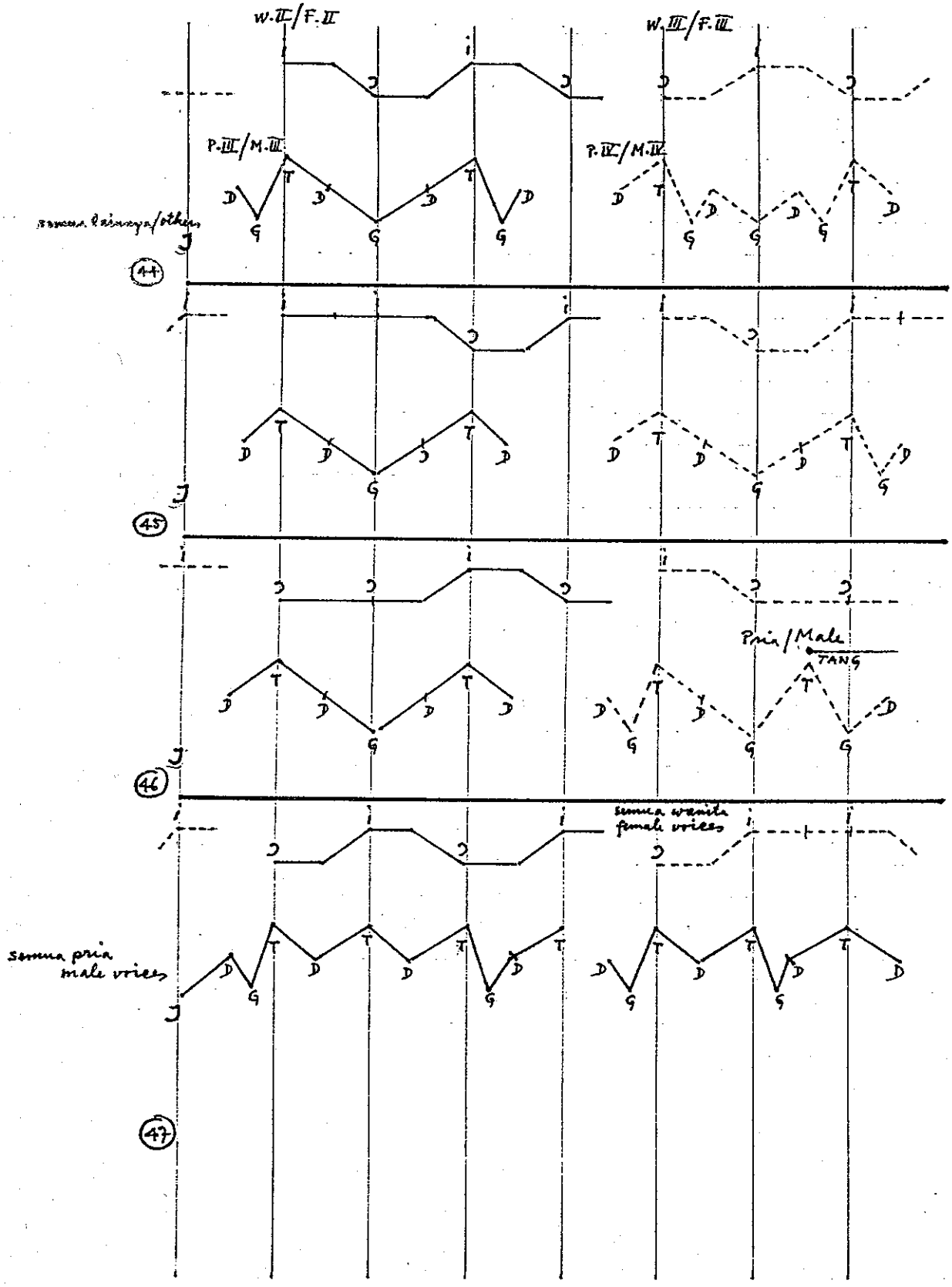

I:
II:
III
(N)
IV:
EN
ENG
12
♩ ± 108
Tempo: lebih cepat / faster
semua / tutti
13
2 kelompok / div. 2
14
15
16
17

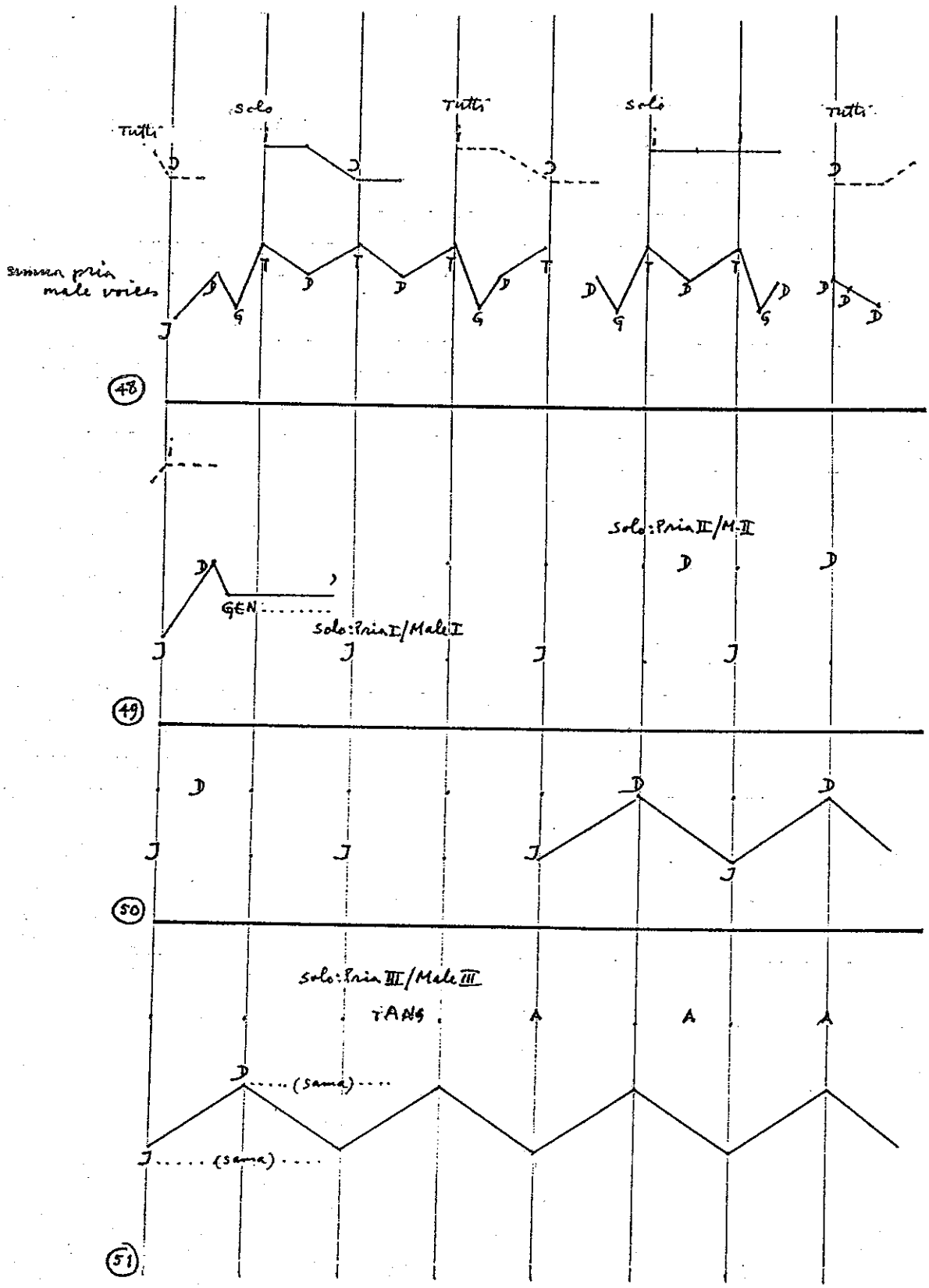

D
D
DLUT
18
DL DL DL DL DL DL DL DL
19
DL DL DL DL DL DL DL DL
20
DL (sama) (sama)
21
DL DL DL DL
22
TAK TAK TAK
23
24

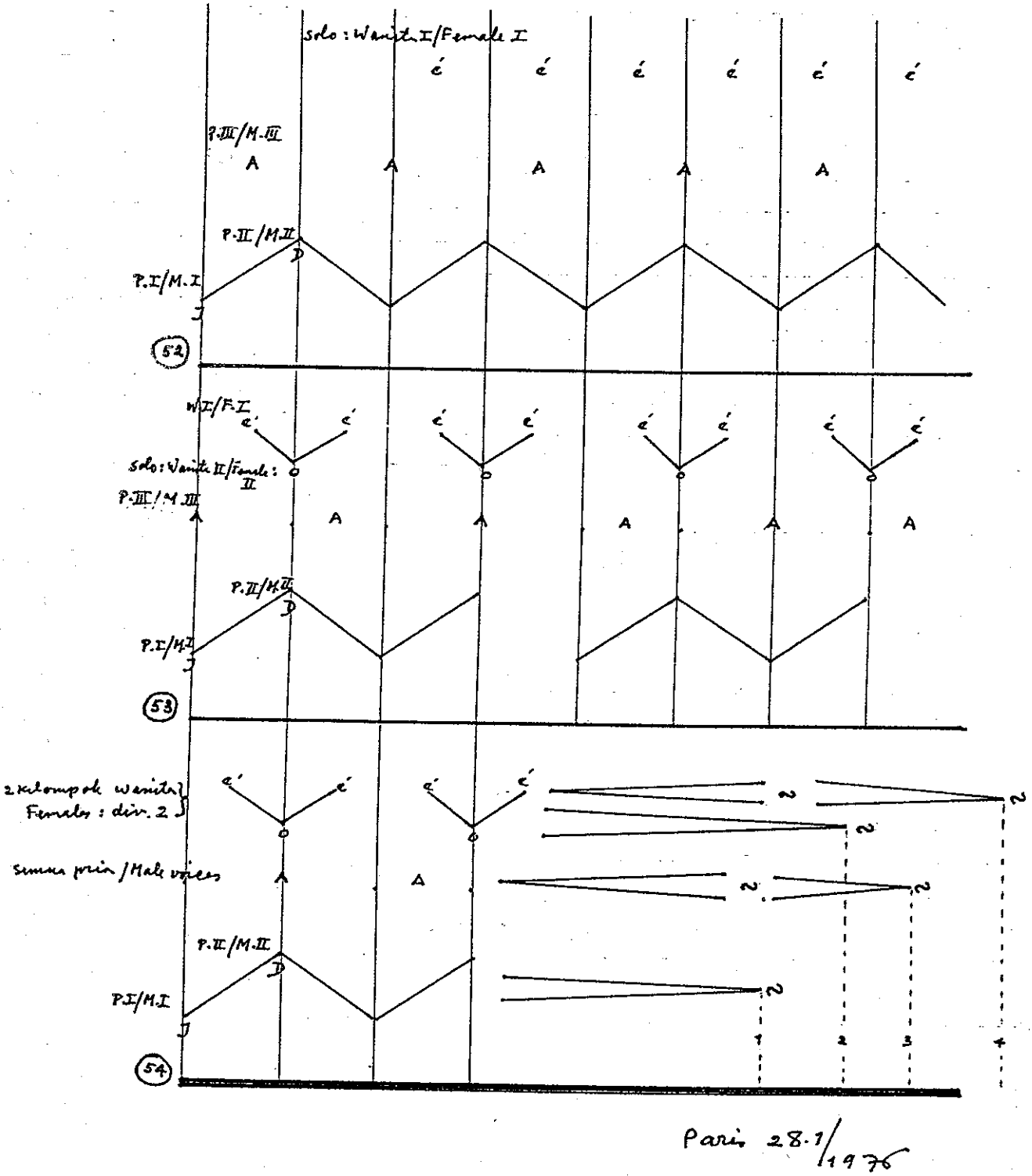

3 kelompok/Div. 3
25
26
TANG
27
KEN
TANG
28
TING
TING (sama)
KEN (sama)
TANG (sama)
29
± 92
TAK
TAK
TAK
30


Tempo: seperti awal / Tempo I
semua / Tutti
(Wanita)
(Div: Female)
(Pria)
(Div.: Male)
(Semua)
(Tutti)


Solo: Wanita I / Female I
Semua / Tutti:
38
Solo: Pria I / Male I
39
Solo: Pria II / Male II
40
accelerando
41
42
Solo: Wanita II / Female II
Solo: Wanita III / Female III
Solo: Pria III / Male III
Solo: Pria IV / Male IV
Semua lainnya / others
43


W.II/F.II
W.III/F.III
P.III/M.III
P.IV/M.IV
Pria/Male
TANG
semua wanita
female vries
semua pria
male vries
44
45
46
47


Tutti
Solo
Tutti
Solo
Tutti
semua pria
male voices
48
GEN
Solo: Pria I/Male I
Solo: Pria II/M.II
49
50
Solo: Pria III/Male III
TANG
A
A
A
(sama)
(sama)
51


solo : Wanita I/Female I
é
P.III/M.III
A
P.II/M.II
P.I/M.I
52
W.I/F.I
solo : Wanita II/Female : II
P.III/M.III
P.II/M.II
P.I/M.I
53
2 kelompok wanita/Female : dibr. 2
semua pria/Male voices
P.II/M.II
P.I/M.I
54
Paris 28.1/1976

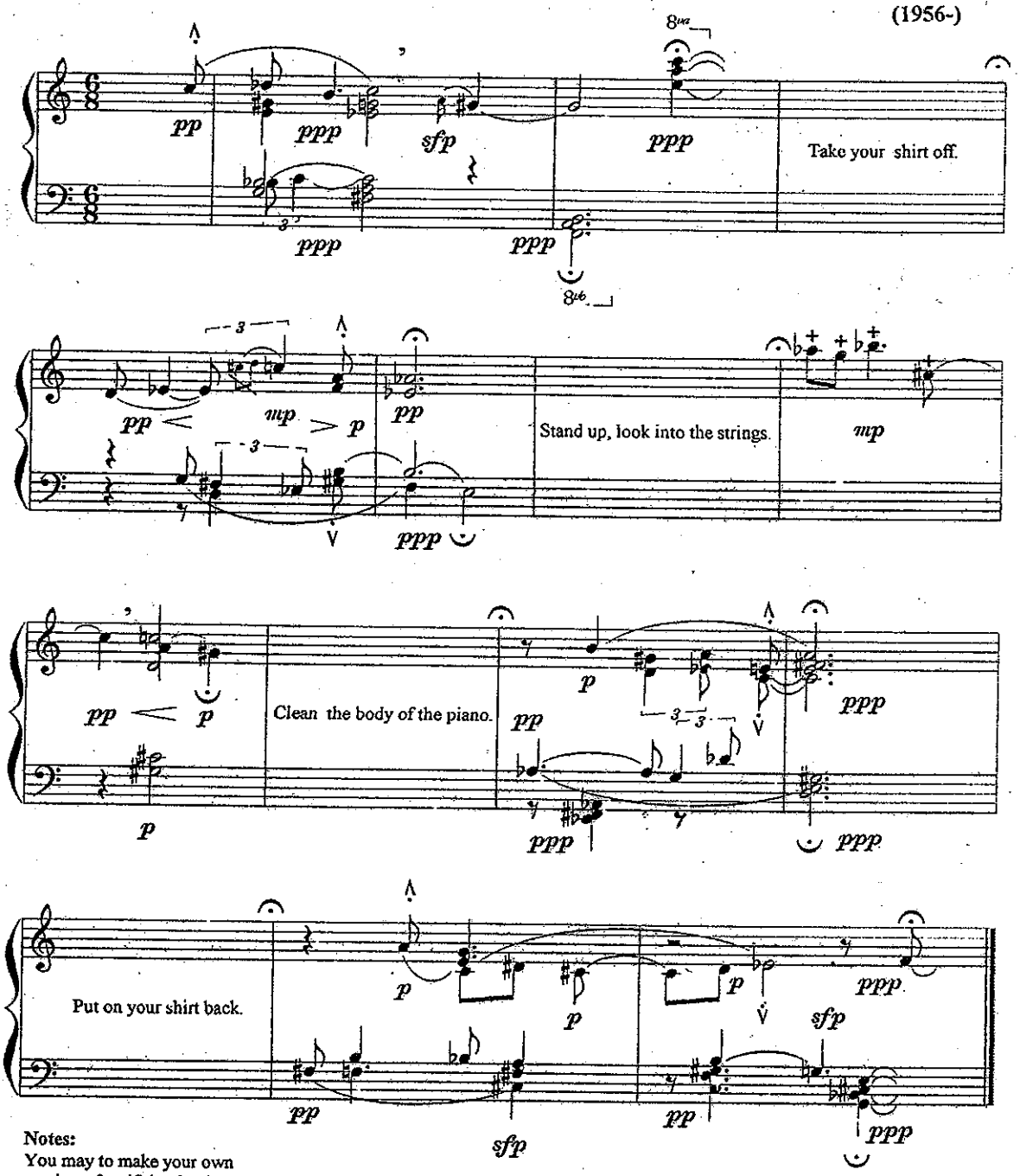
SCORE

a little piece for pianoforte

by Michael Asmara

Largo/very slow

Michael Asmara
(1956-)



Notes:
You may to make your own version of actifities for the emtpy bars.
+ Pluck the indicated string.
Short hold.
Short pause.

SCORE

Rag for Deena

by Barbara Benary

A Rag for Deena
(1982)

PELOG

In fall of 1982 Dancer Deena Burton asked me if the gamelan could play Scot Joplin. First I said "No." Then on the train home, this happened.

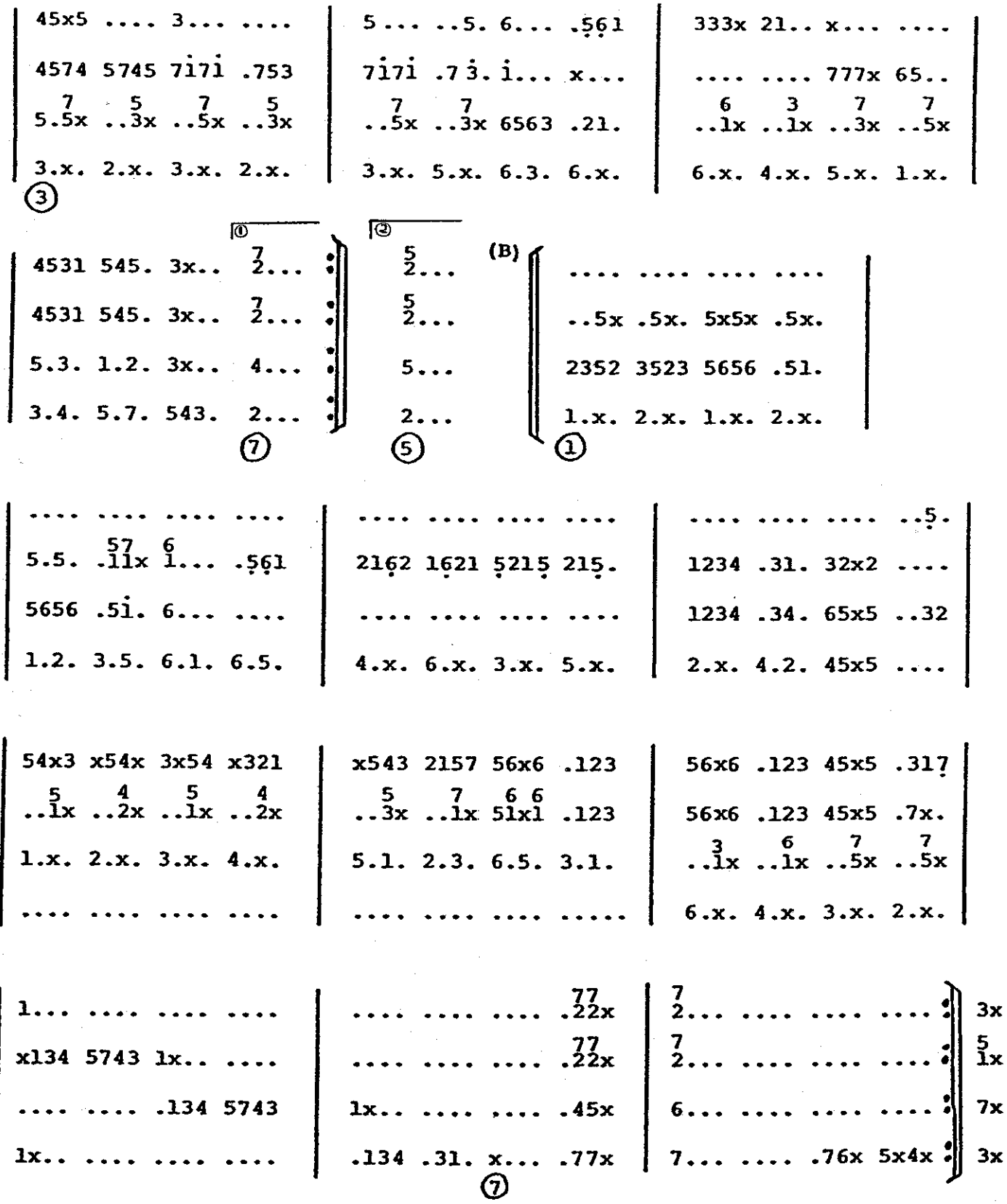
Notation is 'western' since ragtime is western. That is, downbeats, not endbeats. 'x' means damping the previous note at that point. The circled numbers below the other parts are for keygongs or kempuls. For 5 players, although the saron and demung parts can be doubled with the 'chord' notes split between the two players. Suggested form: A A B A A B

(buka)

peking	333x 21.. x...	.... 7 2...
saron	.... 777x 65..	4531 545. 3x.. 7 2...
demung	....	.... 7.6. 5x.. 4...
slentem	....	.... 7... (7)

(A)

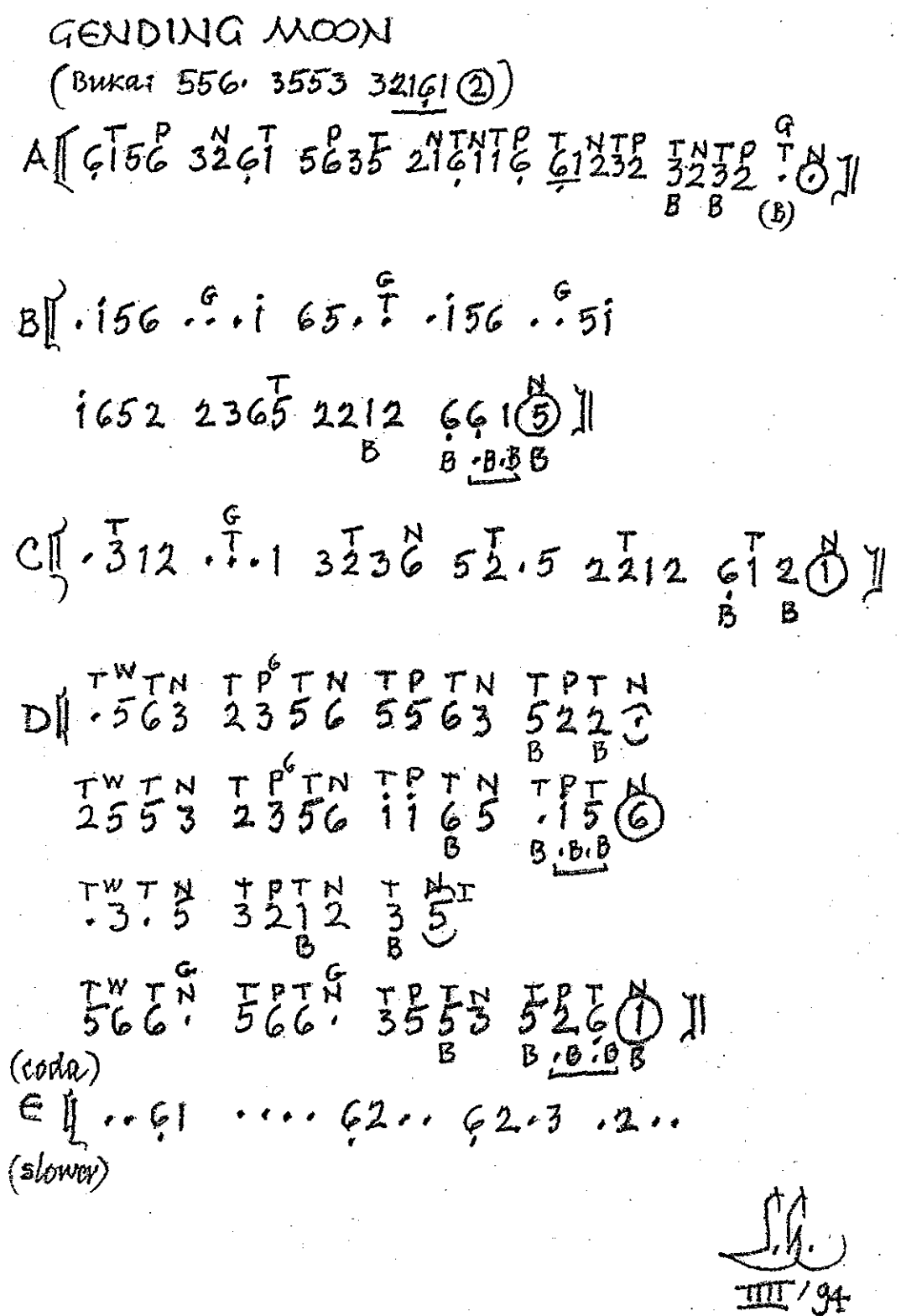
	3.3. 2.2. 3... ..12	3.3. 5.5. 7.6. 1.2.
	4574 5745 7i7i .753	7i7i .35. 2... .7.6
	7 5 7 5 x.5x ..3x ..5x ..3x	7 7 77 7 2.5x ..3x 22x2 ....
	3.x. 2.x. 3.x. 2.x. (3)	3.x. 5.x. 7.6. 1.2.
	7.7. ..2x ..2. 7.6.	5.5. .... .12. 3276
	i2i2 .i63 1212 .17x	2457 i2.. 77x7 ....
	6 7 6 7 ..2x ..2x ..2x ..2x	6 7 ..2x ..2x 7.5. 3.4.
	x.7. 6.x. 5.x. 6.x. (7)	5.x. 4.x. 5.3. 1.2.


45x5 .... 3... ....
4574 5745 7i7i .753
7 5 7 5
5.5x ..3x ..5x ..3x
3.x. 2.x. 3.x. 2.x.
3
5... ..5. 6... .561
7i7i .73. i... x...
7 7
..5x ..3x 6563 .21.
3.x. 5.x. 6.3. 6.x.
333x 21.. x... ....
.... 777x 65..
6 3 7 7
..1x ..1x ..3x ..5x
6.x. 4.x. 5.x. 1.x.
4531 545. 3x.. 7 2...
4531 545. 3x.. 7 2...
5.3. 1.2. 3x.. 4...
3.4. 5.7. 543. 2...
7
5 2...
5 2...
5...
2...
5
(B)
....
..5x .5x. 5x5x .5x.
2352 3523 5656 .51.
1.x. 2.x. 1.x. 2.x.
1
....
5.5. 57 6 .11x i... .561
5656 .5i. 6... ....
1.2. 3.5. 6.1. 6.5.
....
2162 1621 5215 215.
....
4.x. 6.x. 3.x. 5.x.
....5.
1234 .31. 32x2 ....
1234 .34. 65x5 ..32
2.x. 4.2. 45x5 ....
54x3 x54x 3x54 x321
5 4 5 4
..1x ..2x ..1x ..2x
1.x. 2.x. 3.x. 4.x.
....
x543 2157 56x6 .123
5 7 6 6
..3x ..1x 51x1 .123
5.1. 2.3. 6.5. 3.1.
....
56x6 .123 45x5 .317
56x6 .123 45x5 .7x.
3 6 7 7
..1x ..1x ..5x ..5x
6.x. 4.x. 3.x. 2.x.
1... ....
x134 5743 1x.. ....
.... .134 5743
1x.. ....
.... 77
.... .22x
1x.. .... .45x
.134 .31. x... .77x
7
7
2... ....
2... ....
6... ....
7... .... .76x 5x4x
3x
5
1x
7x
3x
7

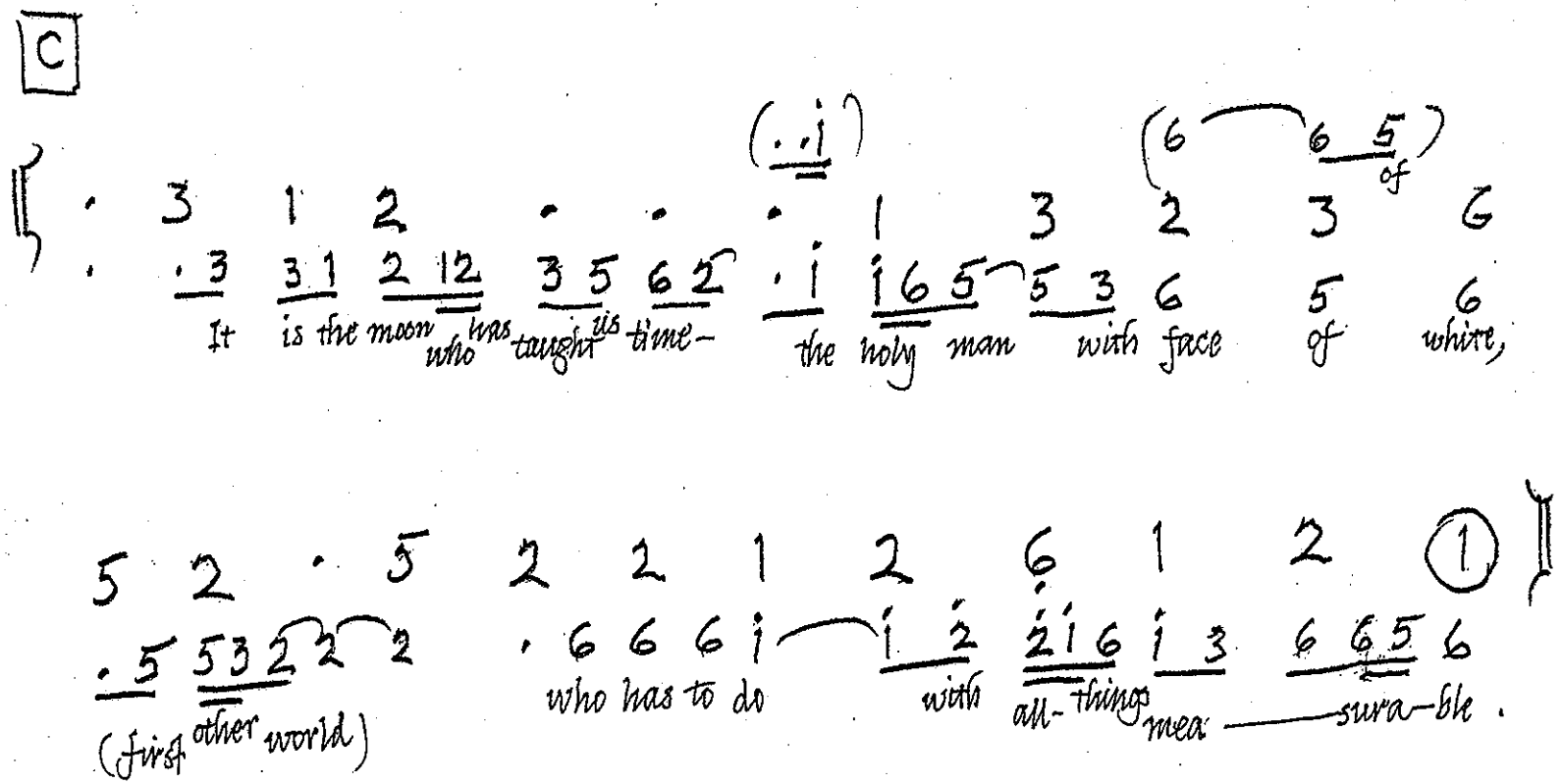
SCORE

Gending Moon

by Lou Harrison



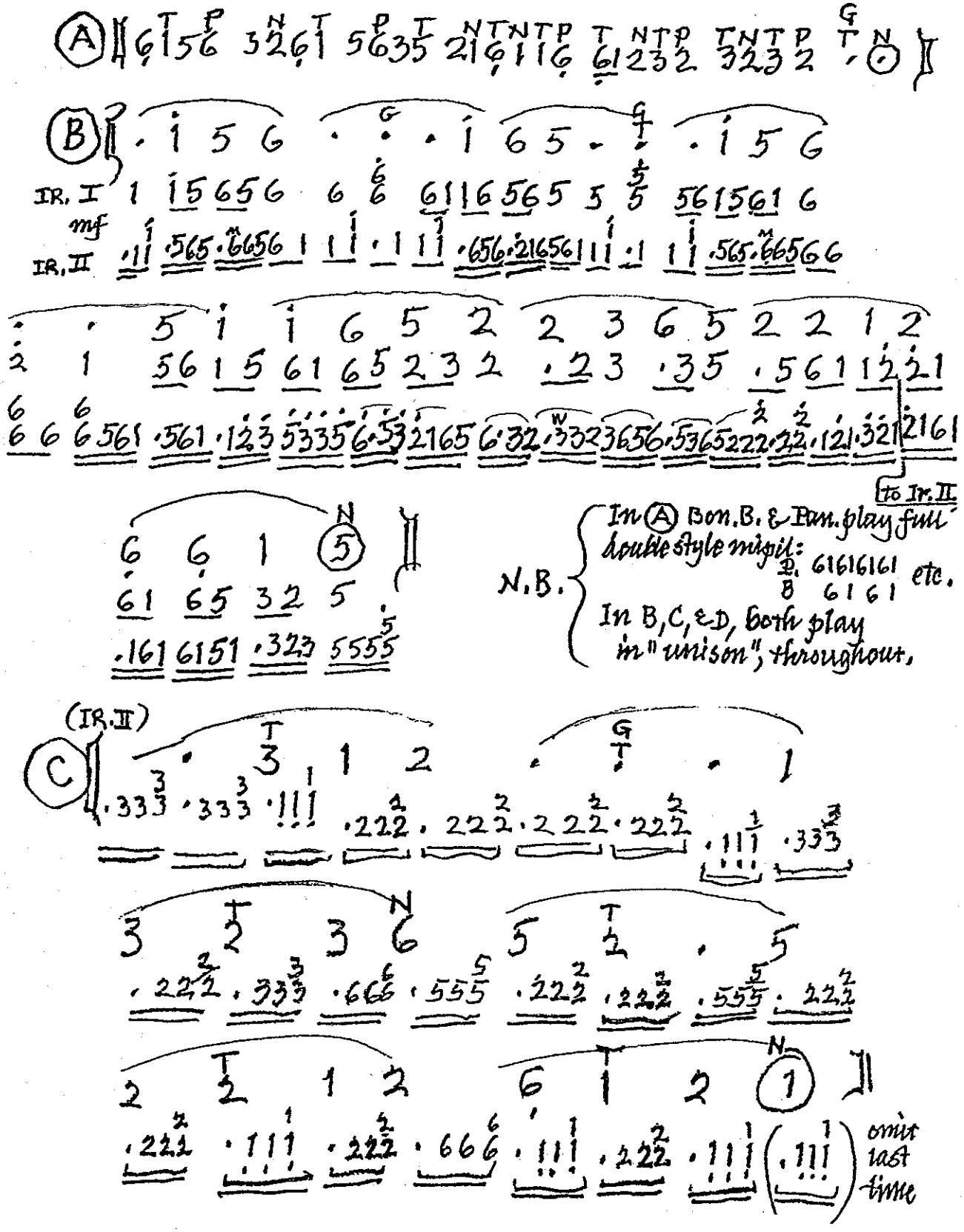
GERONG, GENDING MOON



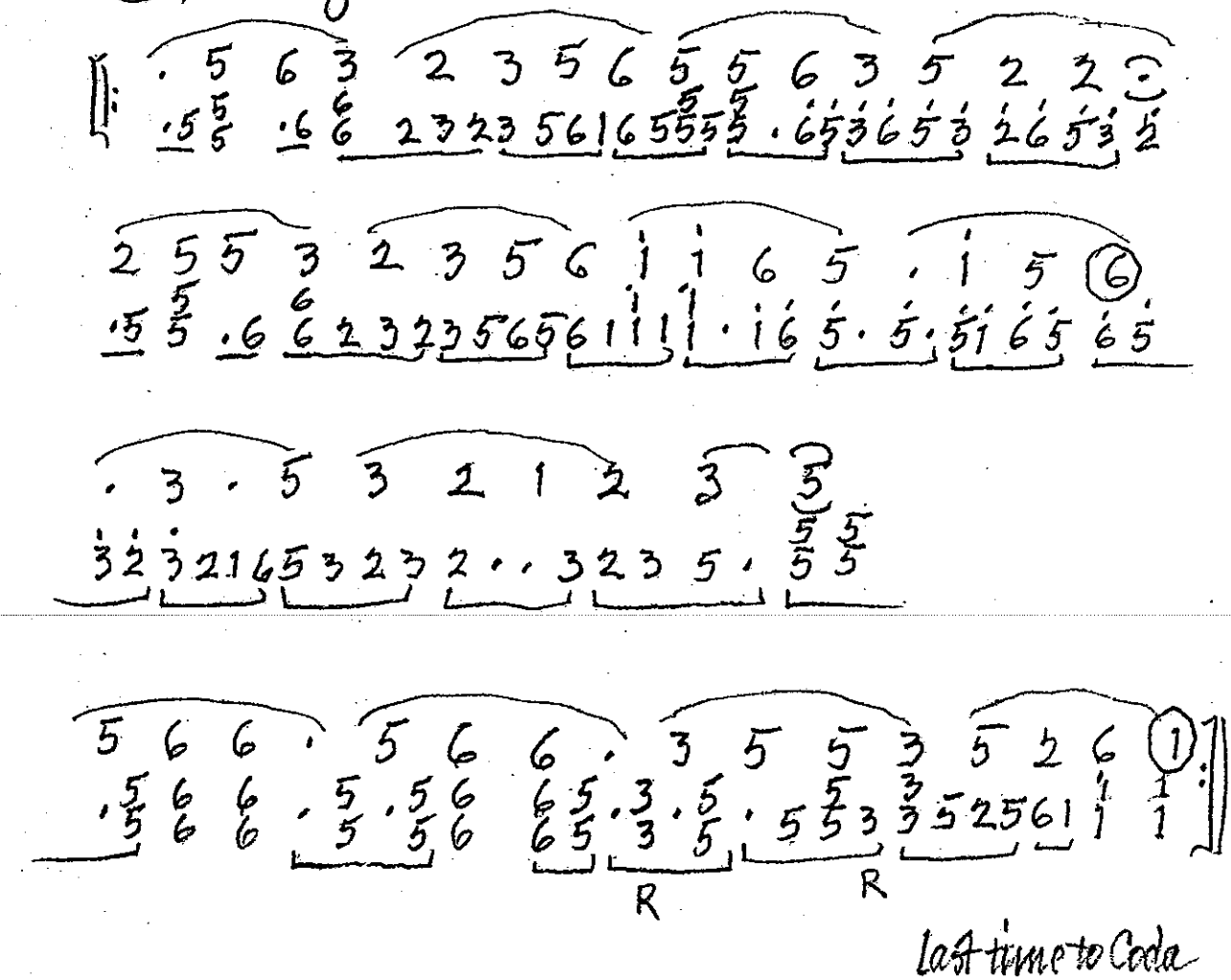
It is the moon who has taught us time — the holy man with face of white,

(first other world) who has to do with all things measurable.

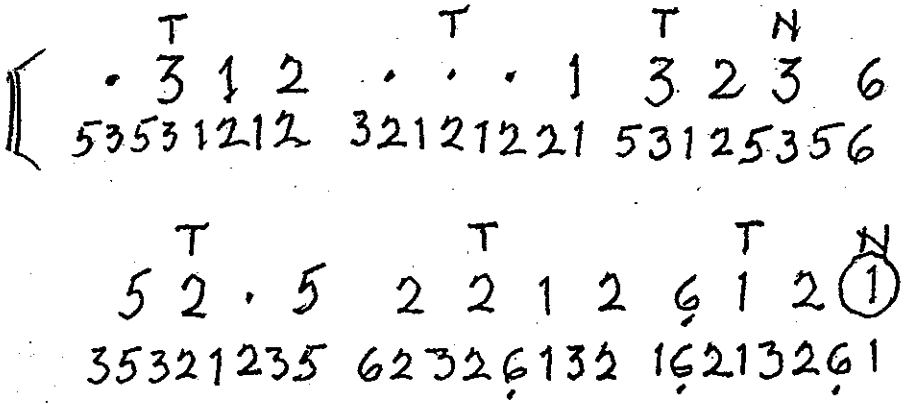
GENDING MOONS, BONANGAN



D, Bonangan



"C" (Irama II) Peking



PLAY THIS SECTION SOLO STYLE; PLAY YOGYA STYLE FOR THE REST.

Notes and alternative notation for Gending Moon

by Jody Diamond

Punctuation and rhythm

The full circle indicates gong ageng; the circle broken on the sides shows gong suwukan. Ketuk, kempul and kenong are indicated by T, P, and N, respectively. Arabic numerals after a P indicate kempul pitch; Roman numerals after a gong indicates gong pitch. Other letters used are: G for *gentorak*, or bell tree, shaken on that beat; B for a stroke on the *bedug* (or other very deep drum); and W for *wela*, a beat on which the kempul does not play.

The lines showing rhythmic sharing of beats are under the pitches rather than above.

Bonang parts

In section A, the phrase "full double style mipil" may mean repeated pairs with no rests in either part. This is reminiscent of a demung imbal style that Harrison favored in many other pieces.

Bonang barung and bonang panerus play in unison in sections B, C, and D. I have given an alternative notation for these sections, using the font KepatihanPro. 6̊ This symbol over a number means play two of this pitch. i.e. *gembyang*. (This font and its keycaps document are available free at http://www.gamelan.org/library.)

Section B Irama I (unison)

balungan · i 5 6 · · · i 6 5 · · · i 5 6

bonang 1 15 65 6 6 6̊ 61 16 56 5 5 5̊ 56 15 61 6

balungan · · 5 i i 6 5 2 2 3 6 5

bonang 2 1 56 i5 6i 65 23 2 ·2 3 ·3 5

balungan 2 2 1 2 (II) 6 6 1 (5) change to irama II at sign

bonang ·5 6i i2 2i 6i 65 32 5̊

(if no high 2) ·5 61 i2 2̊i 6i 65 32 5̊

Section B Irama II (unison)

balungan · i 5 6 · · · i 6 5 · ·

bonang 55̊··1i̊· 565·6656 1·1·i̊···1·1·i̊·· 656·2165 61·1·i̊··

balungan · i 5 6 · · 5 i i 6 5 2

bonang ·1·1·i̊·· 565·6656 ·6·6̊·6·6̊ 561·561· 1235 3356 ·532 1656

balungan 2 3 6 5 2 2 1 2 II 6 6 1 5

bonang ·32·3323 656·5365 22̊2̊·2̊2̊·· 121·3212 161·1616 151·3235

alternate (jd) ·32·3323 656·5365 enter irama II at sign

Section C Irama II (unison)

balungan · 3 1 2 · · · 1 3 2 3 6

bonang 11̊1̊·33̊3̊·11̊1̊·22̊2̊· 22̊2̊·22̊2̊·22̊2̊·11̊1̊· 33̊3̊·22̊2̊·33̊3̊·66̊6̊·

[55̊5̊·] from B first time

balungan 5 2 · 5 2 2 1 2 6 1 2 1

bonang 55̊5̊·22̊2̊·22̊2̊·55̊5̊· 22̊2̊·22̊2̊·11̊1̊·22̊2̊· 66̊6̊·11̊1̊·22̊2̊·11̊1̊·

Section D Irama II (unison)

balungan · 5 6 3 2 3 5 6 5 5 6 3 5 2 2 ⌒·⌒

bonang ·55 ·66 2323 5616 55̊5̊5̊ ·653 6532 6532

balungan 2 5 5 2 2 3 5 6 i i 6 5 · i 5 6

bonang ·55 ·66 2323 5656 1̊1̊1̊ ·i65 ·5·5 i656

balungan · 3 · 5 3 2 1 2 3 ⌒5⌒

bonang 5323 2165 3232 ··32 35·5̊

balungan 5 6 6 · 5 6 6 · 3 5 5 3 5 2 6 1

bonang 5̊·5̊6̊ ·6̊·· 5̊·5̊6̊ ·6̊5̊· 3̊·5̊· 55̊3̊3̊ 5256 1̊1̊·1̊

SCORE

Waton *by Komang Astita*

by Elaine Barkin

Waton was the work which really engaged Komang's versatility and creativity during his residency at UCLA. Waton — from the Balinese word *watu*, meaning stone — refers to "the foundation of a structure." The work owes its very being and originality to Komang's talent in architecture, which he studied at KOKAR, and to the unusual choice of instruments. He used Javanese gender , gongs, and pelog saron; Balinese gangsa, kajar, calung, ceng-ceng, and kendang; plus Chinese temple bowls, various sizes of rain sticks, Aboriginal clapsticks, guiro, Tibetan bells and bowls, and colored plastic whirlies (which I'd bought over the years in toy stores and Chinatown, and cut to different lengths to produce a wide range of tones and partials).

For *Waton*, Komang made a graphic score — a first for him — which underwent numerous changes before it became the score we used in performance. The first version would have taken 25–30 minutes to perform; our final concert version was 18 minutes.

Komang acknowledged a tripartite form, fluid in its actual sound and execution. Here are his program notes. "Pure geometric shapes — triangle, square, circle, etc. — were the inspiration for this work and also served as the source of the sound configurations. The shape of the piece kept changing during rehearsals and will probably change again at another performance.

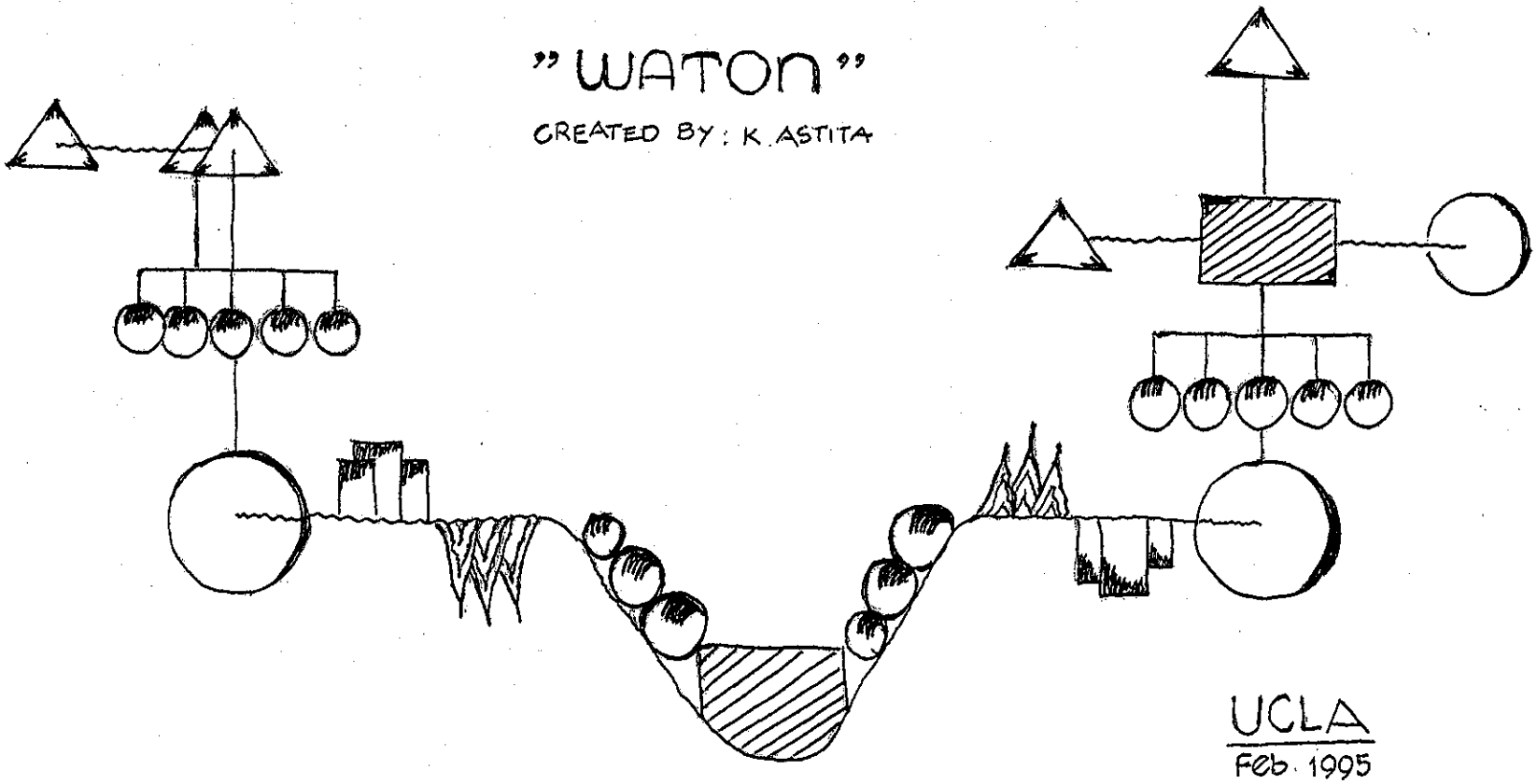
Much of the composing and choice of tones and tunes was done on the spot, participants joined in with suggestions, instrumental combinations were explored. Difficult passages — and there were several — needed lots of work. Order and duration of sound-events were often unpredictable at rehearsals' ultimately we really needed to memorize the order of events, since content was easier to recall once we knew where we were. The mid-way turnaround was marked by a gender-kendang duo played by Komang and Nyoman Wenten, giving us an authentic taste of exuberant virtuosity.

Waton's sound is shimmering and clacky, at times strongly "pulsed" beleganjur style, syncopated or interlocked; meditatively freer at both the opening and the close. Lingering timbres shift and resonate throughout *Waton*'s essentially palindromic design (yet the durations differ). Downbeat and "end gong" feelings and senses inhabit the work, albeit one at a time.

As *Waton* opens, a listener might feel a bit uncertain as temple bowls, Tibetan bells, kempul, clapsticks, guiro, and whirlies softly and dreamily bounce and click off one another. After a few minutes, high gangsas join in, rippling and glissing; a slow, unhurried yet filled in *jam karet* [lit. "rubber hour" in Indonesian, refers to a relaxed attitude toward time] sound. After several more moments, an underlying, at first in audible sense of order subtly and gently begins to make its presence known as sarons enter in, *sotto voce* but *there.* And, soon thereafter, as bowls and whirlies recede, the underlying (foundational: *waton*) beat gradually makes itself more evident with the entrance of a *pokok,* or trunk melody on the calung, followed with a high, slow gangsa kotekan and a *lotano*-like rumbling of kendang. Erratically struck bowls re-enter, the entire multilayered ensemble gushes for a moment, and just as suddenly dissolves, fades out.

This description is of just the triangles and five shaded circles at the beginning of the score; it took us four minutes and 40 seconds to play that opening stretch. The very next passages — large circle, cityscape, and squeezed hanging triangles — are fast, loud, and regularly patterned on the saron and gong, syncopated on the ceng-ceng, with kendang and kajar as strong presences.

At every moment, *Waton*'s continual ebb and flow, lows and peaks, unboundedness and regularity, patterns and unpredictability, its *rwa bhinneda* and Ivesian simultaneity, its *ramai*-ness and occasional solitariness, were stunningly cultured and textured. *Musik campur* [lit. mixed music], bits and piece, from here and there, of now.


"WATON"
CREATED BY: K.ASTITA
UCLA
Feb. 1995

Left to right: Komang Astita, Sue Carole DeVale, Ken Fowler and Loren Nerell with whirlies and rainstick, Linda Burman-Hall at the gangsa. Other ensemble members were Patrick Bagacina, Elaine Barkin, Richard Meyer, Nicole O'Bryan, Jane Peckham, Michael Toyoshima, and I Nyoman Wenten. Photo by Elaine Barkin.

Komang had brought from Bali a plastic bag of holy water which he and Wenten sprinkled during the pre-concert blessing of the gong. We supplied fruit and rice. Komang told me that he had spent much time praying, meditation, and asking for *taksu* [inner spiritual power through connection with the gods] the night before. There is no doubt that his prayers were answered. ◗

SCORE

Trimbat *by Ida Bagus Made Widnyana*

by Andrew McGraw

What draws each of us to music — the allure of music — may partly be that it can be studied and experienced both as a complex manifestation of essentially simpler underlying structures: dyads, contours etc., and as a simplification of more complex phenomena. When describing for a Balinese musician/priest the kinds of musical analysis done in the Western academy — that often our analysis aims to reduce so-called "surface information" in order to reveal fundamental structures — the Balinese reacted as you might guess a Hindu priest would, recalling an episode of the Hindu Mahabharata epic: *When presented at the court of his enemies, Krisna's identity was questioned. "Why should we believe," the king asked, "that you are the famous Krisna or indeed that Krisna is an avatar of Visnu?" Krisna then replied: "So be it, I will then reveal to you my true form." Those at the court then knew Krisna to be as he claimed. He was all time and space, all forms ever manifested, every feeling and thought that has ever been and that ever will be expressed. Experiencing this for only a split-second those at the court began to go mad. Visnu in its ultimate form, that is brahman (not to be confused with Brahma or brahmana), is not in the universe, the universe is within it. Therefore its true form is not intelligible to humans. It can only be expressed or manifested through more simple phenomena, like Krisna. Likewise music can sometimes be thought of as a simplification for human reception of the much more complicated sounds, noises, and vibrations that we hear and experience in our lives. Only the gods can hear all of these vibrations as music.* (personal communication, Gusti Sudarta, January, 2005).

Keeping this story in mind, I wish to discuss Ida Bagus Made Widnyana's *Trimbat*, created for his final recital at STSI Denpasar. This was one of the most innovative and rigorously constructed and rehearsed pieces of *musik kontemporer* I encountered during my research in Indonesia. Widnyana succeeded in creating an extremely complex and idiosyncratic composition while rooting the entire work squarely in Balinese tradition and traditional repertoires.

"Trimbat" is a conflation of the Balinese *tri* (three) and *embat* (tuning, or range). Widnyana combined *gamelan* instruments from three ensembles, each a five-tone *selisir pélog gamelan* tuned to different ranges and with a unique intervallic structure. The lowest set was a *gong gede* ensemble from the village of Tulikup in Eastern Gianyar, the middle set from the *gong kebyar* at Pengosekan and the highest set of instruments from a *pelegongan* ensemble in Ubud. Widnyana used only the *jegogan* and *calung* pairs from each gamelan,plus three gongs, for a total of 15 instruments and 13 players. The distance between the lowest jegogan and the highest was roughly a minor third; Widnyana was able to produce 11 pitches per octave through a combination of the instruments.

The following shows roughly where each "pitch" (set-pair) lies in relation to the equal tempered scale. This is also the pitch scheme I use in my notations of *Trimbat.*

Saih Cenik: Highest Gamelan, Pelegongan Ubud.

Key #	Syllable	Transcription Pitch
1	*Ding*	D#
2	*Dong*	E
3	*Deng*	F#
4	*Dung*	A#
5	*Dang*	B

Saih Madya: Middle Gamelan, Gong Kebyar Pengosekan.

Key #	Syllable	Transcription Pitch
1	Ding	D
2	Dong	E-Flat
3	Deng	F
4	Dung	A
5	Dang	B-Flat

Saih Gede: Lowest Gamelan, Gong Gede Tulikup.

Key #	Syllable	Transcription Pitch
1	Ding	B
2	Dong	C#
3	Deng	E-Flat
4	Dung	F#
5	Dang	G

(Actually, considering that the instruments were paired and that jegogan pairs often sound as far as a 1/4 (equally tempered) step or more apart, Widnyana had access to 22 pitches per octave. He chose to maintain, however, the traditional Balinese practice of always playing paired pitches together as one, rather than melodically exploring these even smaller intervallic units.)

Balinese gamelan ensembles have not historically been tuned to any standard, although today I Wayan Beratha's conception of *pélog saih lima* is hegemonic through his influence at STSI and SMKI. *Saih* generally refers to the range of a *gamelan* and also, sometimes, its unique intervallic arrangement.

According to Widnyana, the inspiration for this highly complex orchestral arrangement springs from traditional Balinese ceremonial practices. For certain very large ceremonies, such as the preparatory ceremonies preceding a priest's cremation, a number of traditional music, dance, and theater groups are brought together, sometimes within a single tightly packed house compound, to perform simultaneously but independently. This is known as a *karya gede*, or the "great work." I have performed in *karya gede* in which two differently tuned *gong kebyar* ensembles, two differently tuned *gender wayang* ensembles, a *slonding*, a *beleganjur*, an *angklung*, and traditional singing were all performed simultaneously within a very small family compound. Acoustically, the result is nearly overwhelming. In order to perform as a single unit during a *karya gede* players sometimes are forced to rely on visual alignment as hearing one's musical neighbor is next to impossible. For me the result was a veritable kaleidoscope of tunings, timbres, and tempos, combining in interesting and unusual ways as I adjusted my aural perception. When I asked my older teachers how they heard such ceremonies they without fail suggested that they continued to hear each *gamelan* as a separate unit, not mixing in the least.

For Widnyana, however, this combination of tunings in the *karya gede* was the inspiration for his orchestration of *Trimbat*. The *karya gede* is music for the gods as only they can hear it as such. In *Trimbat* Widnyana simplified for human reception the overwhelming overfullness of the *karya gede*.

Excerpts

Widnyana opens the work by slowly introducing each of the tones on his three sets of *gamelan*. The opening ascending line introduces each of the *saih cenik* tones, followed by slow melodies on the *saih madya* and *saih gede* instruments. In this way the listener is allowed to slowly become acquainted with the very complex tuning, intervallic and acoustic beating relationships between each of the tones and *gamelan* sets. The melodic contours of these lines aligns the *saih madya* and *saih gede* ensembles together playing, respectively, the same sequence of keys. This arrangement is followed in the faster moving lines at 1:10. The *saih madya* and *saih gede* instruments play the same line, from the perspective of contour and key placement (while not the same pitches). Incidentally, these two bottom lines are the same as the *saih cenik* melody, here starting on the fourth tone (*deng*). After slowly sounding each of the tones Widnyana finally presents the inevitable combination of all tones [1:26], as the ascending *ding-dong-deng-dung-dang* of each of the differently tuned *gamelan* are brought together. The result is a thick and gauzy dissonance unlike any texture found in any traditional Balinese musical setting, excepting the *karya gede*.

Looking strictly at the score and imagining a quantisization of pitches into equal temperament, we see a very dissonant and complicated series of harmonies at 1:26, a series of tri-chords in parallel motion — a root below both major and minor thirds. However, with the paired tunings and slightly "out-of- tune" (F# and D#) enharmonic tones, the aural reality is much more complicated and dissonant.

At 1:38 Widnyana sequences two-note pairs through each of the three sets of *calung* instruments. The complexity in *Trimbat* often resides at points in which Widnyana breaks his own rules of form and logic that he establishes within the work, as in the single rhythmic exception within this section when the fifth sixteenth note overlaps the previous motif. The result gives the selection an unbalanced rhythmic feel and sweeps from under the listener's feet moments of otherwise rhythmic or melodic comfort and predictability. The selection gives a sense of continuous rise through the pitch spectrum of the *gamelan*, sounding like an infinite

tone loop, or sounding in the way a barber's pole looks to be rising continuously to the sky.

At 2:01 Widnyana presents melodies which resemble traditional Balinese forms; in even 4-bar phrases in *saut-menyaut*, question-answer, forms. Following this Widnyana explores the pitch relationship between pitches that are represented in the score as being the same (primarily F# and D#). That is, *dung saih gede* with *deng saih cenik* (f#) and *ding saih gede* with *dang saih cenik* (B-b, in lower and higher octaves).

During the process of composing *Trimbat*, Widnyana explored the relationship of his *gamelan* tunings and the tempered keyboard, attempting to find similarities and differences. The section at 2:38 represents an aesthetic challenge to the tempered tuning system; Widnyana actively explores exactly that which is beyond Western notation's capacity to capture and represent. The listener is left to relish the complexity of the tuning relationships and beating differences.

Widnyana then explores the capacity of one *gamelan* tuning to shade that of another. The listener encounters only the high and sweet *saih cenik* tuning for several seconds until 2:58 when the melody veers into the *saih gede* instruments at which point a sense of five-tone 296 *selisir* is lost. The *selisir* of the *saih gede* is interpreted, by way of a kind of backwards attention vector, in terms of the *saih cenik* tuning to sound, according to Widnyana, like a "*pélog miring*" ("out-of-tune" *pélog*) tuning.

Following this at 3:12 *saih gede* and *saih madya* tunings are used in combination to create a mode impossible on seven-tone *pélog* ensembles. Here *saih madya* pitches *dong-deng-dung-dang* (C#-E flat-f#-G) are combined with the *saih madya deng* (F) to create a new five tone mode, more chromatic than possible in *pélog*.

Eventually the sense of five-tone *pélog selisir* is re-established on the *saih madya* instruments at 3:24.

At 3:43 the previous *saih cenik* melody first presented at 2:10 is played along with the following *saih gede* and *saih madya* lines. The combination results in complex harmonic lines, often in three part harmony. While a standard Western harmonic analysis is not possible on this selection, it is notable the extent to which Widnyana explores, like his Cudamani colleague Suparta (who performed for Widnyana's work), non-standard two and three part harmonies. The b major triad dominates the tonality of this section, and to this Western listener sometimes functions as a tonic center. B is the lowest pitch of the three ensembles, being key one-*ding* on the *saih gede* instruments. D and f natural are present in the higher tunings, b diminished and minor triads are also present. The seventh bar of the selection is especially dense harmonically: d# minor, f# minor 7, b minor followed by a b-aa# cluster. The sense of harmonic motion to a center is strengthened by the final chord, a b major chord in second inversion.

Like Suparta, Widnyana has not formally studied Western harmonic principles and was not thinking in these analytical terms when creating this selection. No strict harmonic principles were employed, as can be seen from the fact that each of the previous solo lines are repeated literally when in combination, creating at moments comparatively thin two-note 297 minor second harmonies. Clearly, Widnyana was approaching this selection from the perspective of density and texture rather than (Western) harmony. (It was almost impossible, however, for me and the several other Western musicians who occasionally watched Widnyana's rehearsals at Cudamani not to hear this selection in Western harmonic terms. Clearly, our ears quantized the pitch information into tempered tuning and imagined simple harmonic structures that were in fact acoustically much more complicated. One listener described this selection as sounding like "some sort of chthonic organ.")

The selection is appended by statements and arpeggiations of a major E-flat triad, first played in textures reminiscent of church organ chords and articulation (4:12 and 4:19) followed by rhythmic permutations of the arpeggiation between the *calung* — each pair sounding one of the three pitches. This is ended by a cadential-sounding E-flat major, b diminished, E-flat major sequence.

The following section represents Widnyana's effort to reconcile traditional Balinese styles within his unique experimental ensemble. The *gamelan slonding* style is the primary topic referenced, although at times *leluangan* and *kebyar* are also hinted at. Widnyana explores more traditional *kotekan* forms, dividing *polos* and

sangsih pairs between the *gamelan* so that in one instance the *saih gede* ensemble plays the *polos* for the *saih cenik's sangsih* while the *pokok* is held on the *saih madya.*

The section between 4:29-5:06 is played three times. Here the orchestration is similar to traditional *kreasi kebyar* textures in which the lower instruments (here the *jegogan*) perform a simpler abstracted melody below higher sounding instruments (here the *calung*) which play elaborated interlocking patterns and melodies. Widnyana explores the material thoroughly through each repetition. The second iteration is performed much more slowly, quietly, and deliberately, as if to allow the listener an "insiders" slow-motion view of the complicated interlocking and modal construction of the section before resuming it again at normal speed.

The following section at 6:21 is more clearly influenced by *slonding* forms, however this too is manipulated and transformed. While in *slonding* the lower *jegogan* instruments play repetitive oddly shaped phrases and the higher *saron* play interlocking patterns; this orchestration is turned upside down here. The *slonding* motif is continued and developed between 7:16-9:20 in which a slower moving section is repeated, again, three times. The orchestration is more abstract and experimental than in the previous section.

Beginning at 9:20 Widnyana leaves behind traditional Balinese musical models, retaining only Balinese musics' traditional focus on interlocking patterns. Here the concept of five, six or seven tone modes is abandoned as all pitches are used equally. The exploration here is in terms of rhythmic and phrase form. Following the introduction of a complex theme discussed below, Widnyana sequences a short melody through each of the keysets, withholding any sense of mode or modal center. This is followed by a melody which clothes a complicated polyrhythm performed on the *gongs* in which the *gong cenik* plays every eight tones, the *gong madya* every five tones and the *gong gede* every three tones. This polyrhythm was composed first; later the melody which covers it at 9:24 was composed around it. Each tone coincides rhythmically with its respective *gong* tone; harmonic tones are then added to thicken the texture. Harmonically the passage includes several instance of triadic harmony interspersed with close and dissonant clusters, vaguely recalling the music of such composers as Cowell or even Takemistu, whose music Widnyana has never heard. At 9:37 Widnyana strips away the melodic instruments revealing the deeply rumbling and scarcely intelligible *gong* polyrhythm beneath. This is followed at 10:13 by a faster melody more typical of standard *kreasi kebyar* textures.

At 11:22 Widnyana introduces a feeling of complete chaos: thick and seemingly random harmonies, textures and rhythms meant to give the listener the impression that the whole improbable construction has finally fallen in on itself. Here it sounds as if the musicians have become hopelessly lost amid the sonic confusion. Then, the sloppy and fractured phrase is played a second time *exactly* the same way. The passage eludes Western notation's ability to represent rhythmically complex phenomena and recalls the rigorous rehearsal and orchestration of chaos achieved in such rare ensembles as Captain Beefheart's band of the late 1960s.

At 11:38 Widnyana again takes up the linear theme introduced in the beginning of the repeated section above, cycling through each of the keys of the instruments: 1-sc,1-sm,1-sg (3x): 2-sc, 2-sm, 2-sg (3x) etc. (sc, sm, sg referring to *saih cenik, saih madya* and *saih gede*) giving the sense of a rising series of ascending chromatic cells. However, the pattern is more complicated than this. Looking at the longer individual key patterns of any one set of instruments the patterns is: 11122233355566 6 etc: or 3 notes, 3 notes, 2 notes, 3 notes; a pattern of 11 tones. This 3-3-2-3 pattern is cycled throughout the keyset of each *gamelan* with each starting at a different place in the pattern, a kind of phrase canon. Given that the odd numbers five and eleven do not have a common multiple before 55, the pattern for a single set of instruments is long and complex: 11122233555666111223335556661122233335566611122233355661112223335566, i.e., four times through the *calung* range. This pattern is performed by each of the *gamelan* in a 3 (*gamelan*) against 4 (pulses per beat) phrasing. The melodic/rhythmic polyrhythm then amounts to 3:4:11. In its first iteration at 9:20 the phrase is performed only once, and so the longer polyrhythmic implications are not felt. It is not until later, at 11:40, that the phrase is played

further, but not to its logical conclusion. Here the 4:3 counter-rhythm is highlighted by the *jegogan* playing1-2-3-5-6 in unison resulting in dissonant clusters banged out at the half note level, thus expanding the polyrhythm to 165 tones against 40(80x5) tones of the *jegogan* pattern. The result is a wall of sound, an incredibly complex form that somehow, through the sheer virtuosity and energy of the very young players, is still exciting and listenable.

Widnyana's music is very complex, but infused with the irresistible bravado and fire of youth (some players were as young as 13 years old).

The total polyrhythm theoretically involves the combination of:

55 tones [per] calung cycle
(5x(3+3+2+3) = 11 x 5 keys)
x 3 (sets of gamelan) =165
against
40 tones [per] jegogan cycle (8 notes x 5 keys)
(at the half note level).

To compute when these two patterns first coincide we use a basic mathematical procedure. We "prime factor" 165 and 40 to find the lowest common denominator.

Tenor cycle: 165/5=33/11/3 5x11x3
Bass cycle: 40/5=8/2=4/2=2 5x2(cubed)
We then multiply the prime factors:
5x11x3x2(cubed)=1320 tones (16th notes)
Resulting in
8 iterations of the *calung* cycle
330 pulses (quarter notes)
33 iterations of the *jegogan* cycle.

Widnyana worked closely with the ISI *karawitan* faculty member Arnawa in developing this section of his work. Arnawa studied for his masters in composition at STSI Solo with the German composer Dieter Mack. Mack reports that while in Solo he regularly discussed the mathematical approach to composition and the incorporation of the Fibonacci series. Arnawa's *musik kontemporer* works have focused on translating the mathematical aspects of the Balinese *pengidur bhuana* concept into music. Incidentally, the numbers 5,8, and 55, each important numbers within the Fibonacci series, are central elements in Widnyana's polyrhythm.

Inspired by both the baroquely complex symbols of Balinese Hinduism and ancient Javanese and Balinese calendars — with their intersecting seven, five, and three day weeks, and the convergences of these calendar days with important moments in the Lunar and Gregorian calendars —Widnyana is referencing the deep roots of Balinese tradition in a completely experimental musical treatment. Had this polyrhythm continued to its logical conclusion, given that 110 beats [per] minute is the average tempo, it would theoretically take nearly three minutes for the total pattern to be performed (a fourth of the total work). And certainly, if we as an audience had to experience the whole polyrhythm, we would, like those courtiers witnessing Krisna's true form, likely start to go mad. ◗

Beat	*		*		*		*		*		*		*		*		*		*		*	
calung sc		1		1		2		2		2		3		3		3		5		5		6
calung sm	1		1		1		2		2		3		3		3		5		5		5	
calung sg	1		1		1		2		2		2		3		3		5		5		5	
jegogan sc	1					2				3						5				6		
jegogan sm	1					2				3						5				6		
jegogan sg	1					2				3						5				6		

Beat	*		*		*		*		*		*		*		*		*		*		*	
calung sc		6		6		1		1														
calung sm	6		6		1		1															
calung sg	6		6		6		1															
jegogan sc						1																
jegogan sm						1																
jegogan sg						1																

Polyrhythm excerpt from Trimbat *(11:40)*

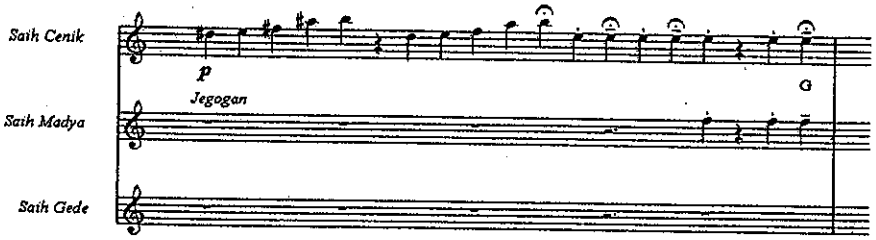
Trimbat

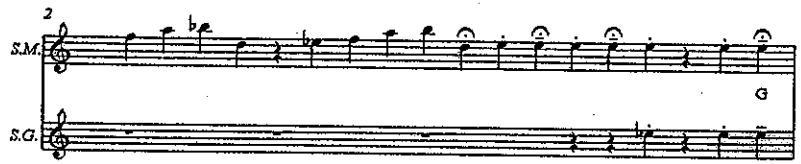
(excerpts)

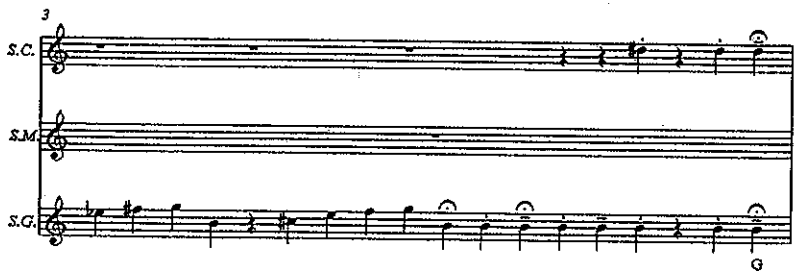
by Ida Bagus Made Widnyana

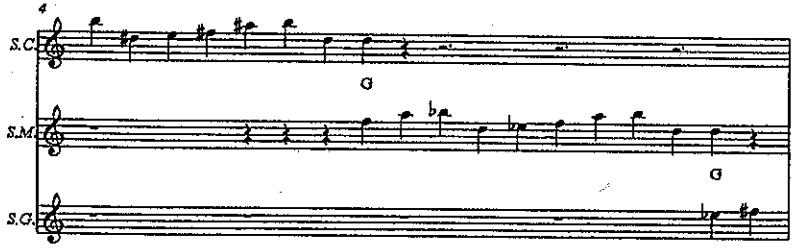
0:00

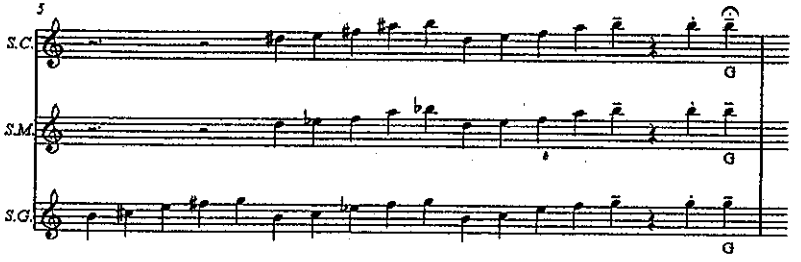
A **Largo**



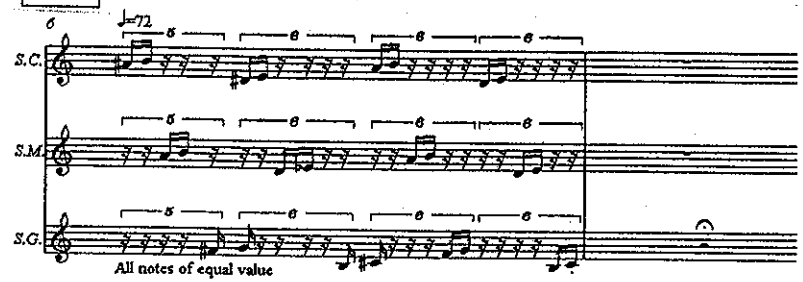


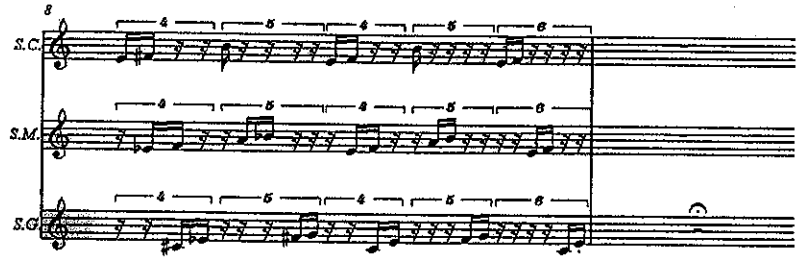


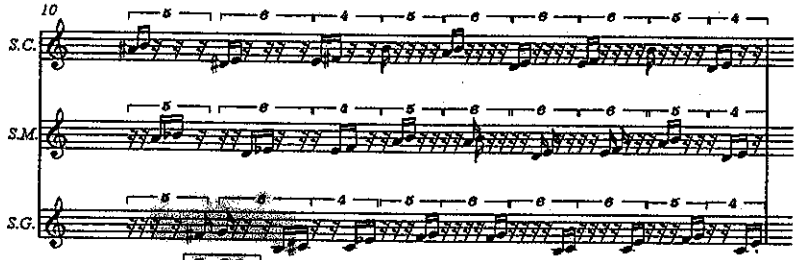




1:38

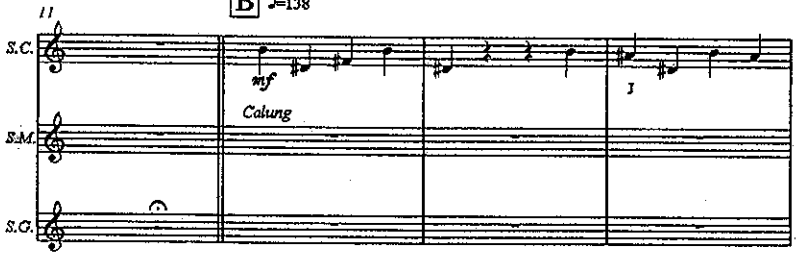


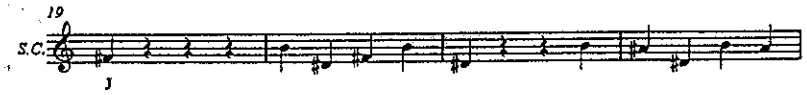


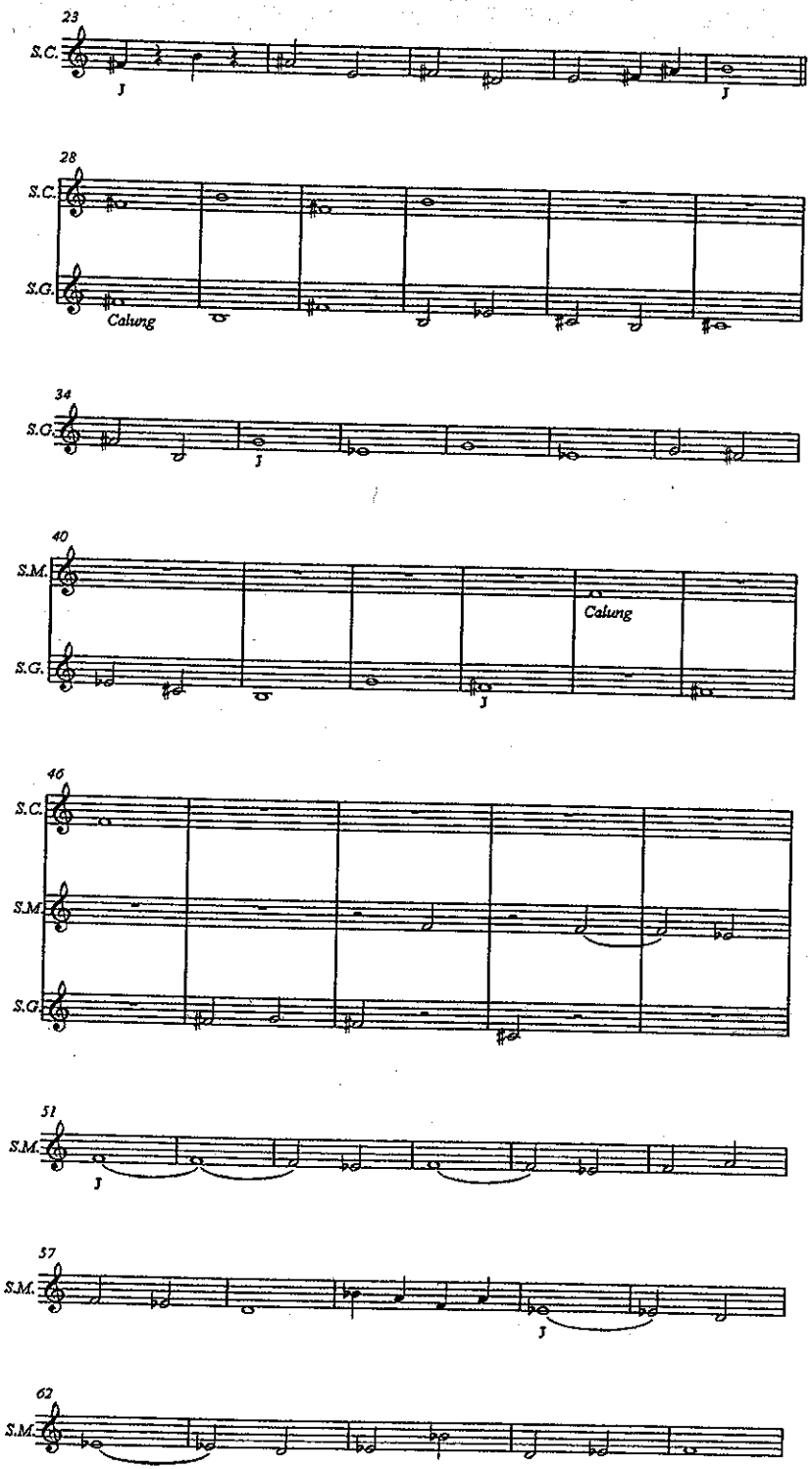


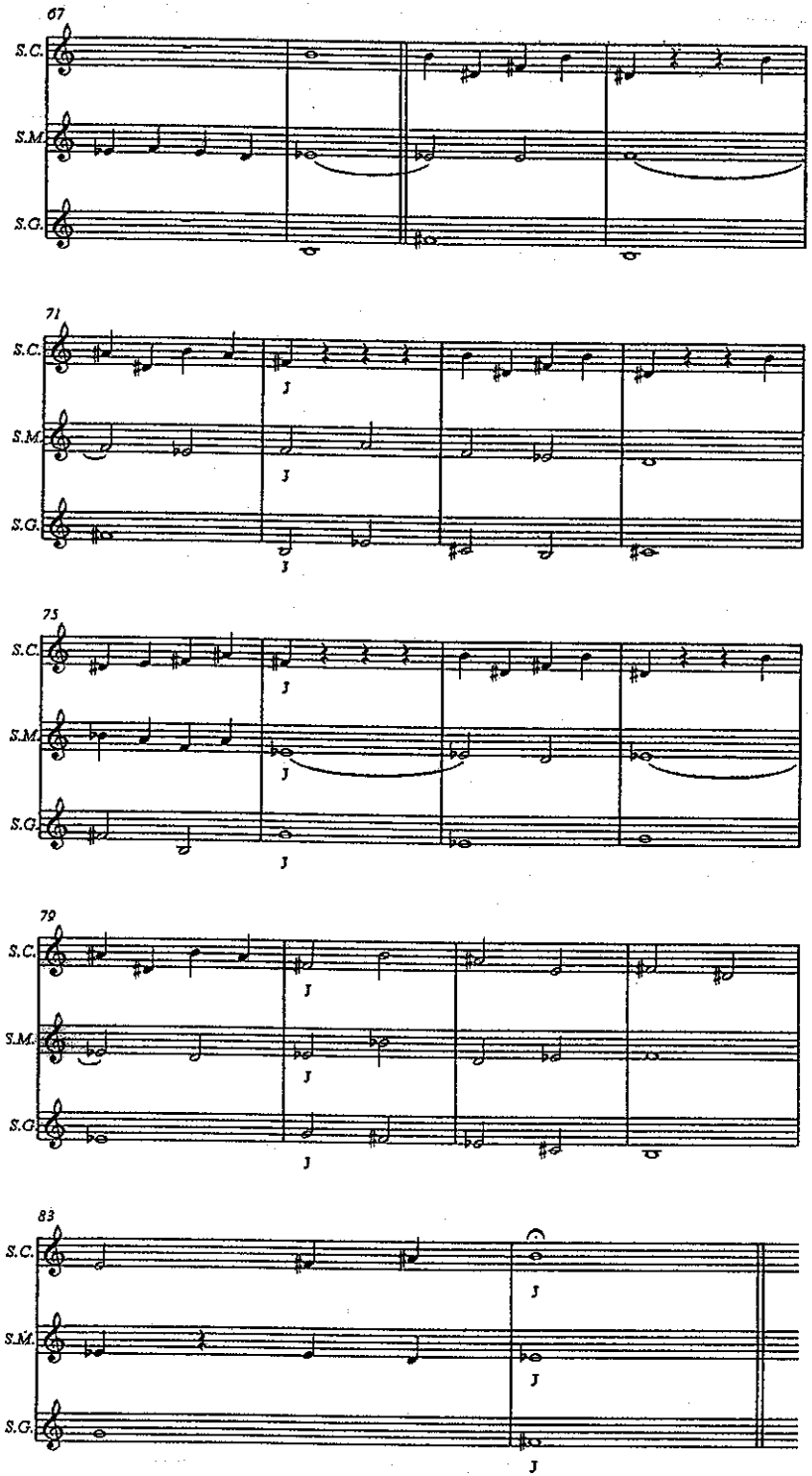
2:02

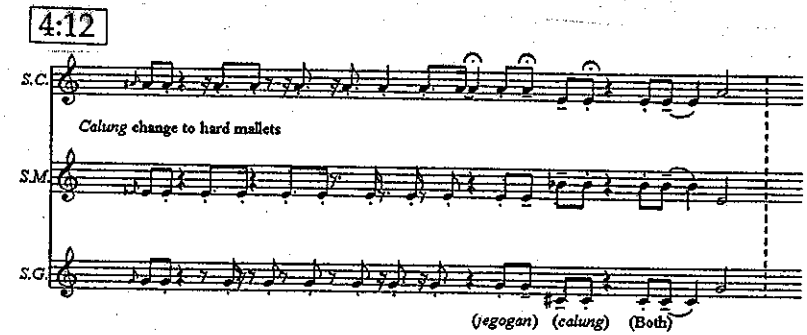
B ♩=138

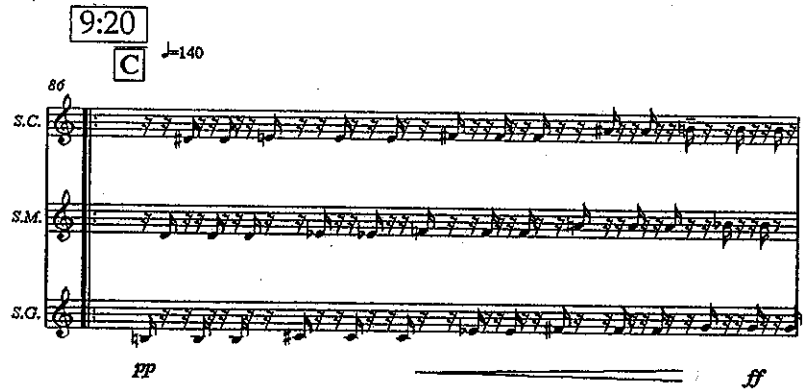


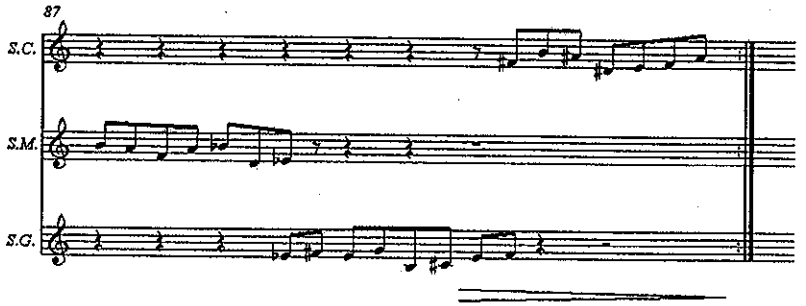


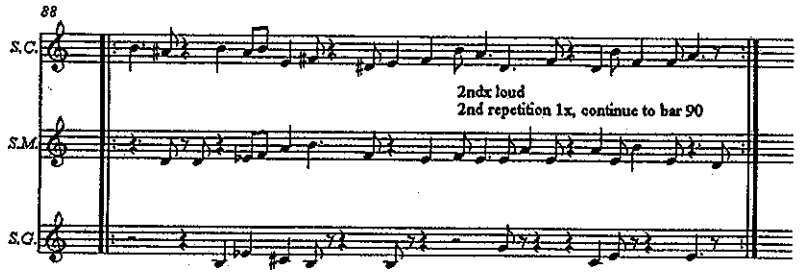

23
S.C.
28
S.C.
S.G.
Calung
34
S.G.
40
S.M.
S.G.
Calung
46
S.C.
S.M.
S.G.
51
S.M.
57
S.M.
62
S.M.

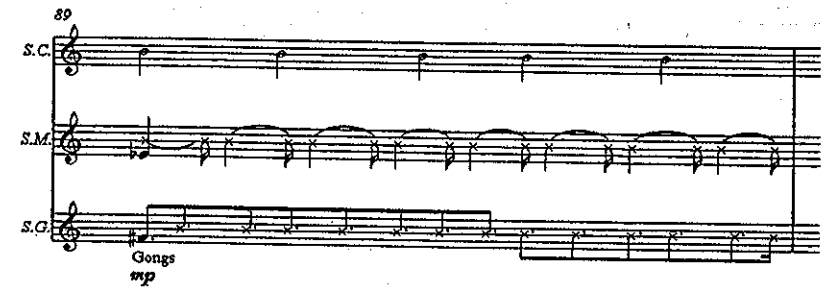

67
S.C.
S.M.
S.G.
71
S.C.
S.M.
S.G.
75
S.C.
S.M.
S.G.
79
S.C.
S.M.
S.G.
83
S.C.
S.M.
S.G.

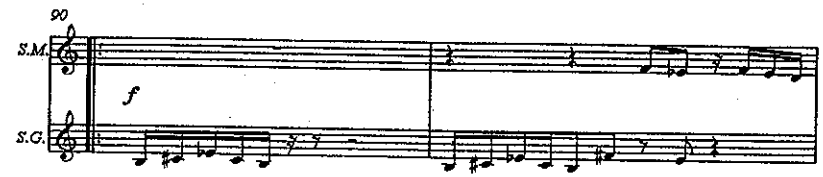

4:12
S.C.
Calung change to hard mallets
S.M.
S.G.
(jegogan) (calung) (Both)

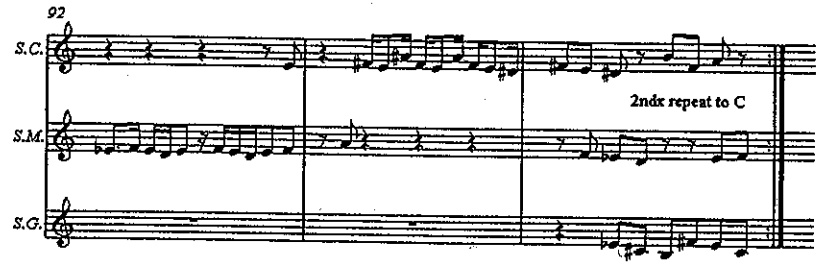

9:20
C
♩=140
86
S.C.
S.M.
S.G.
pp
ff

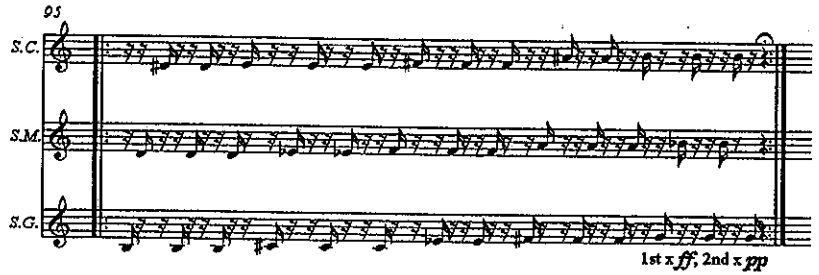

87
S.C.
S.M.
S.G.

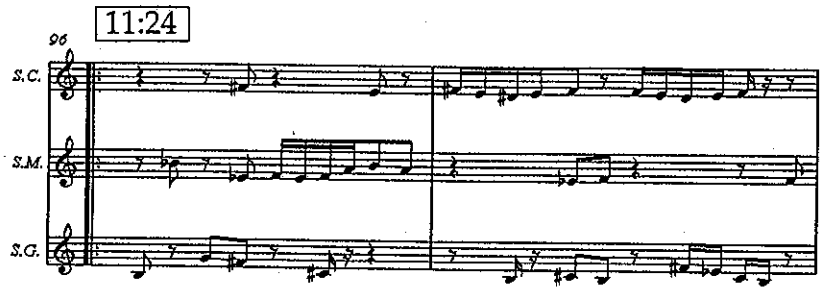

88
S.C.
2ndx loud
2nd repetition 1x, continue to bar 90
S.M.
S.G.

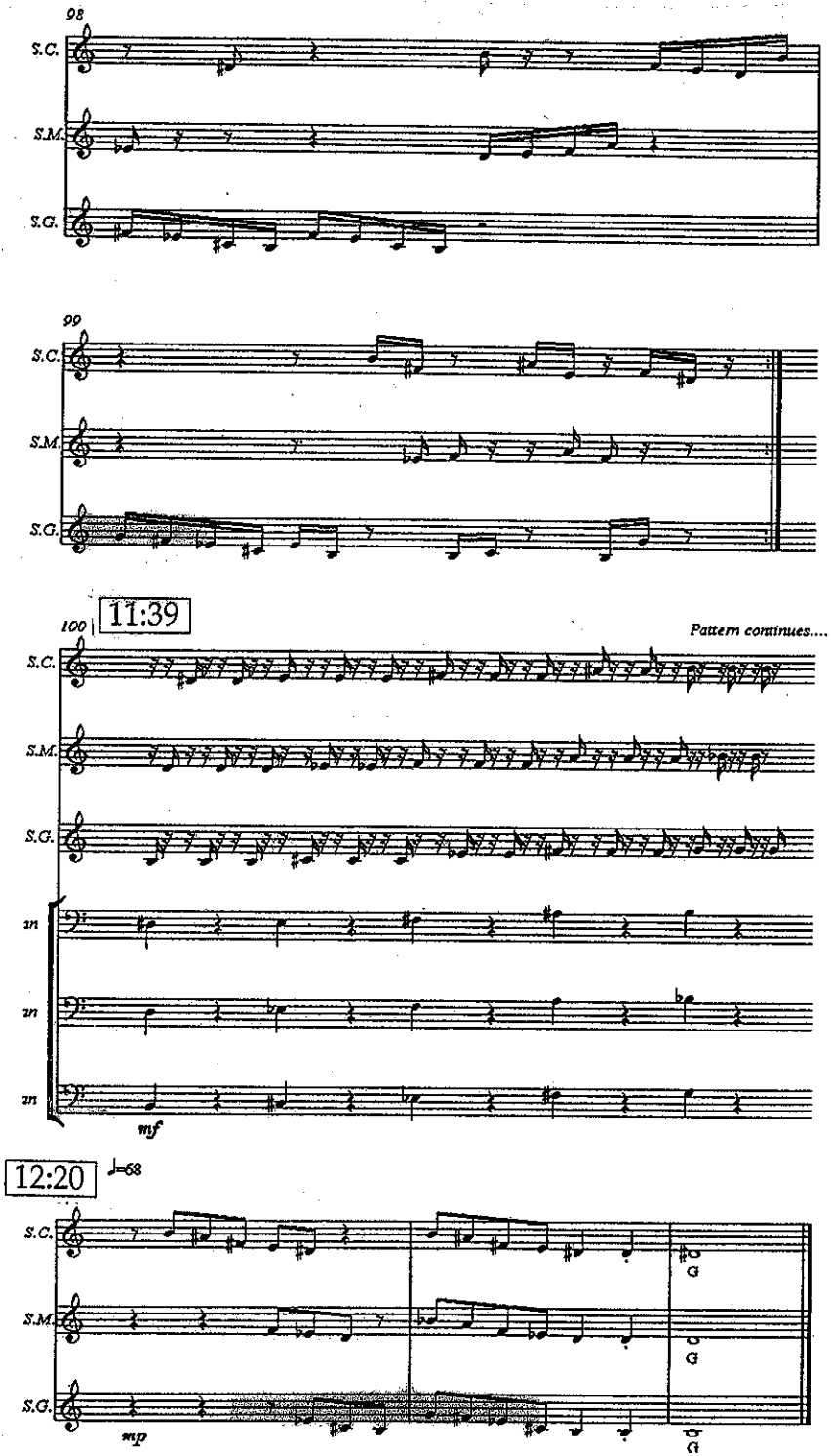

89
S.C.
S.M.
S.G.
Gongs
mp


90
S.M.
f
S.G.


92
S.C.
2ndx repeat to C
S.M.
S.G.


95
S.C.
S.M.
S.G.
1st x ff, 2nd x pp


11:24
96
S.C.
S.M.
S.G.


98
S.C.
S.M.
S.G.
99
S.C.
S.M.
S.G.
11:39
100
Pattern continues....
S.C.
S.M.
S.G.
tn
tn
tn
mf
12:20
♩=68
S.C.
S.M.
S.G.
mp

RECORDING

Homage to Tradition: music by Rahayu Supanggah

from the curator

In 1986 I attended the first International Gamelan Festival in Vancouver, Canada. I met there, for the first time, some of Indonesia's most active and innovative artists: I Wayan Sadra, Rahayu Supanggah, Pande Made Sukerta, B. Subono, Ketut Gede Asnawa, Sardono W. Kusumo, and many others (*Balungan* Vol. III, No. 1, November 1987 has an article on the group of artists at EXPO '96). The brilliant experimentalism of their work inspired me, and I left that festival determined to make their music better known outside of Indonesia. This CD is a continuation of that commitment.

Supanggah first produced this CD in a limited quantity in Indonesia, and gave it away to friends and colleagues. Soon there were no more, so I asked his permission to re-issue the CD through the American Gamelan Institute [as the beginning of an Indonesian Composers Recording Series].

This CD maintains the original graphics and format. The original notes were in Indonesian and English, only the latter are in this edition.

It gives me extreme pleasure to make Supanggah's music available, and I look forward to many more years of composition and collaboration with the artists of Indonesia.

jody diamond, director, agi
hanover, nh, june 2003

Homage to Tradition

The global era, with it extraordinary advances in the fields of science and technology, in particular, communication technology, facilitates human life. These advances, however, have negatively impacted the life of traditional arts. This is due to the changes in lifestyle of those in the art community, who are the main supporters of traditional arts. Indonesia, which has a wealth of traditional art forms (music), diverse and full of potential, is experiencing these negative effects. Many traditional art forms are being pushed aside by other arts that have the ability to make direct or indirect use of this era's technological advances. The strength and wealth of traditional music does in fact have a great potential to survive with a new vision, meaning, benefit, function and treatment.

This CD contains a collection of new compositions by Rahayu Supanggah, which some observers have referred to as "New Music Indonesia." The works selected retain a strong traditional nuance, and are presented in an attempt to strengthen and enrich the life of "traditional" music. The starting point for R. Supanggah's work as an artist is deeply rooted in these traditions, and these pieces show how he reponds to modern times through the elements of traditional music.

1. Keli

Keli, meaning washed away, is an expression of Supanggah's concern for the disappearance of a number of traditional musical and gamelan ensembles, such Santiswara, Monggang, Kodok Ngorek, and others, due to the predominance of pop music, including pop music for Javanese gamelan. This composition aims to show the potential of these traditional genres. Keli was first performed in Berkeley, and has subsequently been performed in New York, LaFayette, Philadelphia, Iowa, and Vancouver at the KIAS (Indonesian Culture in the United States of America) festival in 1991. Instruments: 4 rebab, female vocal, gong, gambang, slenthem, saron, gender, bonang, kempul.

2. Duet

Duet is the music for the Rama-Sita duet in Realizing Rama, a modern dance done with artistic director and choreographer Denisa Reyes from the Philippines. This was a collaborative production between ASEAN nations, and Duet has been performed on tour through ASEAN and European countries. The music uses a Javanese gamelan pathetan ensemble, enriched with a diatonic nuance through the addition of a viola. Instruments: viola, gender, gambang, suling, gong.

3. Kloning

Kloning does not have any connection with "cloning" in the genetic sense, but is an onomatopoeic sonic impression created by a musical composition using only bonang, balungan, and gong instruments. Kloning was composed for Sardono W. Kusumo's dance/theater work, Passage Through the Gong, and performed at the Next Wave Festival at the Brooklyn Academy of Music in New York in 1993. Kloning was used in 1999 for Realizing Rama, with the addition of violin. The violin part was composed and performed by Purwa Askanta. Instruments: saron, demung, slenthem, bonang barung, kempul, violin.

4. Dandanggula Keli

Dandanggula is a kind of traditional sung poetry (macapat) of which there are approximately thirteen different meters. Macapat has always played an important role in the Javanese community as a medium of moral education. It is a means of conveying information, and a method of expressing one person's feelings for another, through various forms of artistic expression: karawitan (traditional music), literature, wayang (shadow puppet theater), theater, and so on. Of the various kinds of macapat, Dandanggula is one of the most popular, due to its sweet nature and rich variations. Dandanggula was used in the dance music for Realizing Rama, and is presented with "Keli" style treatment in this recording. Instruments: Suling gambuh, water suling, vocal, 4 rebab, gambang, kecapi, slenthem, gong.

5. Balambang

Balambang is a combination of Balabak and Maskumambang, two vocal pieces, both of which are usually associated in Java with expressions of sadness, pathos, remorse and submission to God. Balambang was used as the dance music for Unraveling the Maya, performed by the Sutra Dance Company, Kuala Lumpur, in 1997, with choreography by Ramli Ibrahim in collaboration with Denisa Reyes. Instruments: Balungan, gender and gender penerus, siter, gong, rebab, vocal.

6. Thongkleng

This composition was given the name Thongkleng because of its sounds: thong represents the sounds made by the knobbed instruments, known as pencon, and kleng represents the keyed instruments, known as bilah. In this piece emphasis is placed on the sound produced rather than the pitch or melody as the two groups of instruments attempt to engage in a dialogue. Thongkleng is part of the dance music for Realizing Rama, used for the scene in which Sita is seduced by the golden deer. The quality of the movents used by U Thein Aye, the dancer from Myanmar who played the deer, provided the composer with the inspiration for this composition. Instruments: pencon and bilah instruments.

7. Main Kayu

Although this composition also happens to be played on (main) instruments made from wood (kayu) or bamboo, Main Kayu means to do as one pleases, disregarding rules of law, ethics, and aesthetics. Since 1990, these attitudes have become prevalent in the Indonesian population. This composition aims to express simplicity irregularity, dissonance/noise and violence by using dichotomous elements, especially in indeterminate pitch choices and vocal character. This piece may be performed with any instruments, as long as these two elements are taken into consideration. The more players involved in a performance of this piece, the better the outcome. Main Kayu was first performed at the Indonesian Arts Summit in Jakarta in 1995. Instruments: Bamboo percussion instruments (kentongan), vocal.

8.Lincak Mubeng

Lincak means a seat (position) or small jump (fluctuation). Lincak mubeng is a small fluctuation occurring everywhere at once or shifting from place to place. The current situation in Indonesia has resulted in several regions of the country want to break away from the Republic, for reasons both rational and irrational. The intruments and the

affect of this piece tries to give an impression of this phenomenon. Instruments: gambang (played by 4 musicians) and balungan instruments in slendro and pelog tuning, played simultaneously.

9. Gambuh

Gambuh is another form of the vocal genre macapat. Gambuh means a compatibility or conformity between two or more elements. This composition aims to encourage a sense of hope for compromise between various elements: social, cultural, ethnic and religious, and was inspired by adzam, the Islamic call to prayer to kneel before God. This piece is part of the work Gambuh, which was performed at the first Young Composers Festival in Jakarta in 1979. Instruments: Suling gambuh, rebab, khen, balungan, bonang, gong, vocal.

10. Ganther

Ganther can mean either a straight or distinct line. Ganther is also an onomatopoeic sound with a nuance of tremolo. This composition is part of the dance music for Realizing Rama, played when Rama, Sita and Laksmana try to maintain their courage through the ordeals they encounter during their exile in the forest. Instruments: gambang, siter, kecapi, gong, vocal.

11. Grombyang

Grombyang is a noisy sound created by friction between moving objects — a sound almost no one wants to hear. This composition attempts to capture the feeling of annoyance associated with this sound. Instruments: gambang, bamboo percussion (kentongan), vocal.

12. Bubaran Lear

As its name suggests [a bubaran signals the audience's departure], this composition is used as the final piece in a program. This bubaran was inspired by Undur-undur Kajongan, a traditional gendhing used to pay respect to the king in Surakarta on his return to the palace after holding a royal audience. Bubaran Lear was first performed for the curtain call for LEAR, a modern Asian production based on Shakespeare's King Lear. This collaborative work, which involved artists from more than eight different countries, was initiated by the Japan Foundation, and directed by Ong Keng Sen of Singapore. In 1998 to 2000, LEAR was performed in several cities in Japan, as well as in Hong Kong, Singapore, Jakarta, Perth, Berlin and Copenhagen. Instruments: Bonang barung, bonang penerus, panembung, balungan, bedug, gong.

Note of thanks from the composer

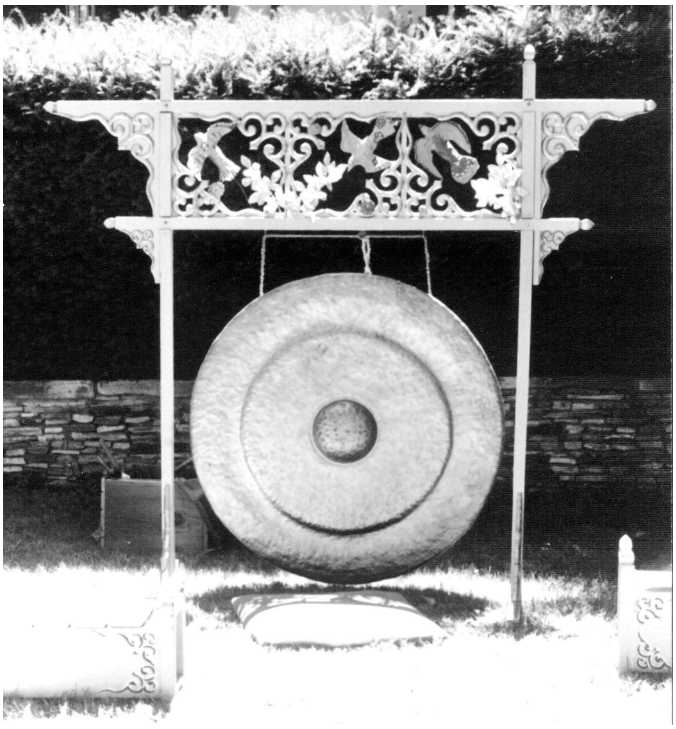
I wish to warmly thank my fellow musicians for their cooperation and spirit of friendship, which made these compositions possible. They often work together in the Garasi Seni Benawa community, and include both lecturers and students from STSI Surakarta: Waridi, Rustopo, Joko Purwanto, Rusdiyantoro, Sukamso, Suraji, Kuwat, Sugimin, Supardi, Hadi Budiono, Rasita Satriana, Cucup Cahripin, Darsono, Suyoto, Al Suwardi, Sundardi, I Nyoman Sukerna, I Nengah Muliana, Prasadivanto, Dunung Basuki, Purwa Askanta, I Wayan Sadra, Lanjar, Rambat, Sukesi, Retna, Warasi, Danis Sugiyanto, Bambang Siswanto, Darsono (B), and others whose names may not have been mentioned.

The CD was recorded and mixed at Studio Sembilanbelas, STSI Surakarta, by Tono Indiarto, Iwan Onone, and Esha Kandus, with graphic design by Putut H. Pramana and Arief Prasetiyono

I would also like to thank Sundari, Bontos, Gandang and Wirid for their constant moral support and sacrifice. ◗

The Mills College Gamelan

Si Darius and Si Madeleine



instrument design and construction by
Lou Harrison, William Colvig, and Mills students
1981

❧

tex and drawings by Will Ditrich
1983

CONTENTS

GONG SUWUKAN KEYS & RESONATORS

MEASURED FROM BASE of GONG SLAB FRAME. DOES NOT INCLUDE BASE THICKNESS

KEY	LENGTH	WIDTH	THICKNESS	RESONATOR DEPTH	RESONATOR DIAMETER
1 S	27 3/4" 704 mm	5" 127 mm	1/2" 6mm	46 7/8" 1190 mm	6 1/8" (155)
1 S	19 3/4" 501 mm	12 13/16" 123 mm	1/2" 6mm	21 11/16" 550 mm	"
2 S	25 1/2" 648 mm	5 5/16" 135 mm	1/2" 6mm	40 7/8" 1040 mm	
2 S	19" 482 mm	3 7/8" 101 mm	1/2" 6mm	18 5/8" 473mm	
3 S	24 1/16" 611 mm	4 15/16 125 mm	1/2" 6mm	38 5/8" 980 mm	
3 S	16 7/8" 428mm	4 1/16" 103 mm	1/2" 6mm	16 1/8" 410mm	
5 S	34 1/8" 868 mm	7 3/4" 197 mm	5/16" 8 mm	CABINET RESONATOR : SEE 5 S	
5 S	22 5/8" 574mm	4 15/16" 125mm	1/2" 6mm	CABINET DIMENSIONS	
6 SP	30" 762mm	6" 152 mm	1/2" 6mm	CABINET RESONATOR : SEE 6 P,S	
6 SP	19 1/2" 496 mm	6" 152 mm	1/2" 6mm	CABINET DIMENSIONS	
7 P	28 1/16" 713mm	4 7/8" 123 mm	1/2" 6mm	47" 1197 mm	6 1/8" 155mm *
7 P	20" 509mm	3 7/8" 98mm	1/2" 6mm	23 3/4 603 mm	6 1/8" 155
5 P	30 7/8" 785mm	5 5/16" 151 mm	1/2" 6 mm	CABINET RESONATOR	"
5 P	21 3/8" 543mm	4 1/2" 115 mm	1/2" 6mm	(SEE PLANS)	"
3 P	23 15/16" 608mm	4" 101 mm	1/2" 6mm	36 5/8" 930mm	6 1/8" 155
3 P	16 7/8" 429mm	4 5/8" 117mm	1/2" 6mm	20" 507 mm	"
2 P	24 7/8" 632mm	4 3/4" 121mm	1/2" 6mm	40 3/8" 1027 mm	"
2 P	17 3/4" 450mm	4 7/16" 112mm	1/2" 6mm	16 1/2" 420 mm	"
1 P	25 1/4" 642mm	6" 153mm	1/2" 6mm	44" 1119mm	"
1 P	18 1/4" 473mm	4 7/8" 125mm	1/2" 6mm	19" 484 mm	"

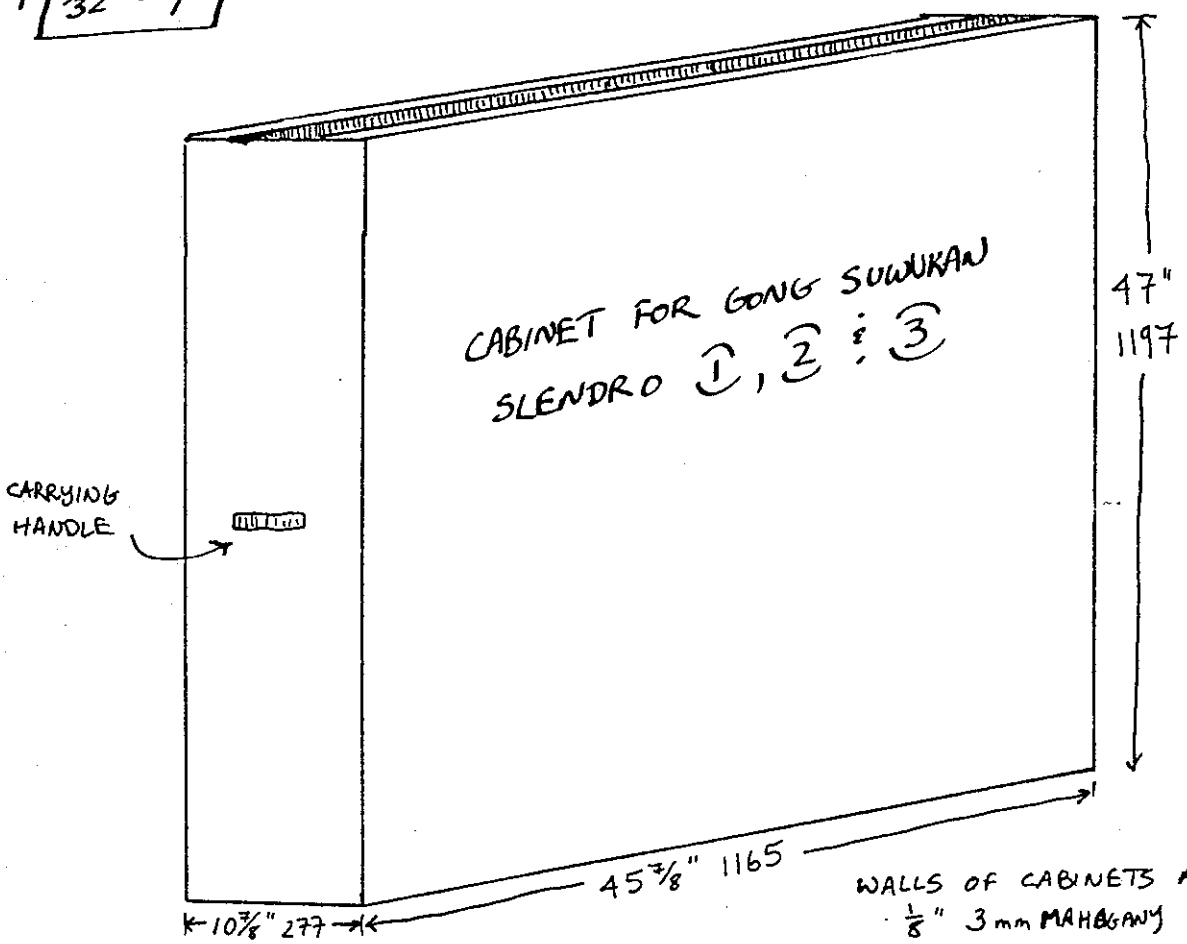
∪ INDICATES THE LOWER GONG SLAB, ∩ INDICATES THE HIGHER (THEY ARE AN OCTAVE APART)

TWO BEATERS ARE USED FOR GONG SUWUKAN, ONE OF THEM LARGER & HEAVIER THAN THE OTHER (FOR THE LOWER TONE). THIS LARGER BEATER HAS A 10 1/2" 267 mm HANDLE WHICH 1" 25 mm THICK AT THE BASE, TAPERING TO 5/8" 16 mm. THE BEATER HEAD IS 2 1/2" 64mm IN HEIGHT AND DIAMETER, AND FAIRLY HEAVY, BUILT UP WITH LAYERS OF FELT & RUBBER TUBING. 1/4" 6mm THICK PIANO HAMMER FELT IS WRAPPED AROUND, GLUED & SEWN TO THE BEATER HEAD, WHICH IS PULLED IN AT THE ENDS AND SEWN TO ROUND OFF THE EDGES.

THE LIGHTER BEATER HAS A 9" 229 mm HANDLE TOOLED OF 1/2" 13mm DOWEL. MANY LAYERS OF FELT ARE WRAPPED AROUND, AND GLUED AND SEWN TO SECURE THEM. THEN THE WHOLE HEAD IS COVERED WITH ONE PIECE OF FELT THAT IS TIED AT THE BOTTOM. THE HEAD IS 4" 102 mm LONG WITH A 3" 77 mm DIAMETER. THE WEIGHT OF THE HEAD AND ITS RESILIENCE IS CONTROLLED BY WRAPPING LAYERS OF INNER TUBE RUBBER IN WITH THE FELT.

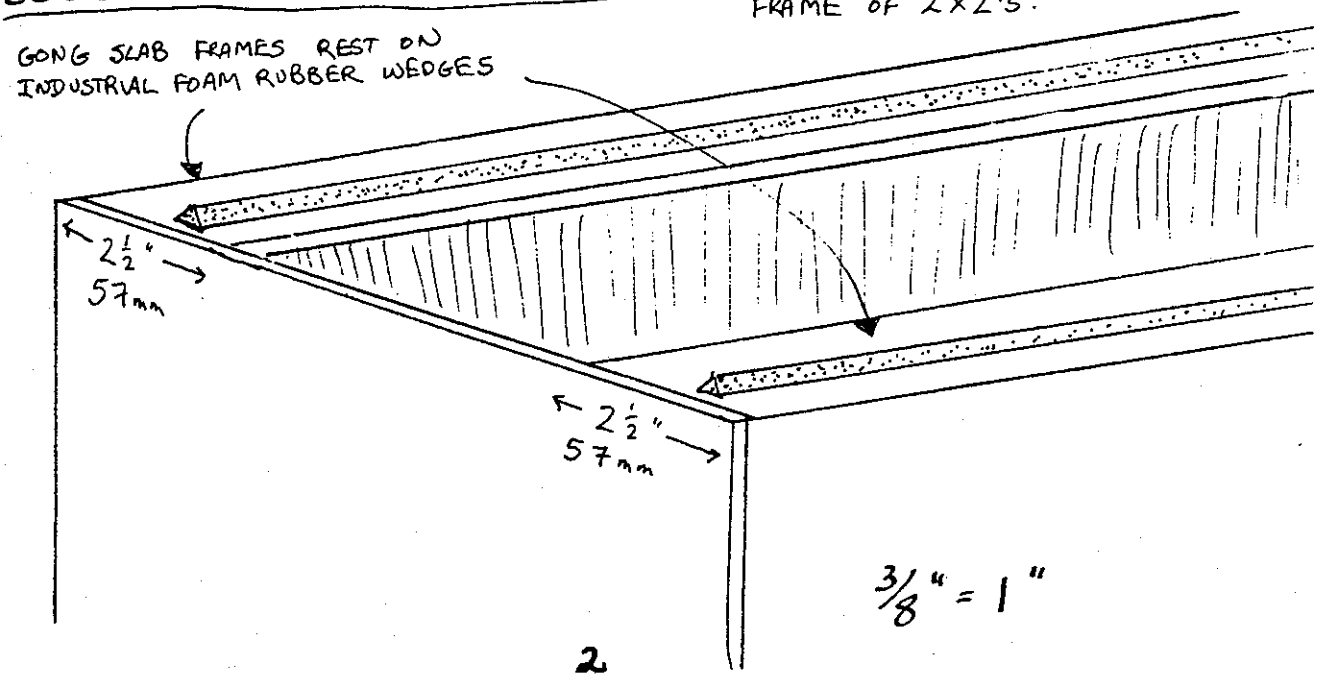
* PELOG 7, RESONATING BILLY CAN OPENING REDUCED TO 4" DIAMETER

1 [3/32" = 1"]



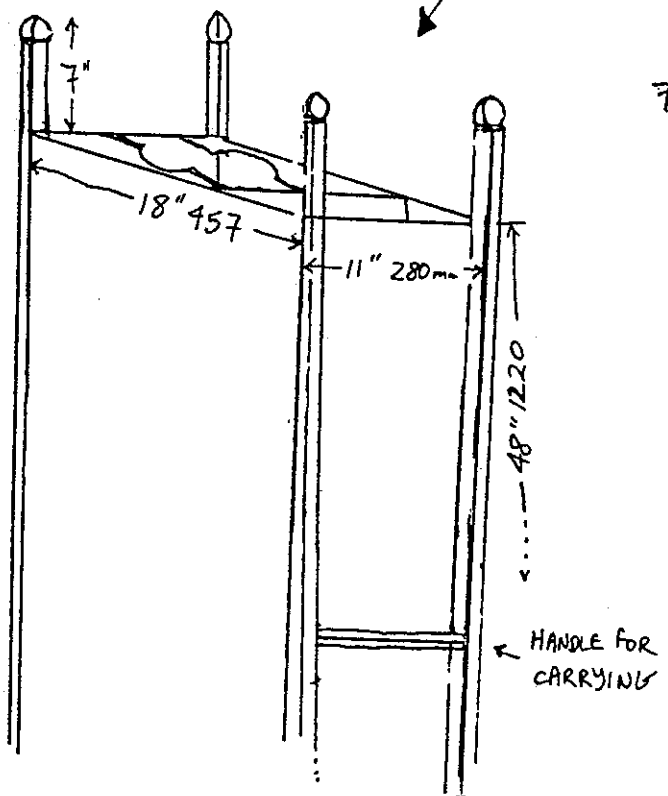
WALLS OF CABINETS ARE 1/8" 3mm MAHOGANY OR PLYWOOD. THE STRIPS ALONG THE TOP ARE 1X3's (LIT 3/4" 19mm X 2 1/2" 57mm). INSIDE IS A BASIC FRAME OF 2X2's.

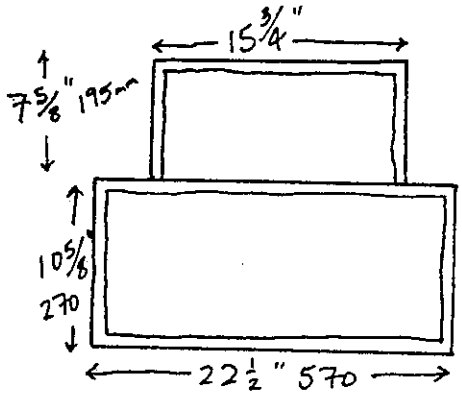
CLOSE UP OF TOP OF CABINET



3/8" = 1"

CABINET FOR SLENDRO 5





FRAME FOR SLENDRO 5 GONG SLABS

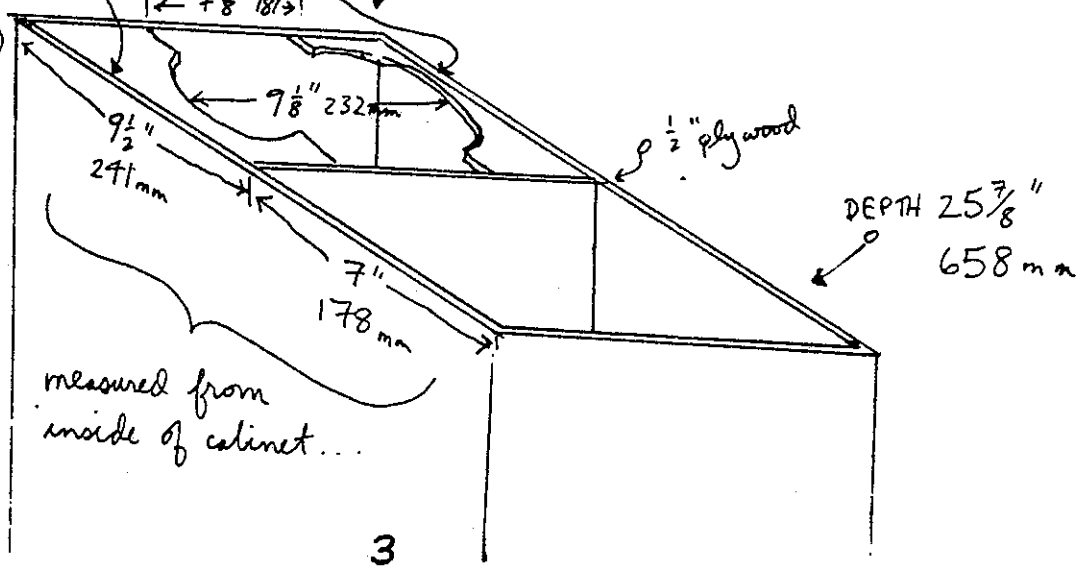
FRAMES MADE OF 1×2's
(3/4" 19mm × 1 1/2" 38 mm PINE STRIPS)

CLOSE UP OF SLENDRO 5 RESONATING CABINET

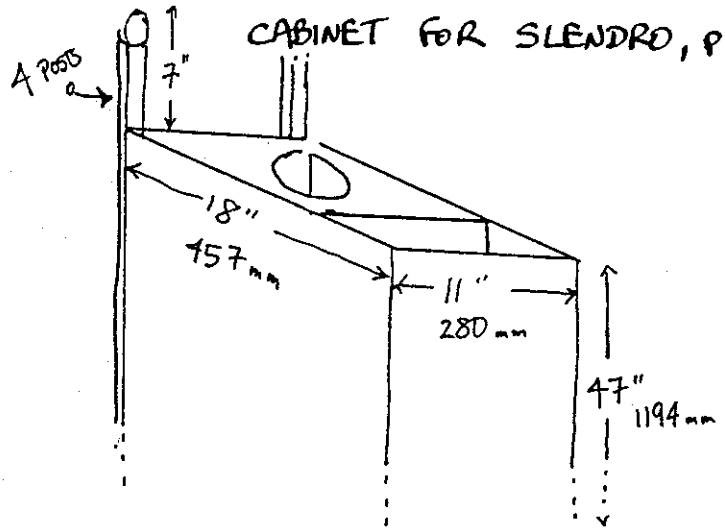
PLACE WEDGES OF INDUSTRIAL FOAM RUBBER ALONG THESE RIMS TO CUSHION THE GONG SLAB FRAMES

DEPTH 46 1/2" 1181 mm

CABINET MADE OF 1/2" PLY WOOD (13mm)
POSTS ARE MADE FROM PINE 2×2's (LIT. 1 5/8" 41 mm SQUARE).



CABINET FOR SLENDRO, PELOG (6)



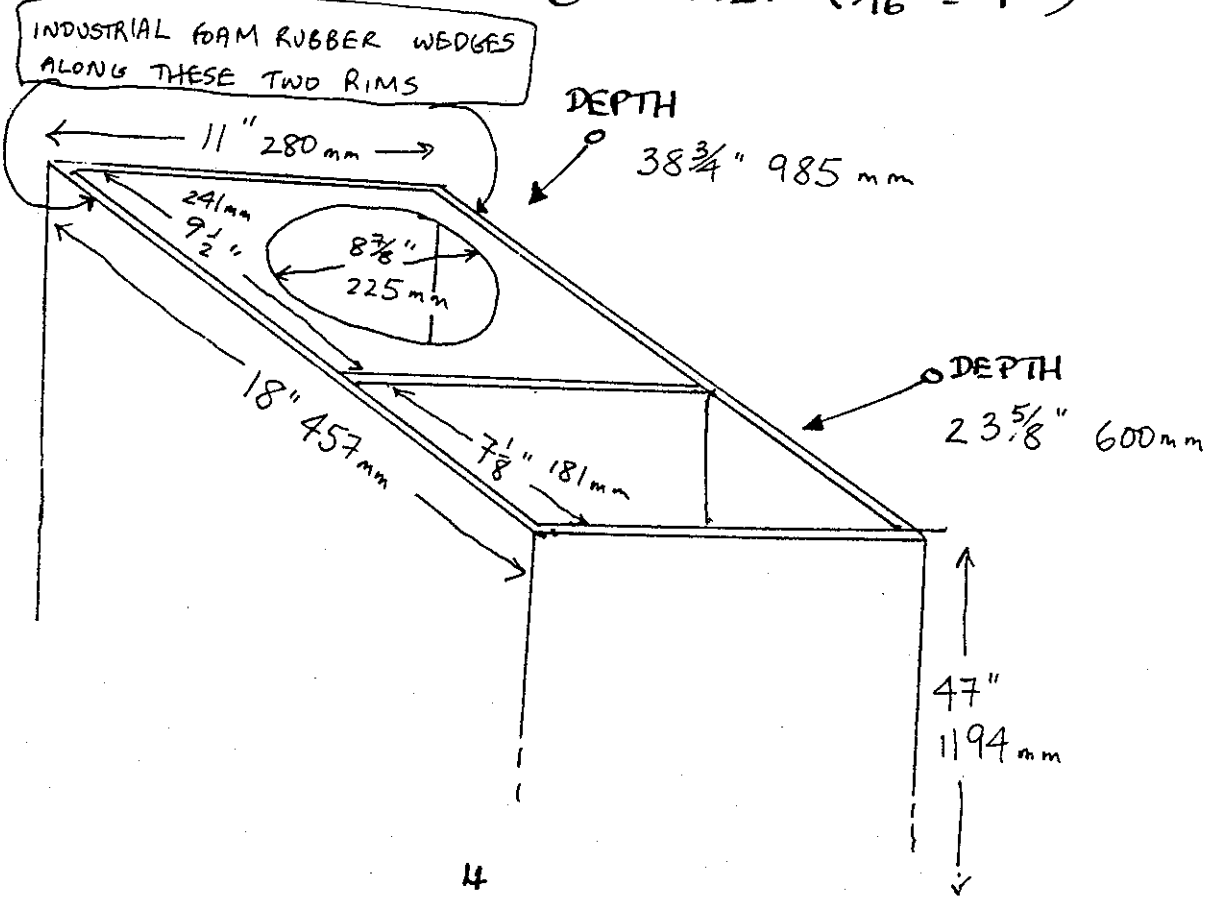
FRAME FOR GONG SLABS SAME AS SLENDRO (5).

3/32 = 1"

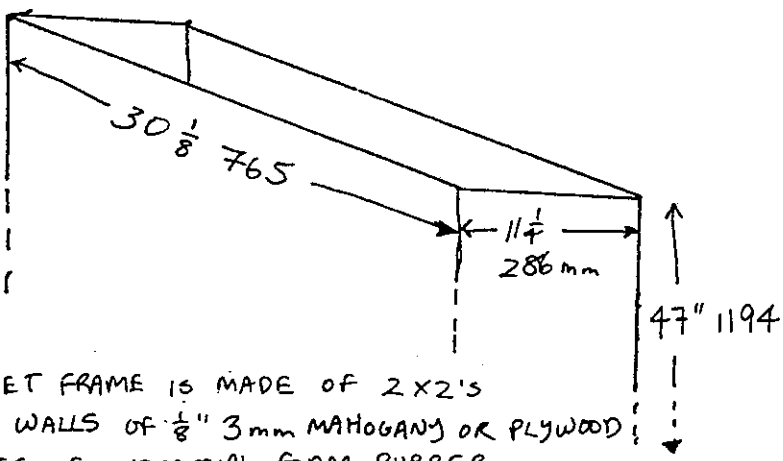
4 POSTS & CARRYING HANDLES LIKE SLENDRO (5)

CABINET MADE OF 1/2" 13 mm PLYWOOD WITH 4 2x2 POSTS (LIKE SLENDRO (5))

CLOSE UP OF SLENDRO, PELOG (6) CABINET (3/16" = 1")



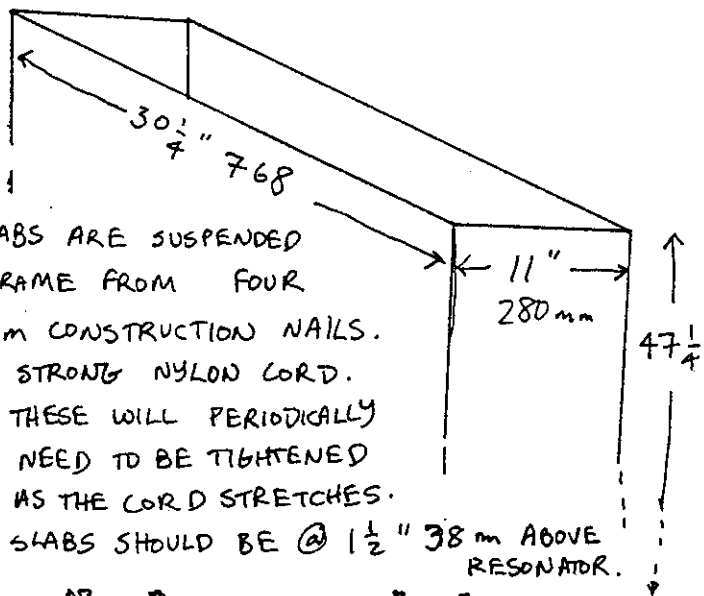
RESONATING CABINET FOR PELOG 7 & 3



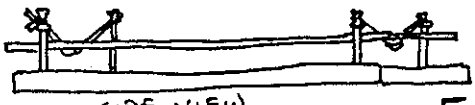
3/32" = 1"

CABINET FRAME IS MADE OF 2X2'S WITH WALLS OF 1/8" 3mm MAHOGANY OR PLYWOOD. WEDGES OF INDUSTRIAL FOAM RUBBER SHOULD RUN LENGTHWISE ALONG THE TOPS OF THE TWO LONG SIDES TO CUSHION THE GONG SLAB FRAMES AND KEEP THEM FROM RATTLING.

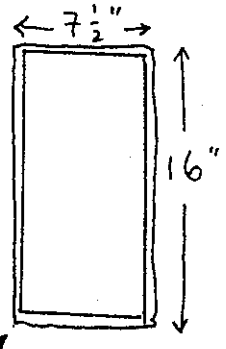
RESONATING CABINET FOR PELOG 1 & 2



GONG SLABS ARE SUSPENDED ON THE FRAME FROM FOUR 4" 102 mm CONSTRUCTION NAILS. USE GOOD STRONG NYLON CORD. THESE WILL PERIODICALLY NEED TO BE TIGHTENED AS THE CORD STRETCHES. SLABS SHOULD BE @ 1 1/2" 38 mm ABOVE RESONATOR.



SIDE VIEW



BASIC FRAME FOR GONG SLABS 1S, 3S, 3S, 1P, 2P, 3P & 7P 1P, 2P & 7P are 16 1/2" long.

FRAME IS MADE OF 1X2'S WITH A 1/2" 13mm PLYWOOD BASE ONTO WHICH RESONATOR CANS ARE ATTACHED.

PELOG KEMPUL

KEY	LENGTH	WIDTH *	RESONATING DEPTH	RESONATING HEIGHT **
2	18 5/16" 465 mm	3 3/4" 96 mm	15 5/8" 397 mm	5" 127 mm
1	18 3/4" 475 mm	3 3/4" 96 mm	18" 457 mm	4 1/2" 109 mm
7	19" 481 mm	4" 101 mm	20" 508 mm	4 1/8" 105 mm
6	18 5/16" 465 mm	4 1/16" 103 mm	20 5/8" 524 mm	4 1/8" 105 mm
5	19 1/4" 488 mm	4" 101 mm	23 3/4" 603 mm	4 3/4" 121 mm
4	19" 481 mm	4" 101 mm	27" 686 mm	4 3/8" 111 mm
3	20 1/2" 520 mm	4" 101 mm	33 1/4" 845 mm	4 3/8" 111 mm

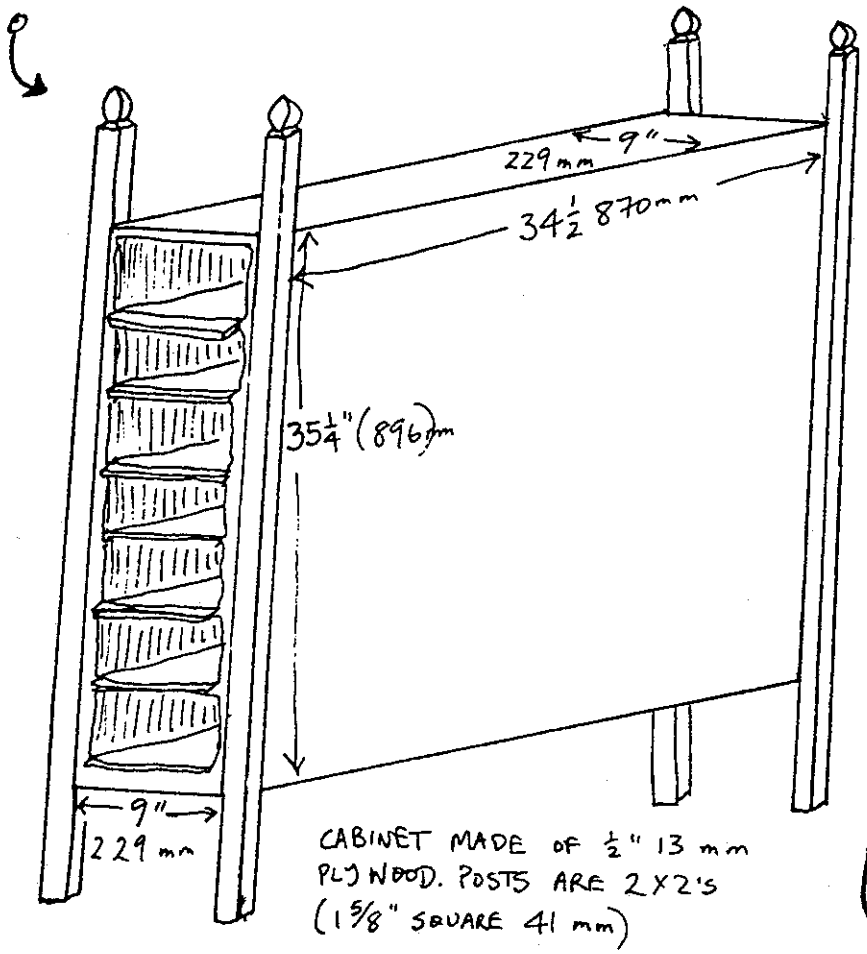
* ALL KEYS 1/2" (6mm) thick. ** ALL RESONATING CHAMBERS 8"/203 mm WIDE.

2P HAS A 1 7/8" x 8" (48 mm x 203 m) PIECE OF 1/8" 3mm PLYWOOD BLOCKING THE HOLE.

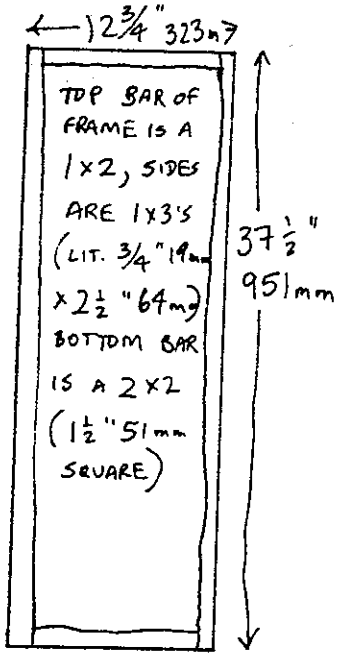
1P HAS A 2 1/4" x 8" (57mm x 203) " " " " " " " " .

ALL RESONATING CHAMBERS ARE SEPARATED BY 1/2" PLYWOOD. ALL THESE PIECES STICK OUT 1/2" EXCEPT THE TOP AND BOTTOM OF THE CABINET.

KEMPUL CABINET



CABINET MADE OF 1/2" 13 mm PLYWOOD. POSTS ARE 2X2's (1 5/8" SQUARE 41 mm)



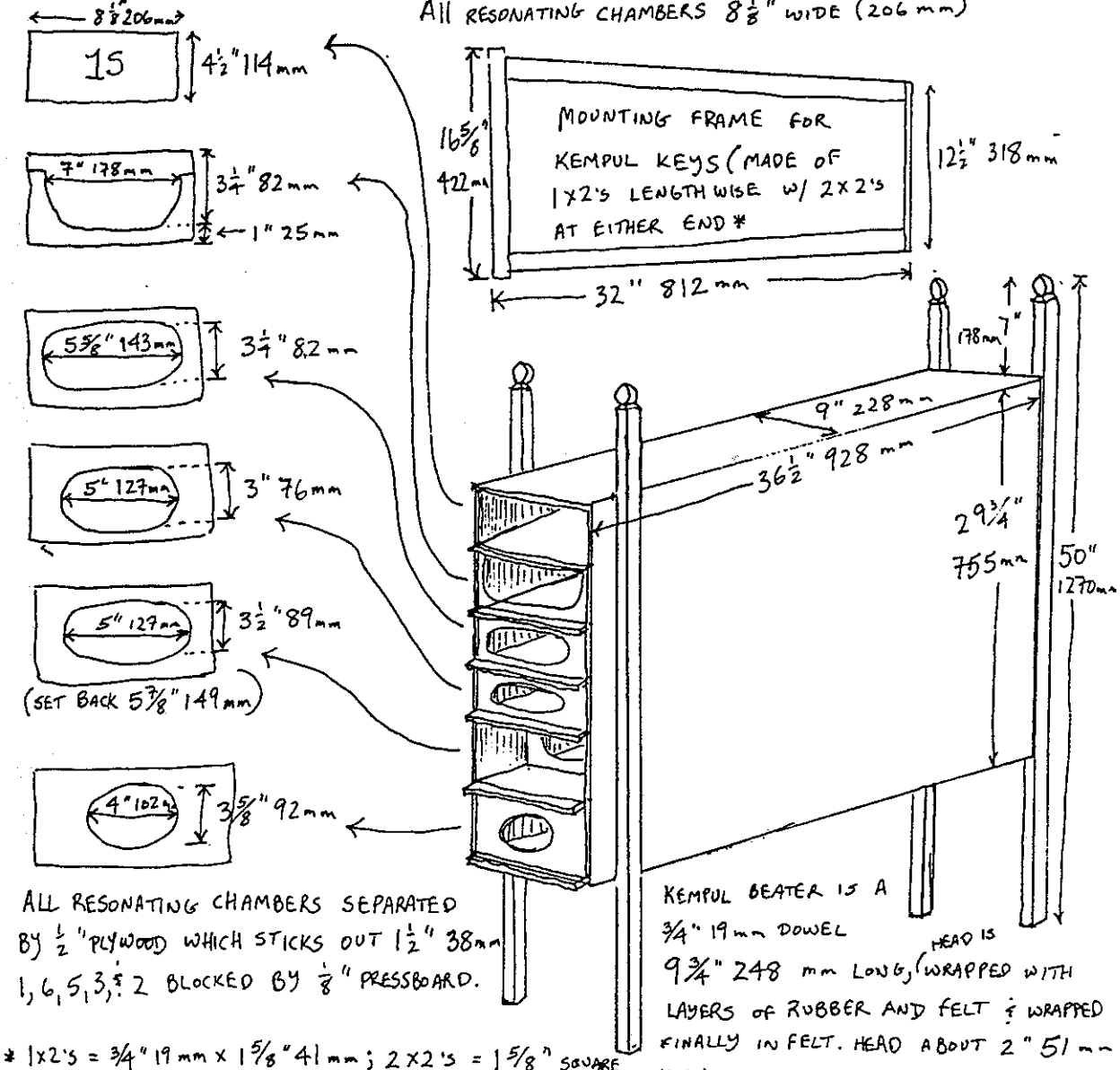
FRAME FOR KEYS

3/32" = 1"

SLENDRO KEMPUL

KEY	LENGTH	WIDTH	RESONATING DEPTH	RES. HEIGHT
2	18 5/8" 473 mm	3 3/4" 95 mm	18" 460 mm	4 1/2" 114 mm
1	18 7/8" 479 mm	4" 102 mm	20" 508 mm	4 3/8" 111 mm
6	20 1/2" 521 mm	"	23 1/4" 591 mm	4 1/2" 114 mm
5	20 3/4" 528 mm	"	27" 686 mm	4 3/8" 111 mm
3	23 7/8" 606 mm	"	32 1/2" 825 mm	"
2	24 13/16" 630 mm	"	36" 914 mm	"

All resonating chambers 8 1/8" wide (206 mm)



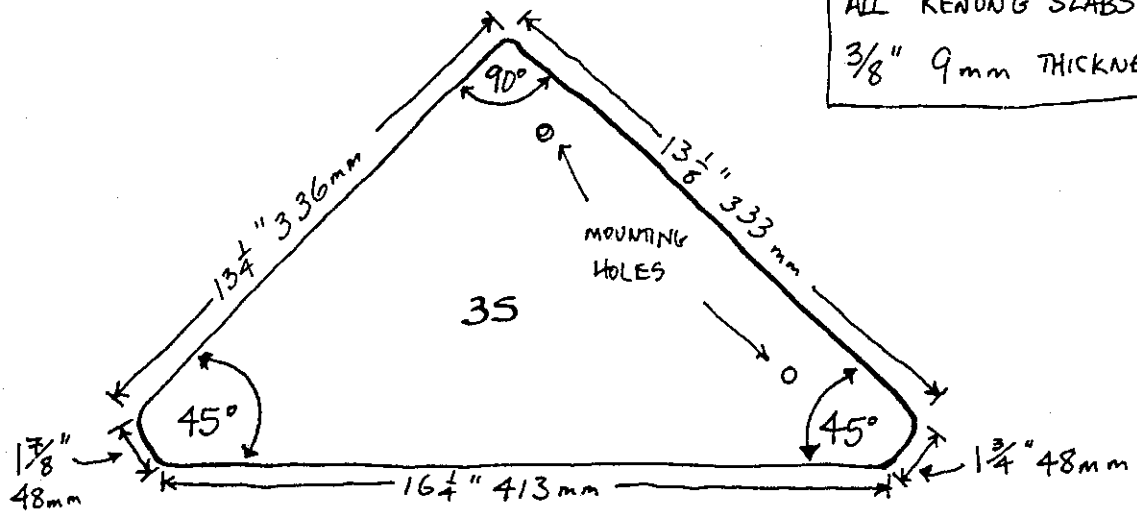
All resonating chambers separated by 1/2" plywood which sticks out 1 1/2" 38 mm 1, 6, 5, 3, & 2 blocked by 1/8" pressboard.

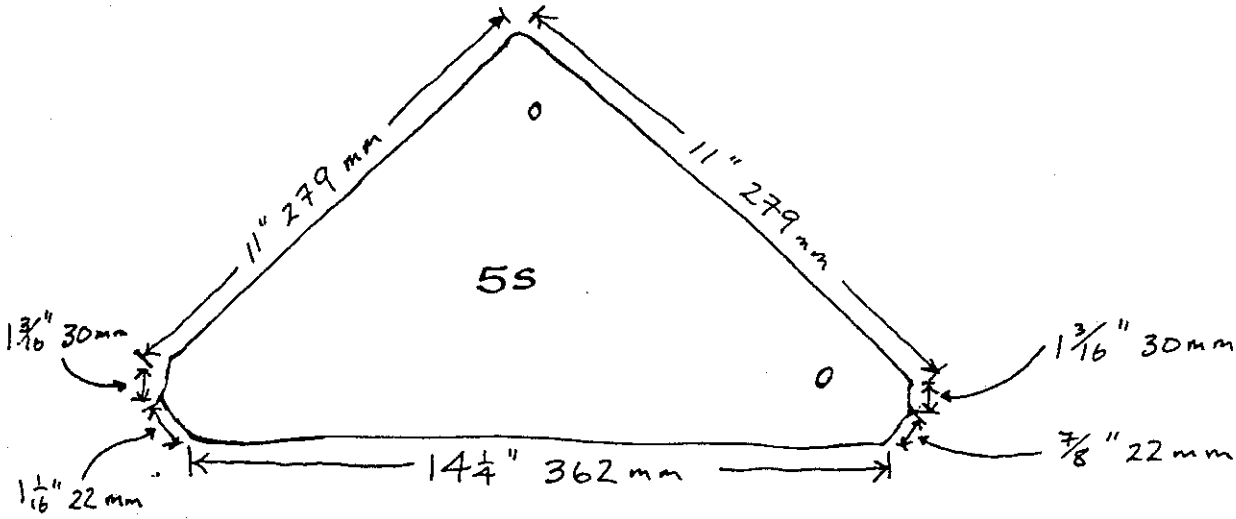
Kempul beater is a 3/4" 19 mm dowel 9 3/4" 248 mm long, head is wrapped with layers of rubber and felt & wrapped finally in felt. Head about 2" 51 mm high with the same diameter.

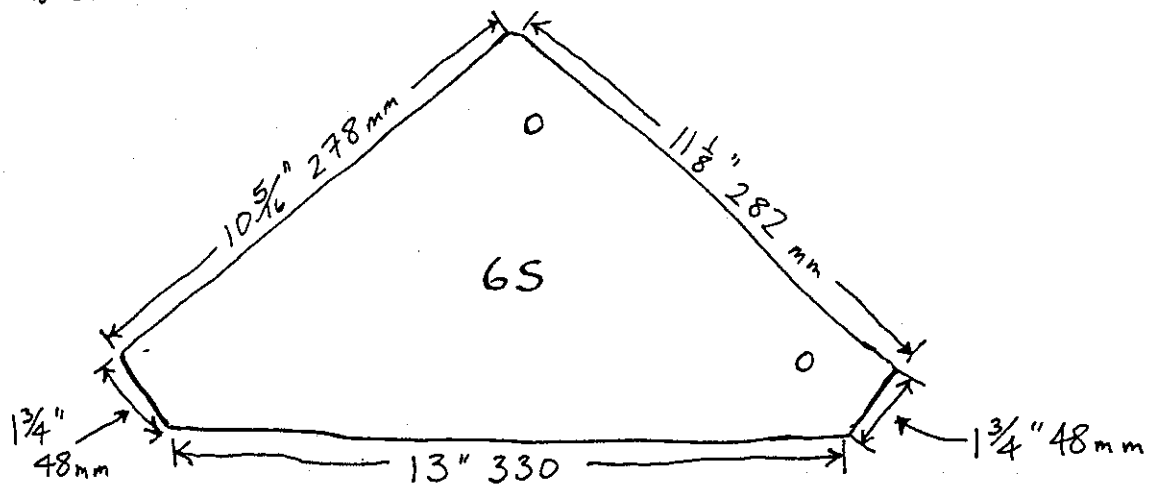
* 1x2's = 3/4" 19 mm x 1 5/8" 41 mm; 2x2's = 1 5/8" square

SLENDRO KENONG TRIANGLES

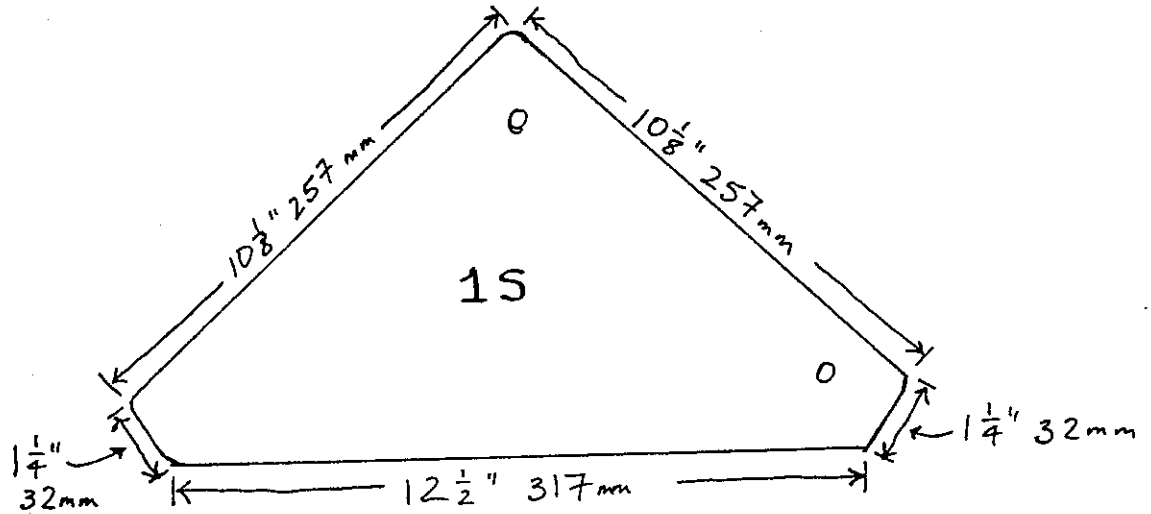
ALL KENONG SLABS
3/8" 9mm THICKNESS

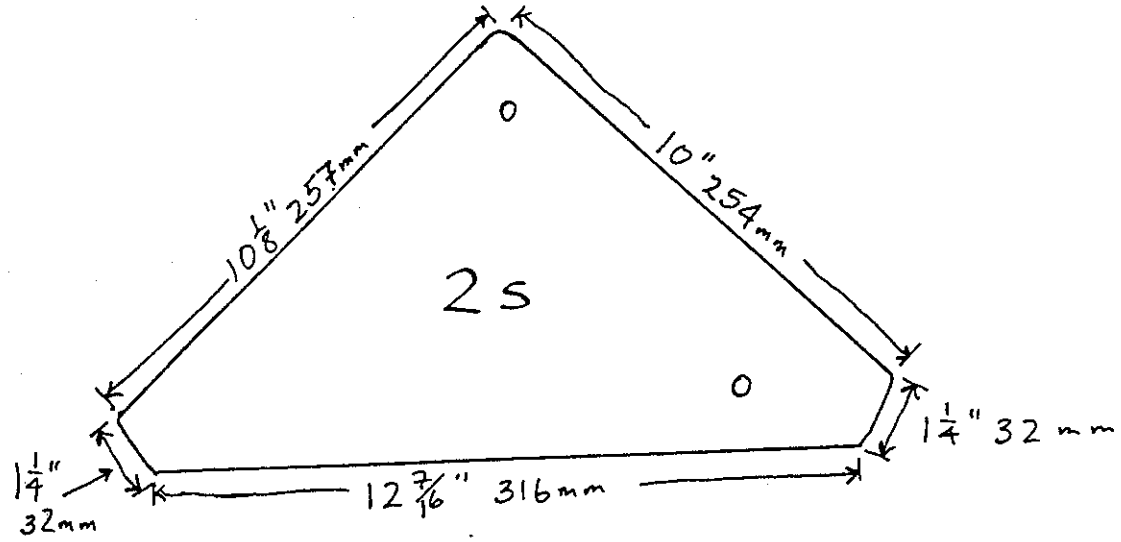




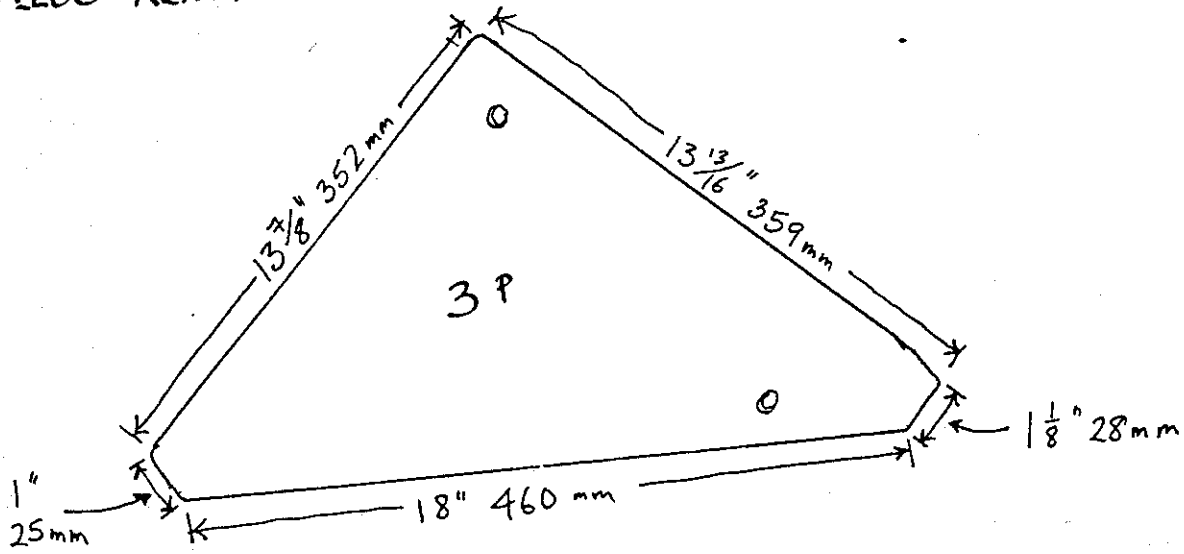


SLENDRO KENONG

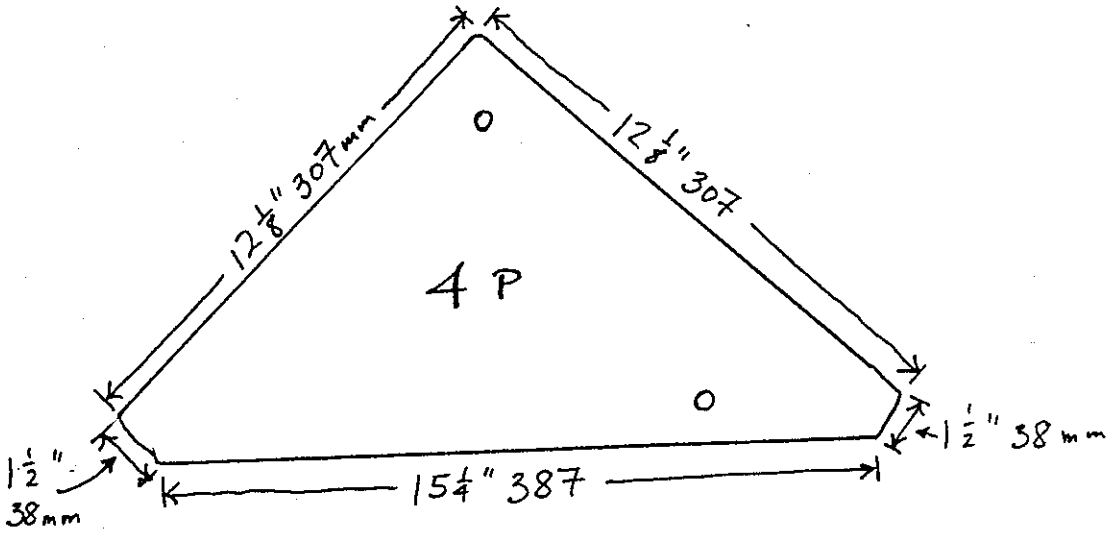


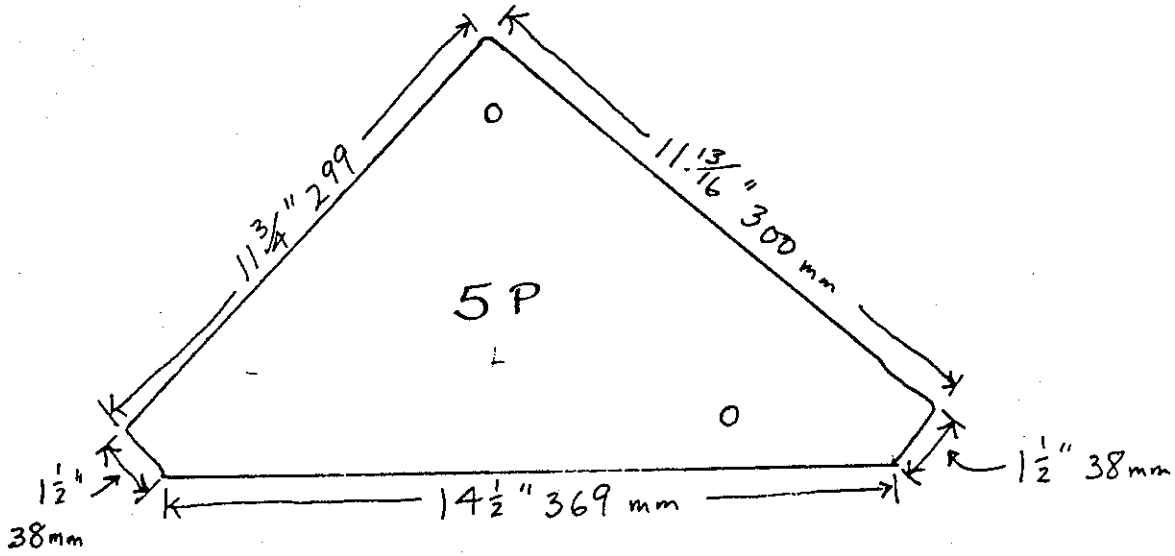


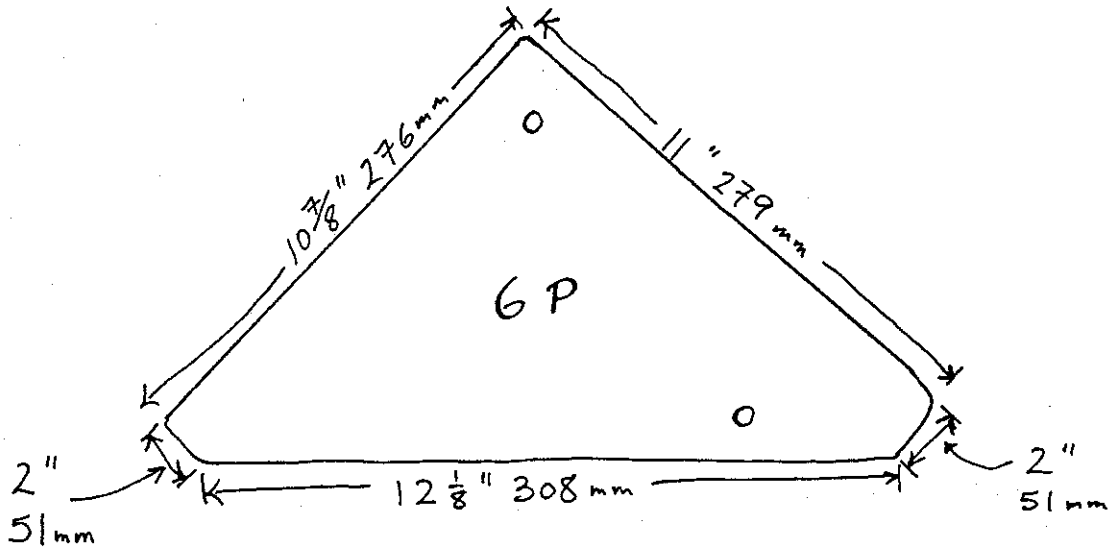
PELOG KENONG



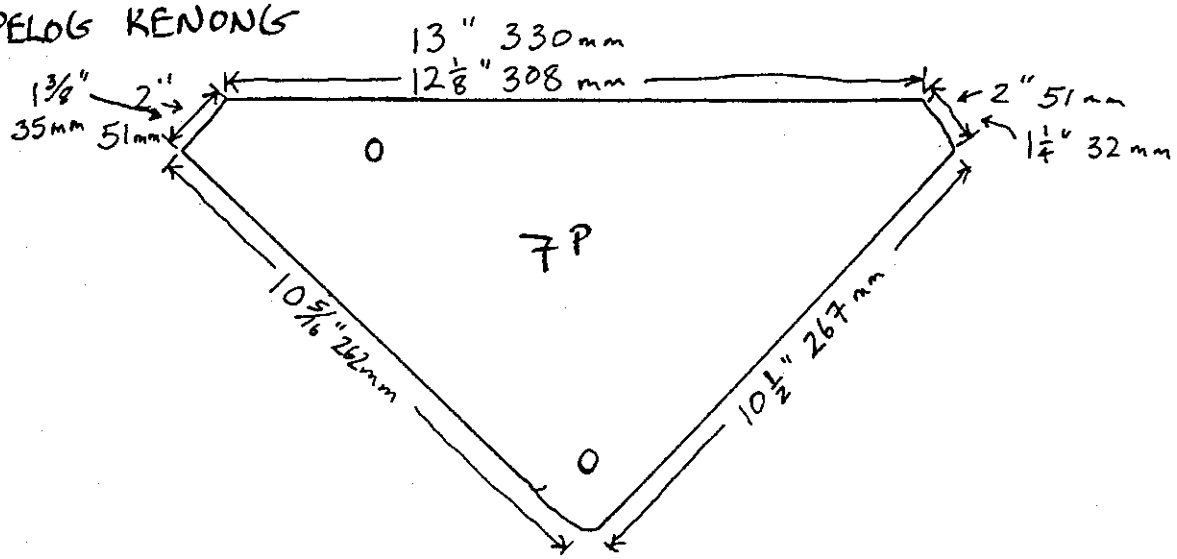
PELOG KENONG

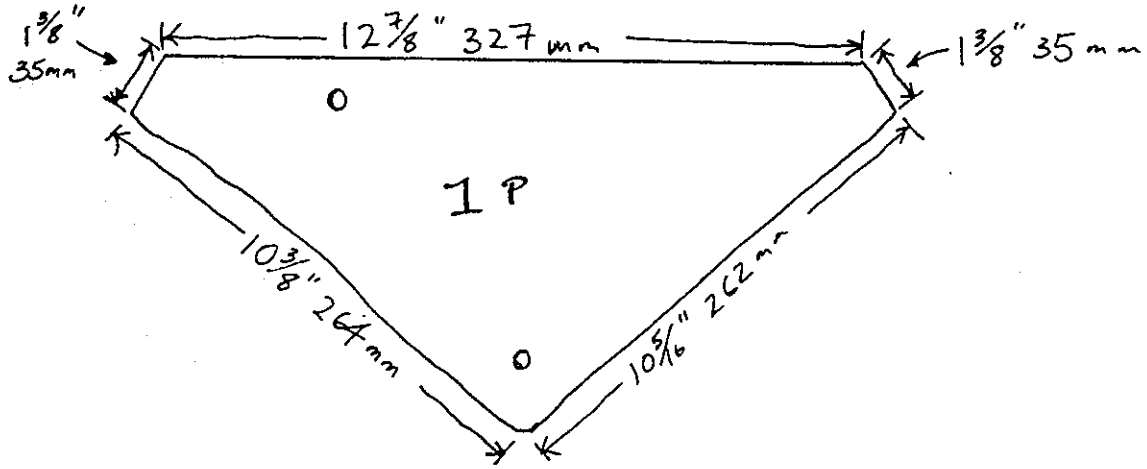


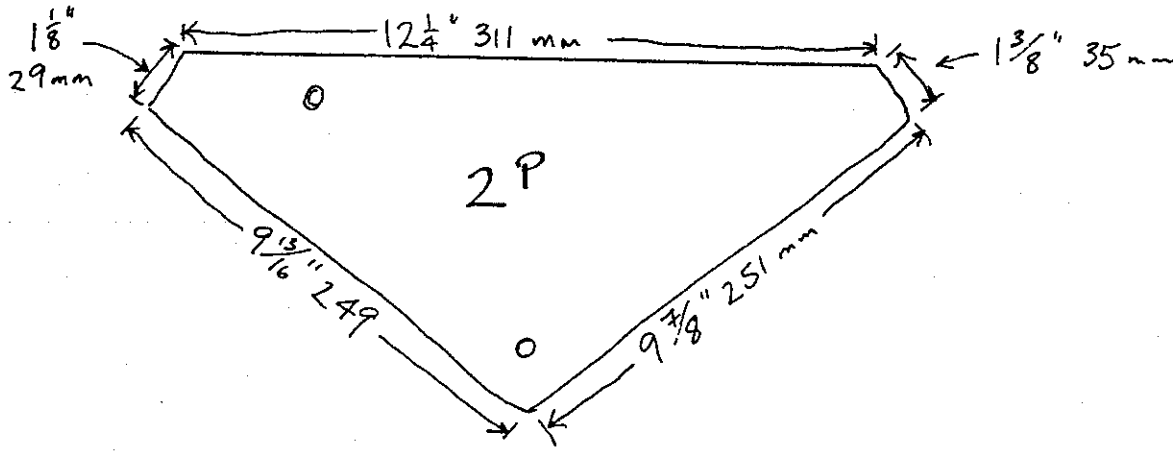




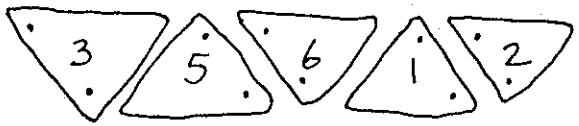
PELOG KENONG



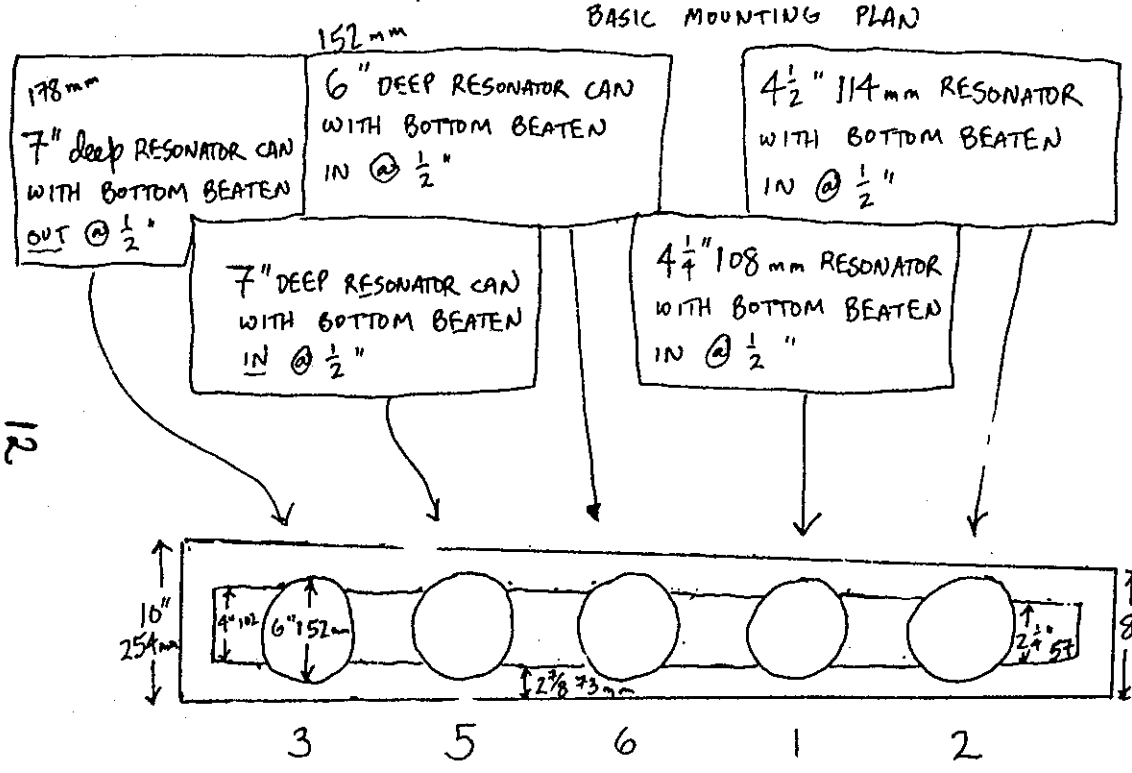


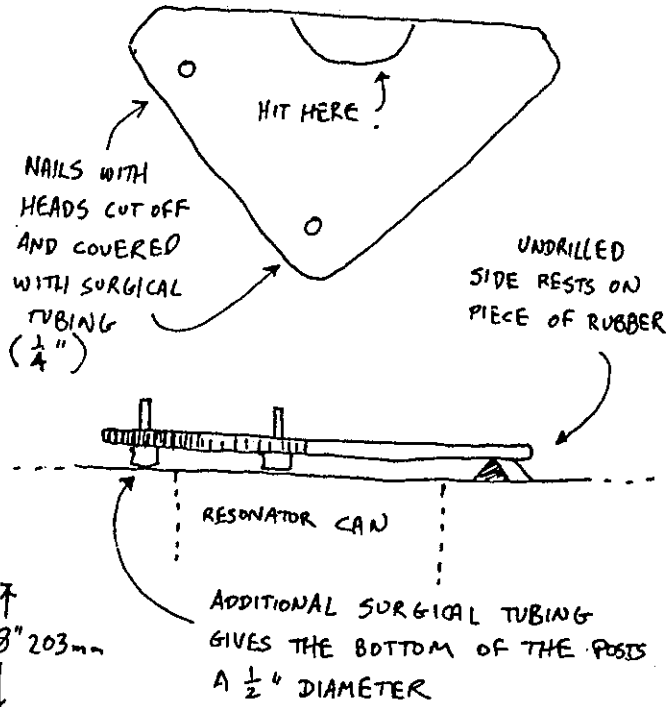


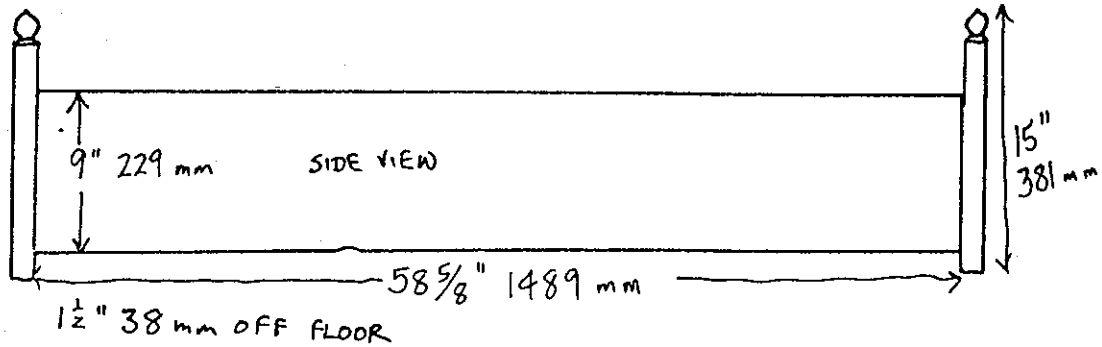
SLENDRO KENONG

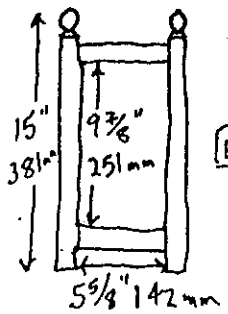


BASIC MOUNTING PLAN







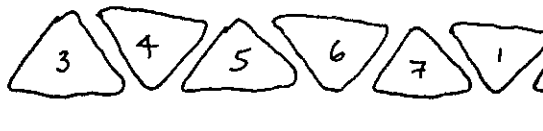


END PIECE (2)
MADE OF 2X2's

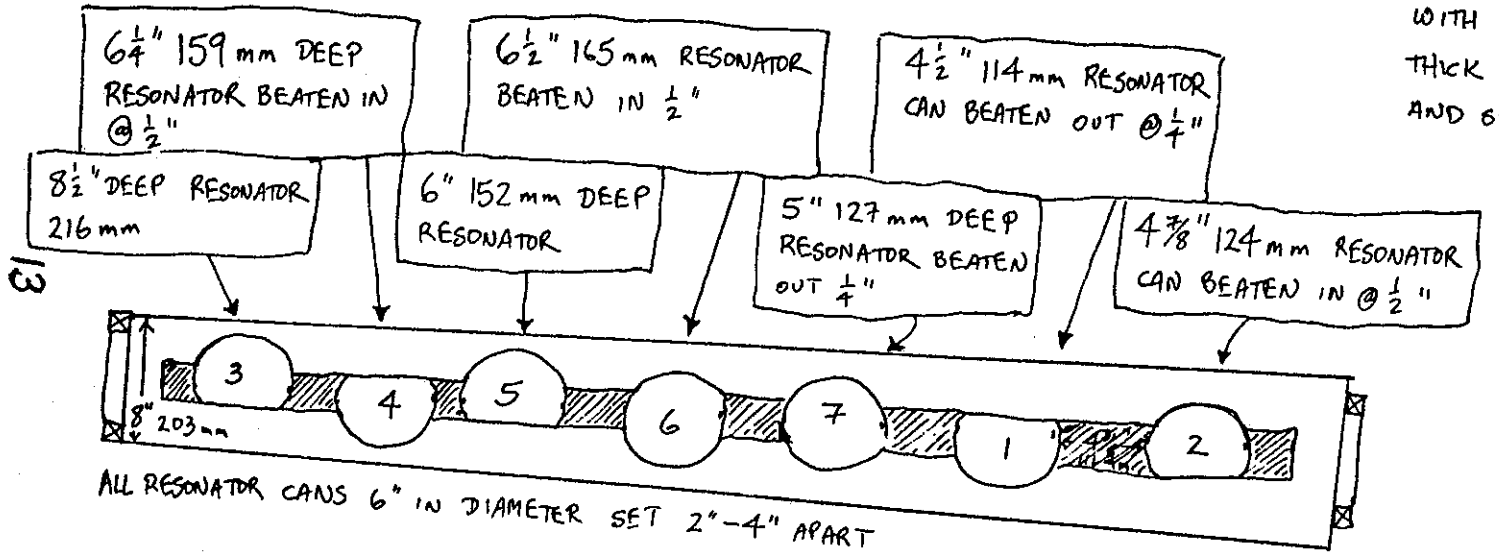
PELOG KENONG

BOTH KENONGAN ARE MADE OF ½" 13mm PLYWOOD, WITH THE BOTTOM OF ⅛ 3/8" 9mm PRESSBOARD OR PLYWOOD: THE RIMS ARE MADE OF 1x3's (¾" 19mm x 2¾" 70mm PINE STRIPS). THE END PIECES ARE 2x2's.

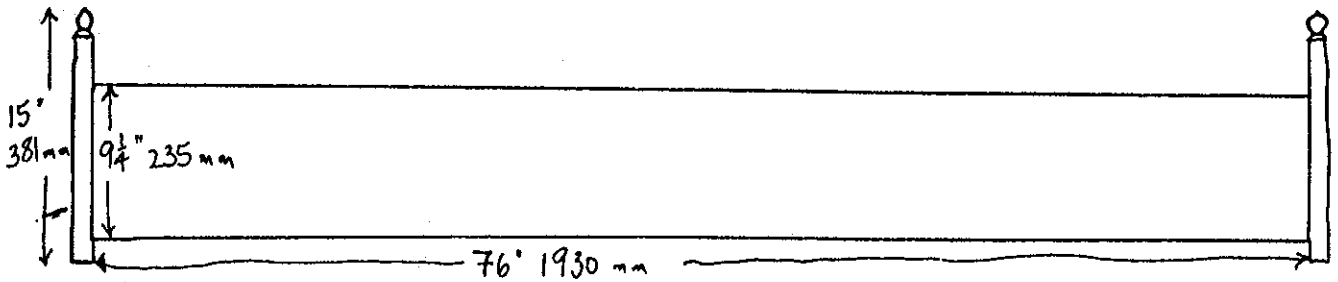
THE KENONG BEATER HAS AN 11¾" 298mm X ½" 13mm HANDLE WITH A HEAD 6" 152mm IN DIAMETER OF ¾" 19mm PLYWOOD. THIS IS WRAPPED WITH 2 LAYERS OF ⅛" 3mm THICK FELT WHICH IS GLUED AND SEWN.



BASIC MOUNTING SCHEME

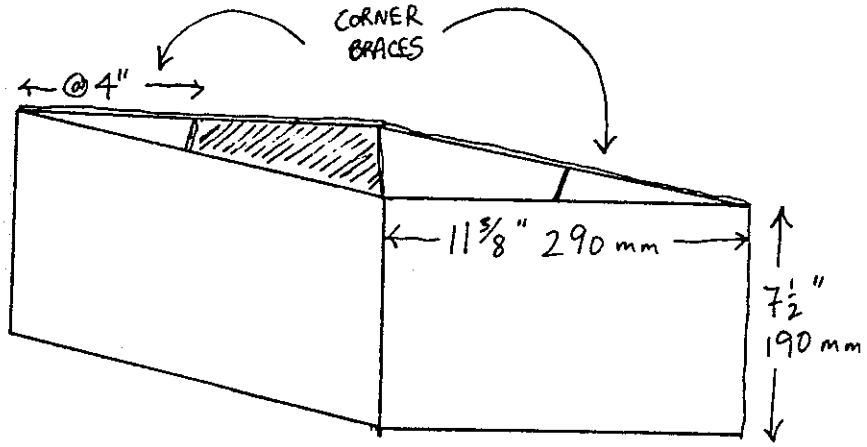


ALL RESONATOR CANS 6" IN DIAMETER SET 2"-4" APART



END PIECES SAME AS SLENDRO KENONG

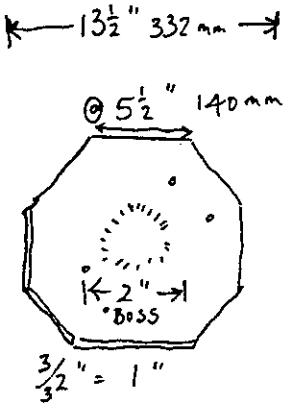
SLENDRO & PELOG KETUKS



PELOG KETUK RESONATOR

3/16" = 1"

PELOG KETUK IS PITCH 6



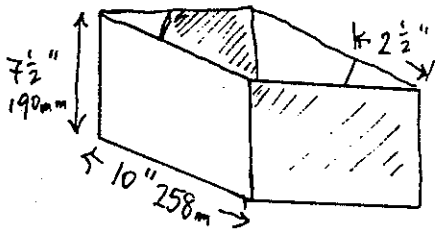
REJECT BONANG PLATE USED FOR KETUK

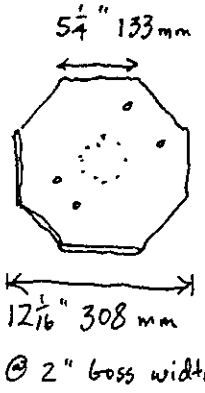
BOTH KETUK PLATES 1/8" ALUMINUM @ 3 mm

KETUK RESONATORS MADE OF 1/2" 13 mm PLYWOOD. THE BEATER IS A 8 1/2" 216 mm X 3/4 19 mm WOODEN DOWEL WITH COTTON ROPE WRAPPED AND GLUED AROUND THE END FOR 3 1/2" 89 mm.

SLENDRO KETUK RESONATOR

3/32" = 1"

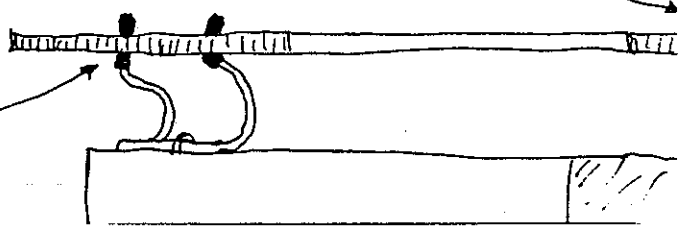




SLENDRO KETUK IS PITCH 2

PLATES ARE MOUNTED ON WIRES ATTACHED TO THE TWO CORNER BRACES. THIS METHOD TENDS TO GIVE YOU A RATTLING PROBLEM. IT MAY BE BETTER TO SUSPEND THE KETUK FROM DOWELS.

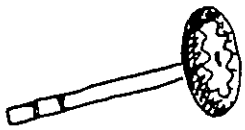
INDUSTRIAL RUBBER TUBING COVERS THE WIRES



PELOG DEMUNG

KEY	LENGTH		WIDTH		THICKNESS
5	15¼"	388 mm	3 3/16"	80 mm	¼" 6 mm
6	14½"	375 mm	3 5/16"	84 mm	"
7	14 1/16"	360 mm	3¼"	83 mm	"
1	13 13/16"	351 mm	3¼"	"	"
2	13¼"	337 mm	3¼"	"	"
3	12 13/16"	325 mm	3¼"	"	"
4	12 5/16"	313 mm	3¼"	"	"
5	11 15/16"	303 mm	3¼"	"	"
6	11 9/16"	293 mm	3 3/16"	82 mm	"
7	11⅛"	284 mm	3 3/16"	"	"
i	10 13/16"	275 mm	3 3/16"	"	3/8" 9 mm
2	10 7/16"	265 mm	3¼"	83 mm	"
3	9 15/16"	252 mm	"	"	"
4	9½"	240 mm	"	"	"
5	9"	228 mm	"	"	"

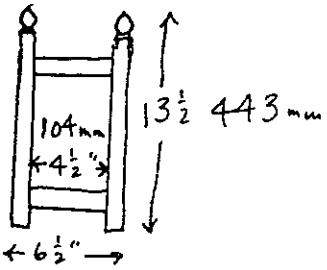
CABINET IS OF ¼" 6mm PLYWOOD WITH A RIM OF 1X2 PINE STRIPS (LIT. ¾" x 1½"). END POSTS ARE 2X2's. DEMUNG BEATER HAS A 8½" 216 mm HANDLE TOOLED OUT OF ¾" 19 mm DOWEL. THE HEAD IS ½" 13 mm THICK AND 3½" 89 mm IN DIAMETER. RUBBER TUBING FROM MOTORCYCLE TIRES IS WRAPPED AROUND THE RIM, AND THIS IS COVERED BY TWO LAYERS OF FELT STAPLED ON.



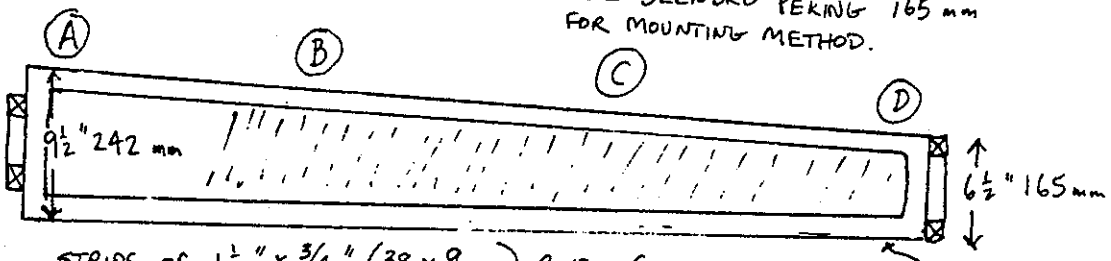
APPROXIMATE DEPTHS AT
(A): 7⅜" 182 mm
(B): " "
(C): 5¾" 146 mm
(D): 2¾" 70 mm

TROUGH RESONATOR SHOULD BE ADJUSTED FOR BEST RESONANCE. HERE ARE SAMPLE DEPTHS. USE ⅛" 3mm HARDBOARD FOR THIS. (SEAL TIGHTLY!)

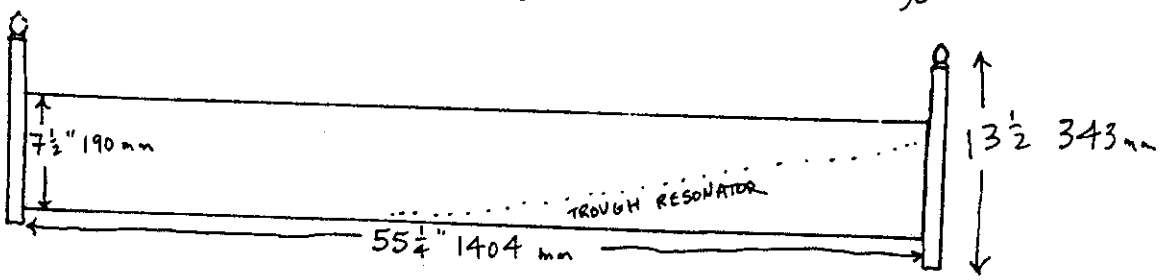
END PIECES:



KEYS ARE SPACED ¼" 6mm APART. SEE SLENDRO PEKING FOR MOUNTING METHOD.



STRIPS OF 1½" x ¾" (38 x 9 mm) PINE FOR MOUNTING KEYS

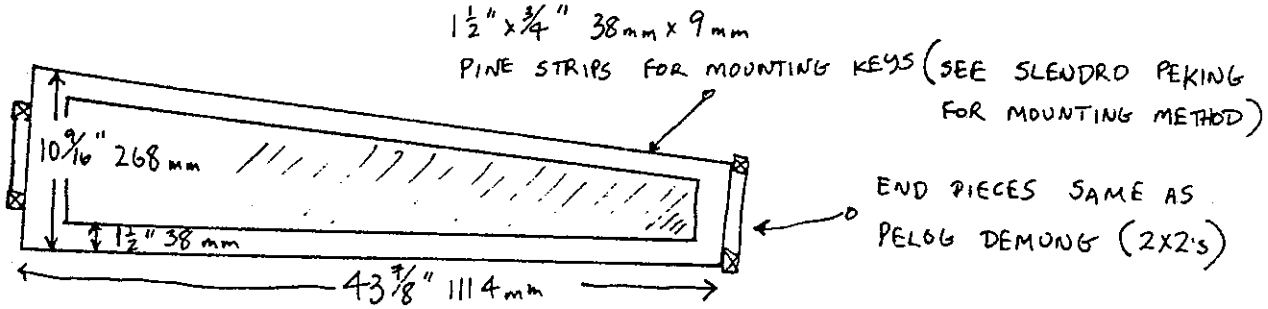


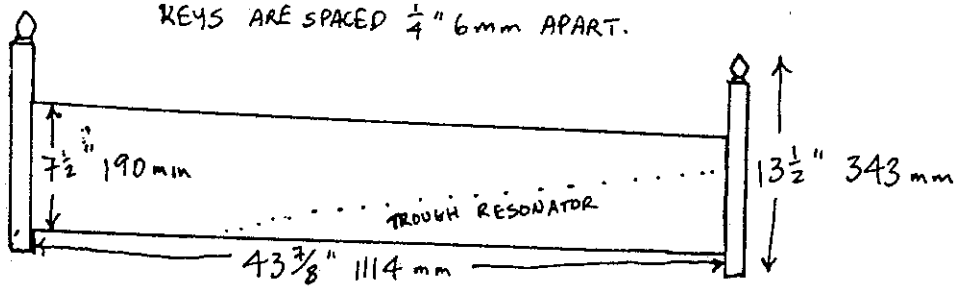
SLENDRO DEMUNG

KEY	LENGTH	WIDTH	THICKNESS
5	$16\frac{1}{32}$" 408mm	$3\frac{1}{2}$" 90mm	$\frac{1}{4}$" 6mm
6	$15\frac{3}{8}$" 390mm	" "	" "
1	$14\frac{3}{4}$" 375mm	" "	$\frac{5}{16}$" 7-8mm
2	$14\frac{1}{8}$" 358mm	" "	" "
3	$13\frac{1}{2}$" 344mm	" "	" "
5	$12\frac{7}{8}$" 327mm	" "	" "
6	$12\frac{1}{4}$" 311mm	" "	" "
1	$11\frac{1}{2}$" 293mm	" "	$\frac{3}{8}$" 9mm
2	$10\frac{5}{8}$" 270mm	" "	" "
3	$9\frac{15}{16}$" 253mm	" "	" "
5	$9\frac{3}{8}$" 238mm	" "	" "

CABINET & BEATER SAME AS PELOG DEMUNG.
CABINET USES $\frac{1}{2}$" 13 mm PLYWOOD WITH 2X2 END PIECES. 1X2'S ARE USED FOR RIM.

TROUGH RESONATOR
DEPTH TAPERS UP FROM $7\frac{1}{2}$" 190mm
TO $2\frac{3}{4}$" 70 mm (USE $\frac{1}{8}$" 3mm HARDBOARD)



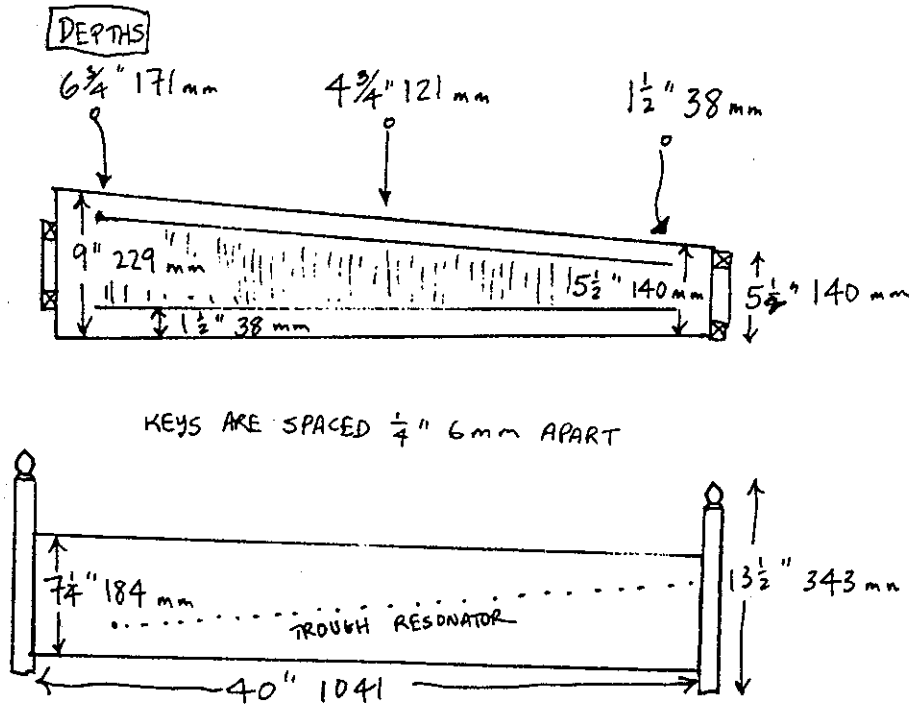


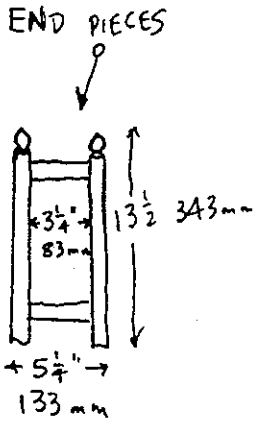
PELOG SARON

KEY	LENGTH		WIDTH		THICKNESS	
5	13 11/16"	348 mm	2 1/4"	57 mm	3/8"	9 mm
6	12 15/16"	329 mm	"	"	"	"
7	12 13/16"	310 mm	"	"	"	"
1	11 5/8"	294 mm	"	"	"	"
2	11"	280 mm	"	"	"	"
3	10 1/2"	268 mm	"	"	"	"
4	10"	258 mm	"	"	"	"
5	9 7/8"	251 mm	"	"	1/2"	13 mm
6	9 9/16"	243 mm	"	"	"	"
7	9 1/4"	235 mm	"	"	"	"
1	8 15/16"	224 mm	"	"	"	"
2	8 5/8"	219 mm	"	"	"	"
3	8 1/4"	210 mm	"	"	"	"
4	7 15/16"	198 mm	"	"	"	"
5	7 1/2"	191 mm	"	"	"	"

CABINET MADE OF 1/2" 13 MM PLYWOOD. END POSTS ARE 2X2'S. SARON HAS TROUGH RESONATOR LIKE DEMUNG, WHICH SHOULD BE ADJUSTED FOR BEST RESONANCE. 1/8" 3mm HARD-BOARD IS USED FOR THIS, SEALED TIGHTLY. KEYS ARE SPACED 1/4" 6mm APART. SEE SLENDRO PEKING FOR MOUNTING METHOD.

SARON BEATER IS 8" 203 mm LONG TOOLED OUT OF 3/4" 19mm DOWEL. THE HEAD IS 1/2" 13mm THICK AND 3" 76mm IN DIAMETER. THIS IS COVERED BY A LAYER OF MOTORCYCLE INNER TUBE RUBBER AROUND THE RIM AND ONE LAYER OF FELT STAPLED ON.

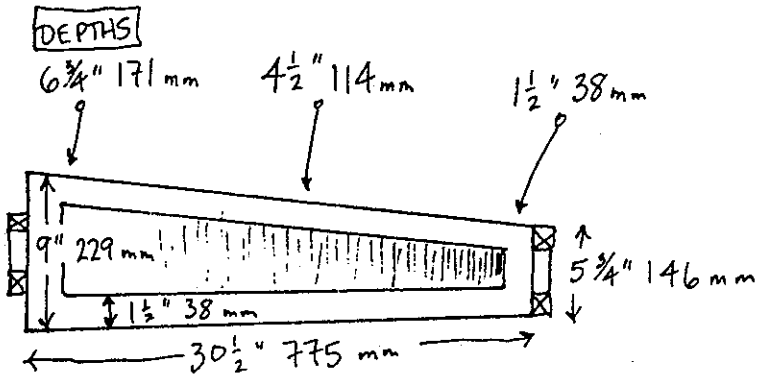




SLENDRO SARON

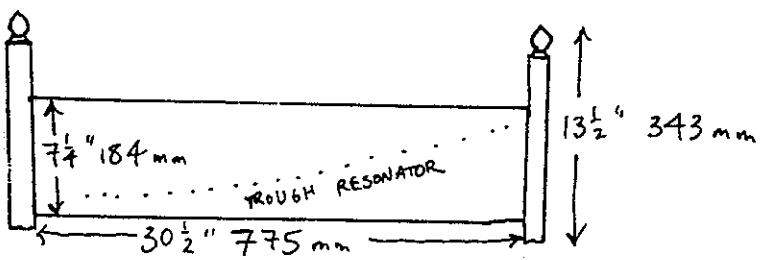
KEY	LENGTH	WIDTH	THICKNESS
5	13¼" 332 mm	2¼" 57 mm	⅜" 10 mm
6	12¼" 311 mm	" "	" "
1	11½" 292 mm	" "	" "
2	10¾" 273 mm	" "	" "
3	10 1/16" 256 mm	" "	" "
5	9 3/16" 240 mm	" "	" "
6	8 15/16" 228 mm	" "	" "
1	8⅜" 213 mm	" "	½" 13 mm
2	7 15/16" 198 mm	" "	" "
3	7 9/16" 193 mm	" "	" "
5	7 1/16" 180 mm	" "	" "

CABINET WOODS AND BEATER SAME AS PELOG SARON.



SAME END PIECES AS PELOG SARON

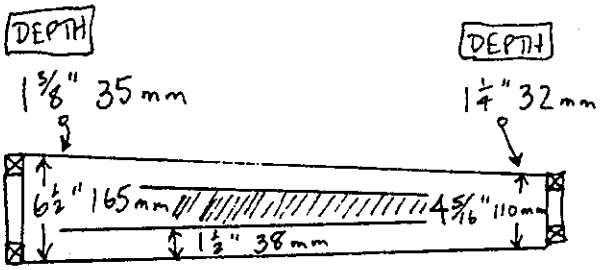
KEYS ARE SPACED ¼" 6mm APART



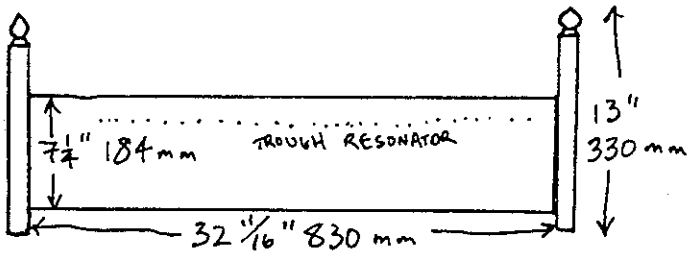
PELOG PEKING

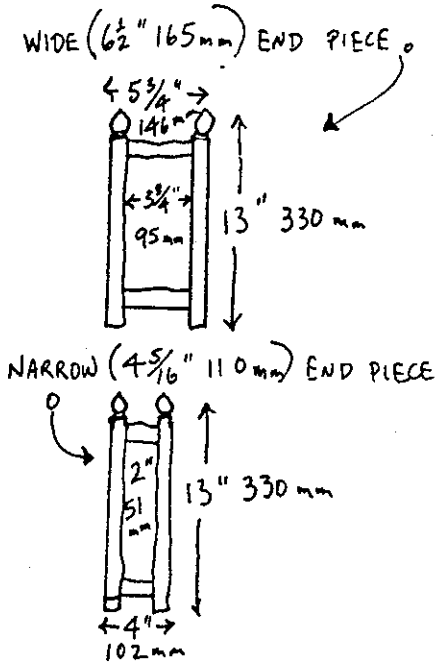
KEY	LENGTH		WIDTH		THICKNESS	
5	9 3/16"	233mm	1 9/16"	40mm	3/8"	10mm
6	8 11/16"	220mm	1 3/4"	45mm	"	"
7	8 1/2"	215mm	"	"	"	"
1	8 1/4"	209mm	"	"	"	"
2	7 7/8"	201mm	"	"	"	"
3	7 7/16"	189mm	"	"	"	"
4	7 7/16"	189mm	"	"	1/2"	12mm
5	7 1/4"	183mm	"	"	"	"
6	7 1/32"	179mm	"	"	"	"
7	6 13/16"	172mm	"	"	"	"
1	6 5/8"	169mm	"	"	"	"
2	6 7/16"	162mm	"	"	"	"
3	6 1/4"	158mm	"	"	"	"
4	6"	153mm	1 7/8"	40mm	5/8"	15mm
5	5 7/8"	198mm	1 3/4"	45mm	"	"

CABINET MADE OF 1/2" 13mm PLYWOOD. END POSTS ARE 2X2'S. TROUGH RESONATOR FOR PEKING IS VERY SHALLOW, AND AGAIN 1/8" 3MM HARD-BOARD IS USED, TIGHTLY SEALED. THE BEATER HAS AN 8 1/2" 216mm HANDLE OF 1/2" 13mm DOWEL. THE BEATER HEAD IS AN OVAL PIECE OF PINE, 4" 102mm LONG, 1 1/2" 38mm WIDE AND 3/4" 19mm THICK. IT HAS ONLY A LAYER OF MOTORCYCLE INNER TUBE RUBBER AROUND ITS RIM. THE RIM OF THE CABINET FOR KEY MOUNTING IS 1X2's.



KEYS ARE SPACED 1/4" 6mm APART.



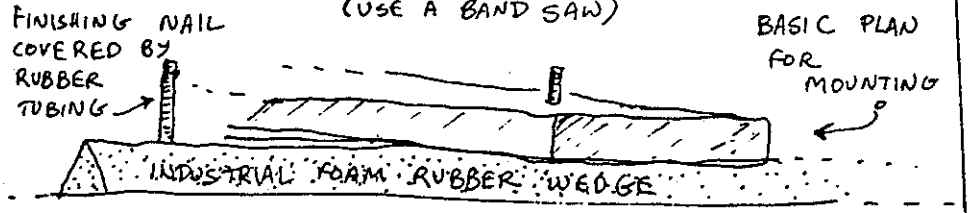


SLENDRO PEKING

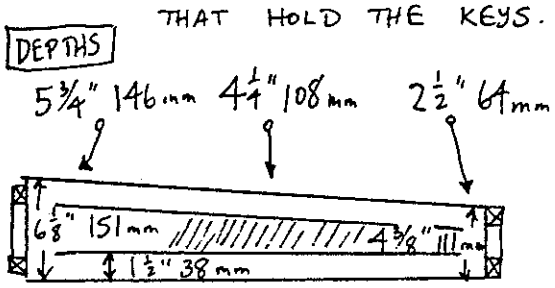
KEY	LENGTH		WIDTH		THICKNESS	
5	8¾"	222 mm	1 13/16"	41 mm	⅜"	10 mm
6	8⅝"	213 mm	1¾"	45 mm	"	"
1	8"	204 mm	"	"	"	"
2	7 11/16"	195 mm	"	"	"	"
3	7 3/16"	188 mm	"	"	"	"
5	7⅛"	182 mm	"	"	½"	13 mm
6	7"	178 mm	"	"	"	"
1	6¾"	172 mm	"	"	"	"
2	6⅝"	169 mm	"	"	"	"
3	6 3/16"	164 mm	"	"	⅝"	15 mm
5	6¼"	159 mm	"	"	"	"

ALL TROUGH RESONATING METALLOPHONES HAVE RIMS OF 1½" x ¾" PINE (@ 38 x 19 mm) AROUND THE TOP FOR MOUNTING THE KEYS. ALONG THESE STRIPS OF WOOD ARE LAID STRIPS OF INDUSTRIAL FOAM RUBBER, I.E. REAL RUBBER, NOT STYROFOAM. WE RECOMMEND THIS FOR ALL KEY SUPPORTS.

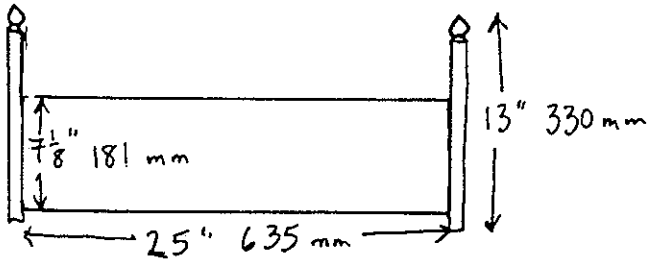
BUY A ¾" SHEET OF INDUSTRIAL FOAM RUBBER & CUT IT INTO ¾" STRIPS. THEN CUT THESE ¾" SQUARE STRIPS AT A 45° ANGLE AND YOU'LL HAVE A PROPER TRIANGULAR WEDGE FOR BASIC KEY SUPPORT. (USE A BAND SAW)

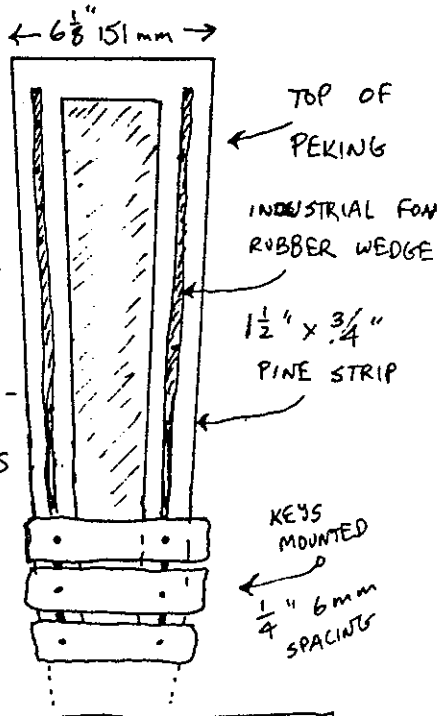


ALSO, WE'VE FOUND THAT REAL RUBBER TUBING IS FAR SUPERIOR TO SURGICAL TUBING FOR COVERING THE NAILS THAT HOLD THE KEYS.



ADJUST TROUGH RESONATOR FOR MAXIMUM RESONANCE





END PIECES SAME AS PELOG PEKING

THE KEY MOUNTING METHOD DESCRIBED ABOVE APPLIES TO PELOG & SLENDRO DEMUNG, SARON & PEKING.

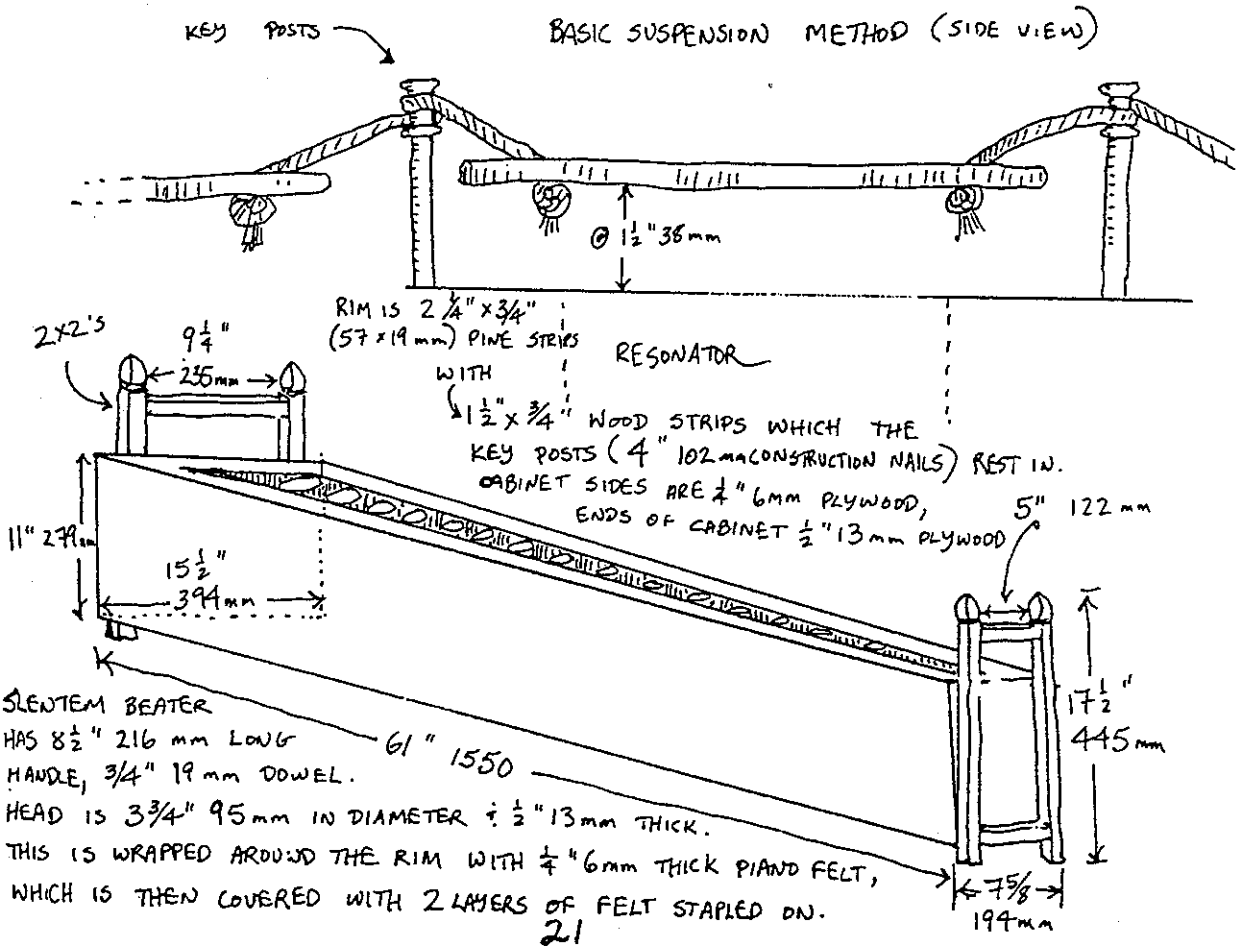
CABINET WOODS SAME AS PELOG PEKING.

PELOG SLENTEM

KEY	LENGTH	WIDTH	THICKNESS	RESONATOR DEPTH	RESONATER DIAMETER
5	18½" 470mm	3 3/16" 81mm	3/16" 5mm	10¾" 273mm	2¾" 70mm
6	17 1/16" 446mm	" "	" "	" "	3½" 89mm
7	16 13/16" 427mm	" "	" "	" "	OVAL 3⅝" x 2¾" 92x70mm
1	16" 410mm	" "	" "	" "	4⅛" x 3⅜" 105x83mm
2	15⅜" 388mm	3 5/16" 84mm	" "	" "	4½" x 3" 114x76mm
3	14¾" 374mm	3⅝" 86mm	" "	10⅜" 264mm	5¼" x 3⅛" 134x80mm
4	14 1/32" 358mm	" "	" "	8¾" 222mm	6⅜" x 3½" 162x89mm
5	13 11/16" 351mm	3 5/32" 80.5mm	" "	2½" 215mm	4⅜" x 3½" 113x89mm
6	13¼" 336mm	3¼" 82mm	" "	7⅜" 188mm	5⅞" x 3½" 148x89mm
7	13" 332mm	3 5/16" 84mm	" "	6⅞" 175mm	3⅝" x 5½" 90x142mm
1	12 11/16" 322mm	3 3/16" 81mm	" "	5⅝" 142mm	5 5/16" x 3½" 135x89mm
2	12 7/16" 316mm	3¼" 82mm	¼" 7mm	5⅛" 130mm	5" x 3⅝" 127x93mm
3	12⅛" 308mm	3 3/16" 81mm	" "	7" 178mm	4¾" x 3¾" 121x95mm
4	11 15/16" 303mm	3¼" 82mm	" "	6⅞" 175mm	4½" x 3½" 114x89mm
5	11 9/16" 294mm	3 5/16" 84mm	" "	6" 152mm	4⅛" x 3½" 108x89mm

OVALS

BASIC SUSPENSION METHOD (SIDE VIEW)

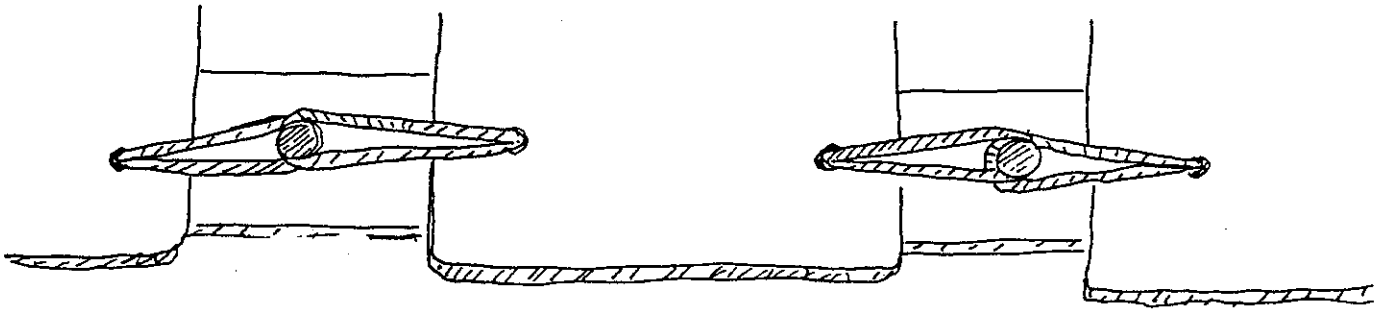


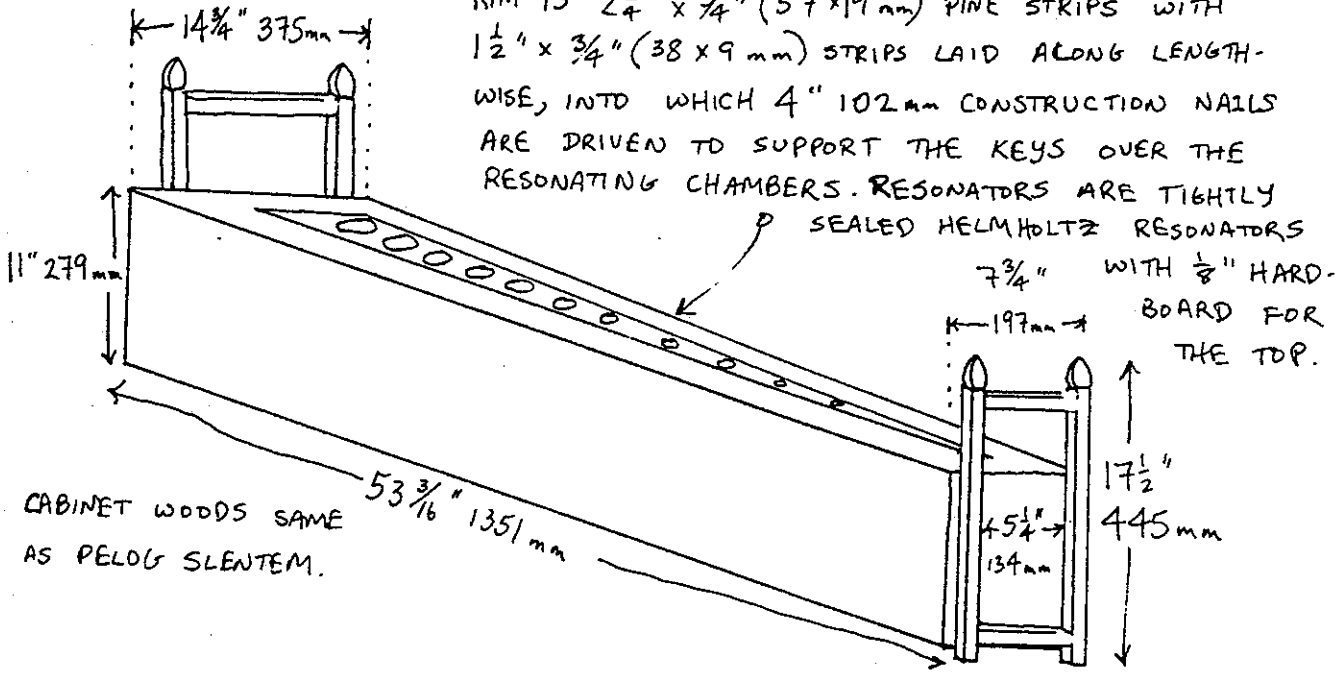
SLENTEM BEATER HAS 8½" 216 mm LONG HANDLE, 3/4" 19 mm DOWEL. HEAD IS 3¾" 95mm IN DIAMETER x ½" 13mm THICK. THIS IS WRAPPED AROUND THE RIM WITH ¼" 6mm THICK PIANO FELT, WHICH IS THEN COVERED WITH 2 LAYERS OF FELT STAPLED ON.

SLENDRO SLENTEM

KEY	LENGTH	WIDTH	THICKNESS	RESONATOR DEPTH	RESONATOR DIAMETER
5	19⅛" 481 mm	4" 102 mm	3/16" 5 mm	10⅝" 270 mm	2¼" 57 mm
6	18 1/16" 458 mm	" "	"	" "	" "
1	17 1/16" 433 mm	" "	"	10¾" 273 mm	3¼" 83 mm
2	16⅛" 409 mm	4⅛" 110 mm	"	10⅝" 270 mm	3½" 89 mm
3	15 5/16" 389 mm	4" 102 mm	"	" "	3¾" 95 mm
5	14½" 369 mm	" "	"	5⅜" 138 mm	1⅜" 48 mm
6	13 13/16" 351 mm	" "	"	" "	2¾" 70 mm
1	13¼" 337 mm	" "	¼" 6 mm	" "	2½" 64 mm
2	12⅝" 321 mm	3 13/16" 97 mm	"	5½" 140 mm	3¼" 83 mm
3	12" 305 mm	" "	"	" "	2¾" 70 mm
5	11 7/16" 292 mm	" "	"	5⅜" 138 mm	3¾" 95 mm

BASIC SUSPENSION METHOD (TOP VIEW)





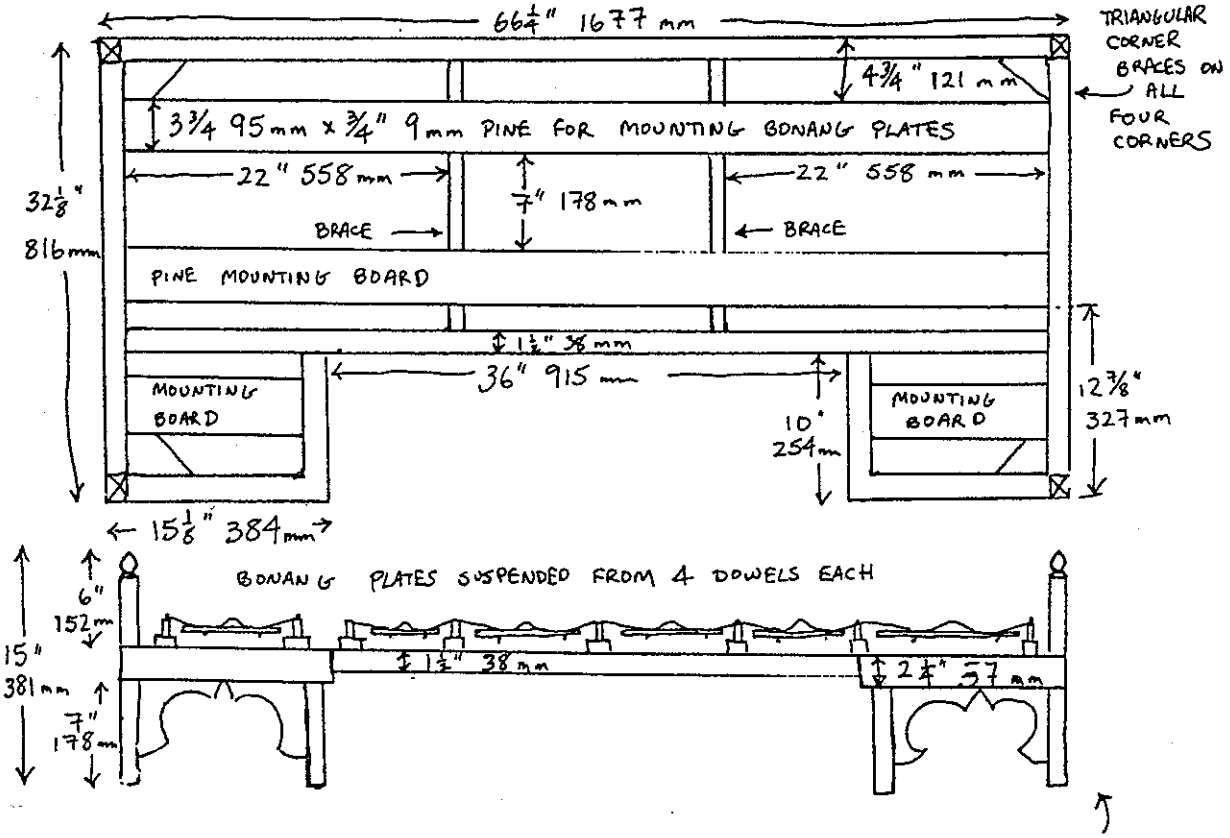
RIM IS 2¼" x ¾" (57 x 19 mm) PINE STRIPS WITH 1½" x ¾" (38 x 9 mm) STRIPS LAID ALONG LENGTH-WISE, INTO WHICH 4" 102 mm CONSTRUCTION NAILS ARE DRIVEN TO SUPPORT THE KEYS OVER THE RESONATING CHAMBERS. RESONATORS ARE TIGHTLY SEALED HELMHOLTZ RESONATORS WITH ⅛" HARD-BOARD FOR THE TOP.

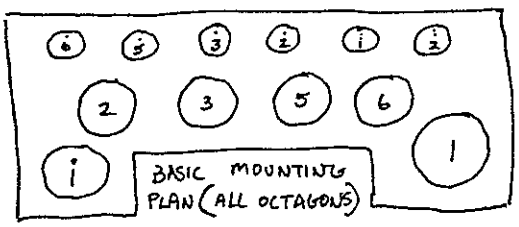
CABINET WOODS SAME AS PELOG SLENTEM.

BONANG BARUNG - SLENDRO

PLATE	SIDE OF OCTAGON		DIAMETER		@ BOSS WIDTH	
1	5 1/4"	134mm	12 1/2"	318mm	2 1/2"	63mm
2	5"	127mm	12 5/16"	313mm	2 1/2"	63mm
3	4 3/4"	121mm	11 7/8"	302mm	2"	51mm
5	"	"	11 1/8"	282mm	2 1/2"	63mm
6	4 3/8"	111mm	10 1/4"	261mm	2 1/4"	58mm
i	4 7/8"	123mm	9 3/16"	233mm	2 1/2"	63mm
2	3 7/8"	98mm	9 1/8"	234mm	3"	76mm
3	3 1/2"	89mm	8 3/4"	222mm	2 1/4"	58mm
5	3 3/8"	86mm	8 1/16"	205mm	"	"
6	3 1/8"	81mm	7"	178mm	1 1/2"	33mm
i	2 3/4"	70mm	6 3/16"	163mm	"	"
2	2 5/8"	62mm	6 1/2"	165mm	"	"

THESE BONANG PLATES ARE NOT PERFECT OCTAGONS, THEREFORE I HAVE GIVEN BOTH THE LENGTH OF A RANDOM SIDE AND THE DIAMETER. AS LONG AS THE GENERAL SIZE IS USED, THE EXACT TUNING CAN BE ADJUSTED WITH THE SIZE AND DEPTH OF THE BOSS. ALL PLATES 1/8" @3m THICK EXCEPT WHERE INDICATED.





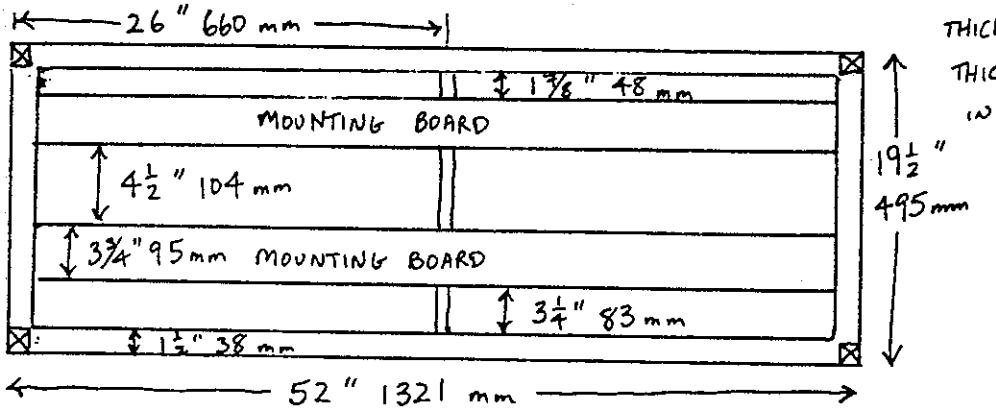
MAKE ENDS FLUSH SO THE BONANG CAN STAND ON END FOR EASY STORAGE

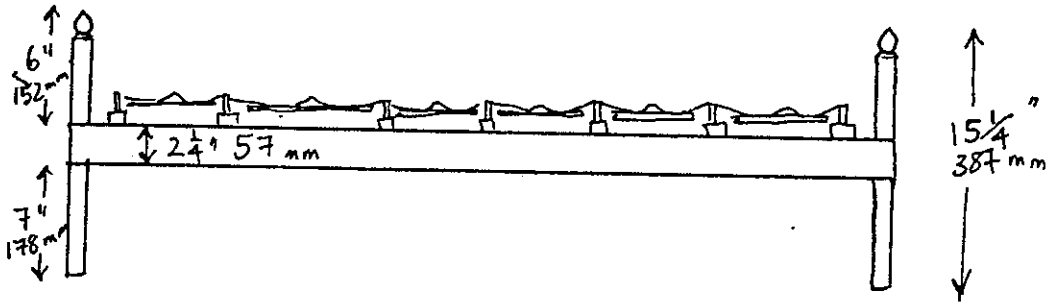
BASIC BONANG FRAME MADE OF 2X2's WITH 1X4's USED FOR MOUNTING BOARDS.

BONANG PANERUS - SLENDRO

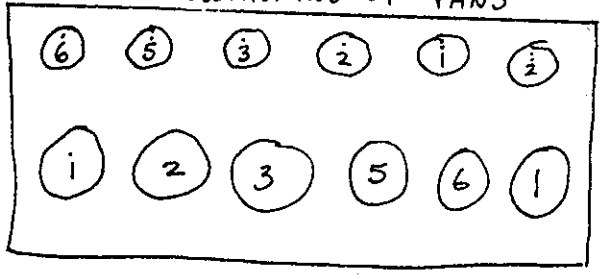
PLATE	SIDE OF OCTAGON	DIAMETER	@ BOSS WIDTH
1	4" 102mm	9¼" 235mm	2½" 63mm
2	2 7 3½" 89mm	6¾ 8½" 216mm	" "
3	3¾" 96mm	8½" 216mm	2¼" 57mm
5	3⅜" 85mm	7⅜" 197mm	2" 51mm
6	2⅜" 74mm	6¾" 172mm	1½" 38mm
i	2⅝" 62mm	6¼" 159mm	" "
ii	2½" 63mm	6" 152mm	2" 51mm
iii	2½" "	" "	1¼" 32mm
iv	2¼" 57mm	5⅝" 144mm	1½" 38mm
v	" "	5½" 140mm	2" 51mm
vi	2⅜" 61mm	" "	1¾" 45mm
vii	2" 51mm	5" 127mm	1" 25mm

FRAMES FOR ALL BONANG MADE OF MOSTLY 2x2's (1⅝" 41mm SQUARE) MOUNTING BOARDS ARE 1x4's (LIT. ¾" 19mm x 3¾" 95mm) BONANG PANERUS BEATERS ARE 9¾" 248mm LONG ¼" 6 mm DOWEL HANDLES. BEATER HEADS HRE 2¼" 57 mm IN DIAMETER & ½" 13mm THICK. THESE ARE WRAPPED WITH RUBBER TUBING AND 2 LAYERS OF BLACK FELT. BONANG BARANG BEATERS HAVE 8½" 216 mm LONG HANDLES 5/8" 16mm THICK. HEADS ARE ½" 13mm THICK AND 3" 76mm IN DIAMETER, WRAPPED WITH RUBBER TUBING AND 2 LAYERS OF FELT.



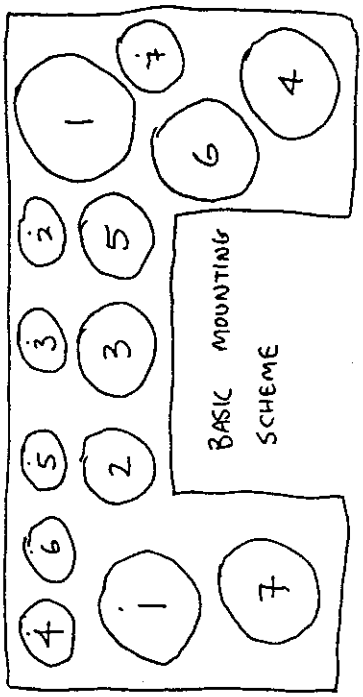


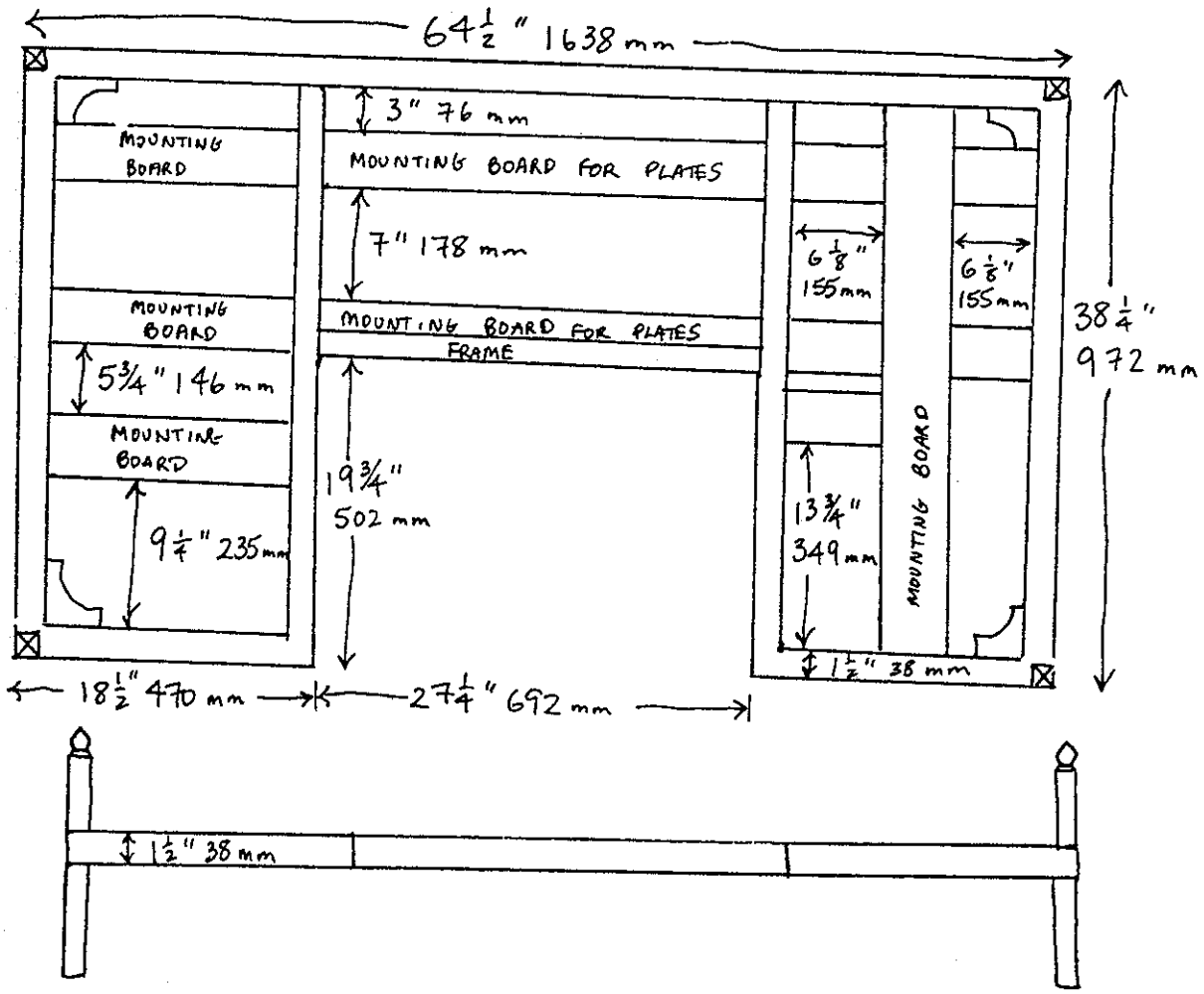
BASIC POSITIONING OF PANS



BONANG BARUNG - PELOG

PLATE	SIDE OF OCTAGON	DIAMETER	@ BOSS WIDTH
1	5 1/8" 130 mm	12 1/2" 317 mm	2" 51 mm
2	5" 127 mm	12" 305 mm	" "
3	4 7/8" 124 mm	12 1/8" 308 mm	2 1/4" 57 mm
4	4 3/4" 121 mm	11 3/4" 298 mm	" "
5	4 1/2" 114 mm	11 1/8" 282 mm	" "
6	4" 102 mm	10 1/8" 257 mm	2" 51 mm
7	" "	9 1/4" 235 mm	" "
i	3 3/4" 95 mm	" "	" "
2	3 7/8" 99 mm	9 5/16" 237 mm	" "
3	3 1/2" 89 mm	8 7/16" 214 mm	1 1/2" 38 mm
4	3 1/8" 79 mm	7 3/4" 197 mm	" "
5	2 3/4" 70 mm	7" 178 mm	2" 51 mm
6	" "	6 7/8" 175 mm	1 1/2" 38 mm
7	3" 77 mm	6 3/4" 170 mm	1 3/4" 45 mm



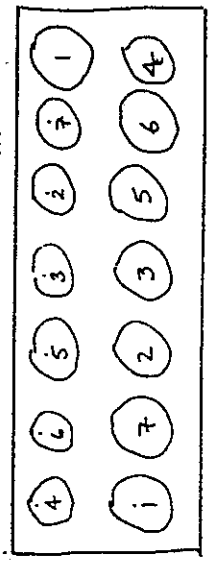


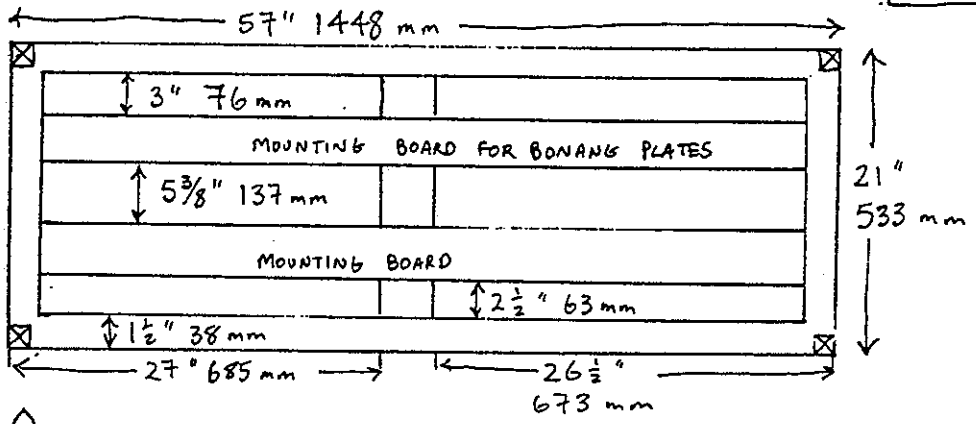
BONANG PANERUS - PELOG

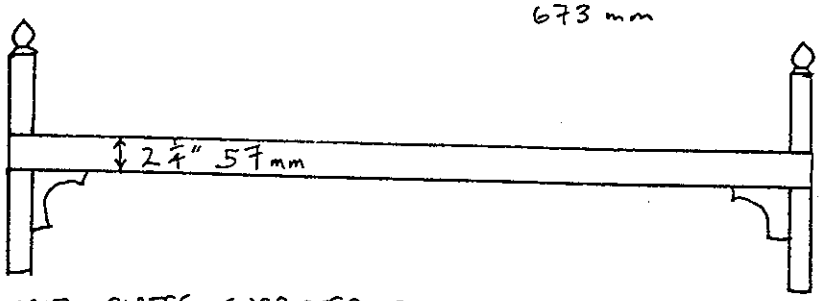
PLATE	SIDE of OCTAGON	DIAMETER	@ BOSS WIDTH
1	4" 102 mm	9¼" 235mm	2½" 63 mm
2	3⅝" 92 mm	9" 229 mm	2¾" 70 mm
3	3½" 88 mm	8¼" 210 mm	2" 51 mm
4	3⅓" 83 mm	7½" 191 mm	" "
5	2¾" 70 mm	6⅞" 175 mm	1½" 33 mm
6	" "	6½" 165 mm	" "
7	" "	6⅝" 168 mm	1¾" 44 mm
i	" "	6 3/16" 164 mm	1½" 33 mm
2	" "	6 3/16" 163 mm	1¾" 44 mm
3	2½" 64 mm	6" 152 mm	" "
4	2¾" 70 mm	6¼" 159 mm	1½" 33 mm
5	" "	6⅜" 162 mm	2" 51 mm
6	2½" 64 mm	6⅛" 155 mm	1½" 33 mm
7	2⅜" 60 mm	6⅞" 175 mm	" "

THESE PLATES ARE 3/16" @ 5 mm THICK

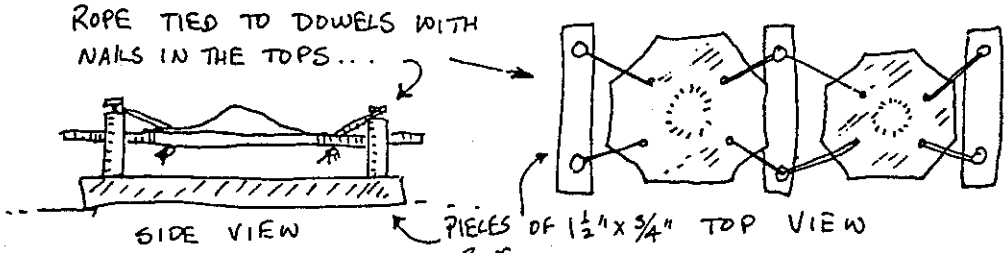
BASIC MOUNTING PLAN



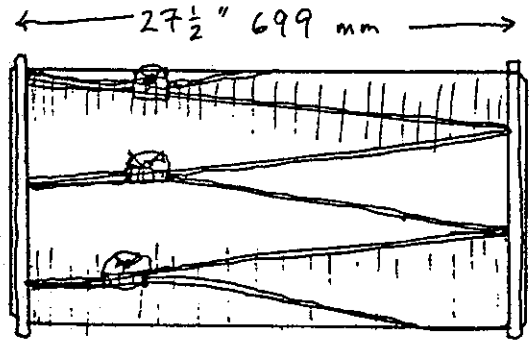




BONANG PLATES SUPPORTED BY FOUR PIECES OF ROPE TIED TO DOWELS WITH NAILS IN THE TOPS...

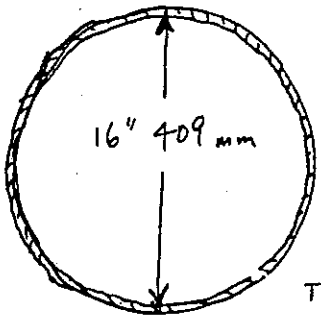


KENDANG INDUNG



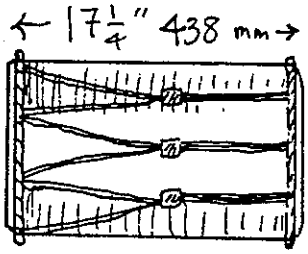
DRUM LACED WITH ELECTRICAL CORD FOR TIGHTENING HEADS

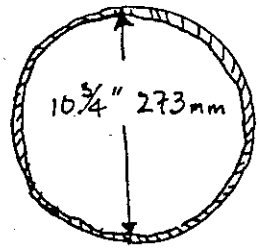
THE DRUM HEAD IS 16" IN DIAMETER, BUT THE ACTUAL BARREL OF THE DRUM IS MADE OF 15" 381 mm DIAMETER PVC SEWER PIPE, THE LARGEST DIAMETER AVAILABLE.



THE INSIDE OF THE BARRELS OF ALL THE DRUMS ARE SANDED AND THEN FELT IS GLUED IN. THIS GREATLY IMPROVES THE TONE.

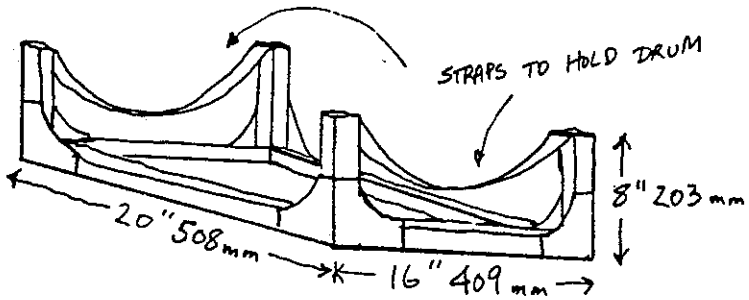
KETIPUNG

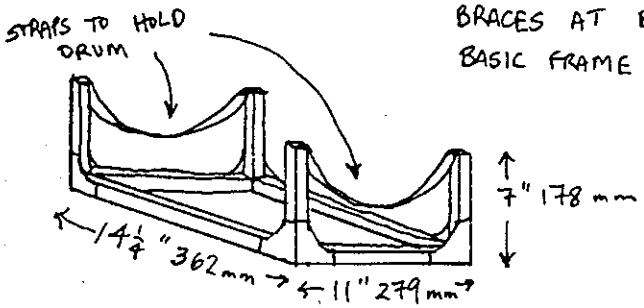




10" 254 mm PVC SEWER PIPE USED FOR KETIPUNG BARREL.

MAKE SURE YOUR DRUM HEADS STICK OUT A LITTLE BIT BEYOND THE RIM OF THE DRUM AS SHOWN HERE. THIS SAVES WEAR & TEAR ON THE FINGERS!

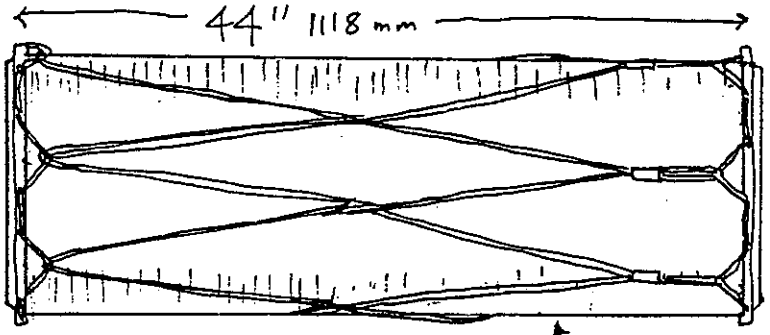


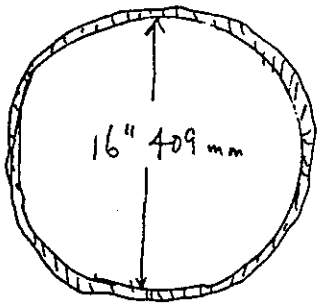


BRACES AT EACH CORNER
BASIC FRAME OF 1x2's.

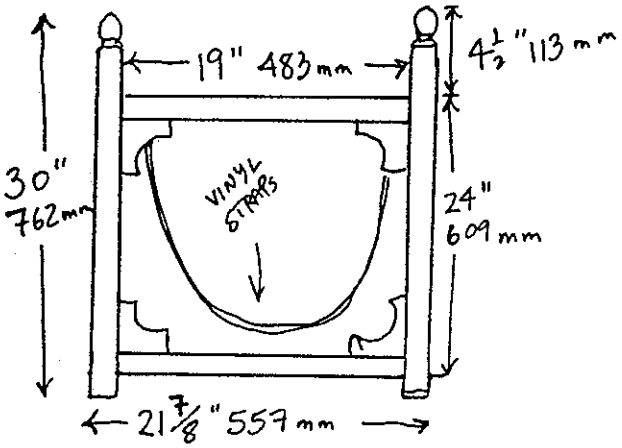
KENDANGAN

BEDUG

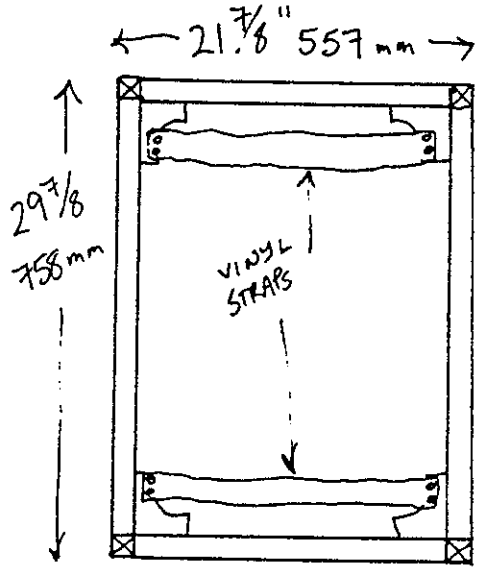




SPECIAL CROSS LACING FOR BEDUG

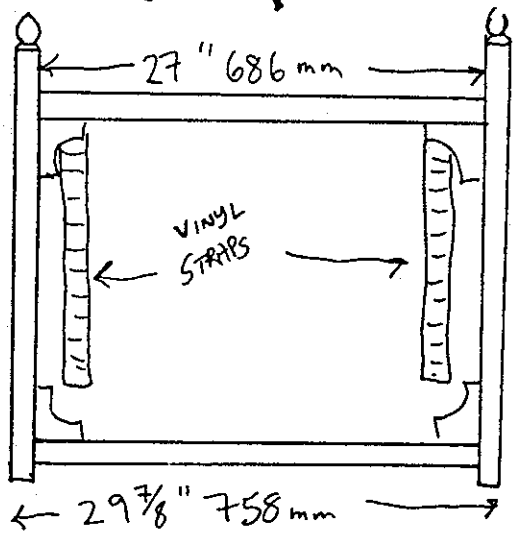


END VIEW



TOP VIEW

SIDE VIEW

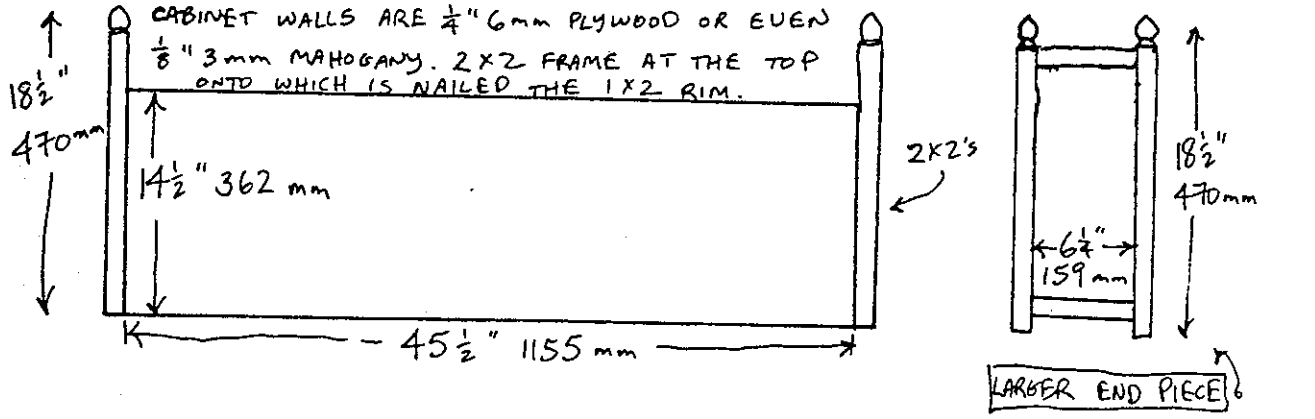


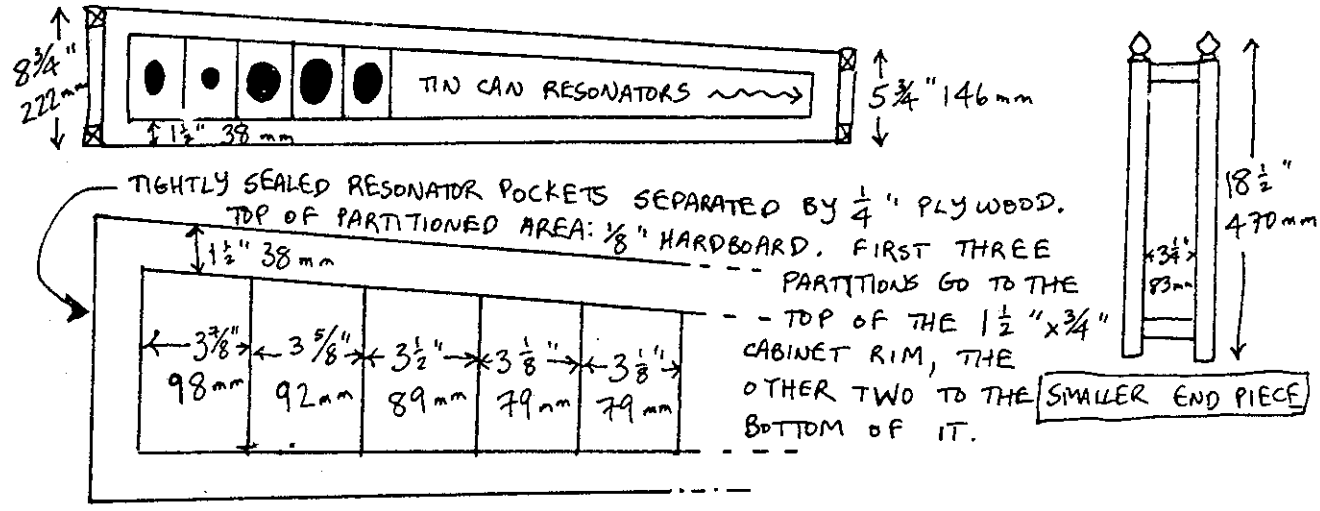
15" 381 mm PVC SEWER PIPE WAS ALSO USED FOR THE BARREL OF THE BEDUG. AS THIS WAS THE LARGEST SIZE AVAILABLE, WE SIMPLY MADE IT LONGER TO GET THE DEEPER TONE.

GENDÉR BARUNG - PELOG LIMA

KEY	LENGTH	WIDTH	THICKNESS	RESONATOR DEPTH	RESONATOR DIAMETER	
5	10¾" 273mm	3" 76mm	3/16" 4mm	14½" 362mm	1½" x 1¼" 38 x 32 mm	WOOD
6	10⅝" 270mm	3 1/16" 78mm	"	" "	1⅝" 41mm	WOOD
1	10½" 267mm	" "	"	" "	2½" 64mm	WOOD
2	10¼" 260mm	2¾" 70mm	"	13¾" 349mm	2 11/16" x 2⅞" 68x73mm	WOOD
3	10 1/16" 255mm	2 13/16" 72mm	"	13¼" 337mm	" " " "	WOOD
5	9⅞" 250mm	2¾" 70mm	"	13½" 343mm	4" x 2½" 102x64mm	OVAL
6	9¾" 248mm	2 9/16" 65mm	"	13⅜" 340mm	3¾" x 2⅝" 95x67mm	OVAL
1	9 9/16" 243mm	" "	¼" 7mm	11¼" 286mm	3⅜" x 2½" 86 x 64mm	OVAL
2	9⅜" 238mm	2 7/16" 62mm	" "	9¾" 247mm	3½" x 2½" 89 x 64mm	OVAL
3	9¼" 235mm	2 5/16" 59mm	" "	8⅝" 219mm	3¼" x 2¾" 83 x 70mm	OVAL
5	9" 229mm	2 7/32" 57mm	" "	6⅞" 175mm	2¾" x 2" 70 x 51mm	OVAL
6	8 15/16" 227mm	2¼" 56mm	" "	6" 152mm	2½" 64mm CAN 1⅝" 41mm OPEN	OVAL
1	8¾" 222mm	2" 51mm	" "	4¾" 121mm	2¾" 70mm	
2	8⅝" 219mm	2 1/16" 52mm	" "	4⅝" 118mm	2½" 64mm	
3	8 29/32" 220mm	2 1/16" 52mm	" "	4½" 114mm	2¼" 58mm	

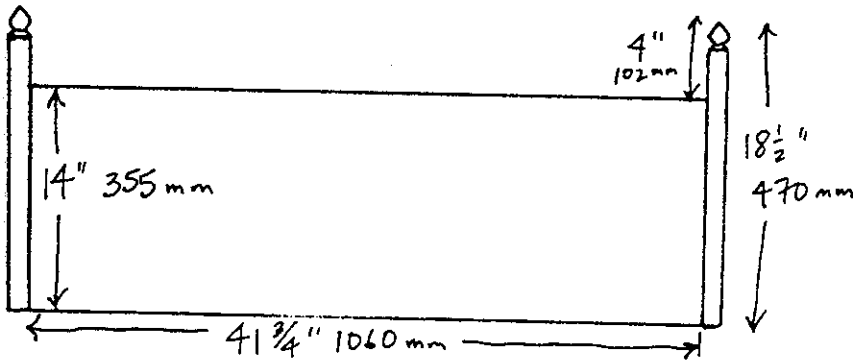
ALL RESONATORS MADE OF ALUMINUM CANS EXCEPT WHERE INDICATED AS WOOD, I.E. CABINET RESONATORS. "OVAL" MEANS THE CANS HAVE BEEN SQUASHED INTO AN OVAL, THE BASIC DIMENSIONS OF WHICH ARE GIVEN (EXCEPT FOR THE FIRST TONE, WHICH IS A CABINET RESONATOR WITH AN OVAL OPENING).

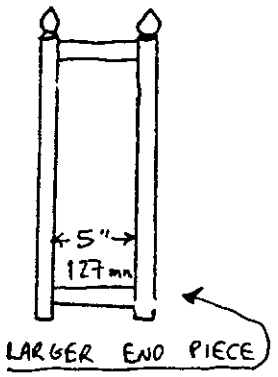




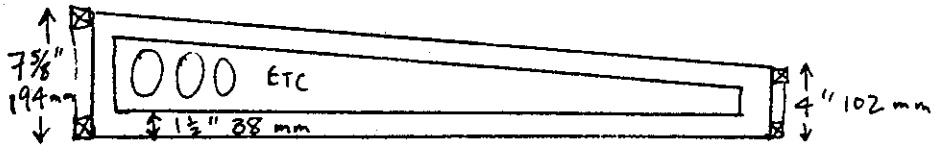
GENDER PANERUS - PELOG LIMA

KEY	LENGTH	WIDTH	THICKNESS	RESONATOR DEPTH	RESONATOR DIAMETER	
5	9 3/16" 240mm	2 9/16" 65mm	3/16" 4mm	13 1/2" 343mm	2 3/4" 70mm 1 1/2" 38mm OPEN	
6	9 1/4" 235mm	2 1/2" 63mm	" "	13" 330mm	3" 76mm 2 1/2" 63mm OPEN	
1	9 1/16" 230mm	2 3/8" 60mm	1/4" 6mm	11 3/4" 299mm	3" 76mm × 2 3/8" 60mm	OVAL
2	8 3/4" 223mm	" "	" "	10 1/4" 260mm	3" " × 2 1/2" 63mm	OVAL
3	8 3/32" 218mm	2 1/4" 57mm	" "	9" 229mm	3 1/4" 82mm × 2 3/8" 60mm	OVAL
5	8 3/8" 213mm	2 5/16" 59mm	" "	7 3/16" 183mm	2 3/4" 70mm	
6	8 1/8" 206mm	2 1/8" 54mm	" "	6 3/4" 172mm	" "	
1	7 15/16" 198mm	2 3/16" 56mm	" "	4 1/2" 115mm	2 1/2" 63mm	
2	7 11/32" 192mm	2" 51mm	" "	4 5/8" 117mm	2 3/4" 70mm × 2" 51mm	OVAL
3	7 1/2" 191mm	" "	" "	4" 102mm	3" 76mm × 2" 51mm	OVAL
5	7 5/16" 186mm	1 15/16" 50mm	5/16" 8mm	3 1/4" 83mm	2" 51mm	
6	7 1/16" 180mm	1 13/16" 46mm	" "	2 5/8" 68mm	" "	
1	6 7/8" 175mm	" "	" "	2 1/8" 54mm	2 1/8" 54mm	
2	6 5/8" 168mm	" "	" "	2" 51mm	" "	
3	6 3/8" 162mm	1 5/8" 42mm	" "	" "	" "	
5	6 1/8" 156mm	" "	" "	1 1/2" 38mm	1 3/4" 45mm	





ALL KEYS HAVE TIN CAN RESONATORS.



SMALLER END PIECE

CABINET WOODS SAME AS GENDER BARUNG.
BOTTOM CAN BE 1/8" 3mm PLYWOOD OR HARDBOARD.
GENDER PANERUS BEATER HAS A 5" 127 mm HANDLE TOOLED OUT OF 1/2" 13mm DOWEL. THE HEAD IS 5/8" 16 mm THICK AND 2 3/4" 70mm IN DIAMETER. IT IS WRAPPED WITH INNER TUBE RUBBER AND THEN FELT IS WRAPPED AROUND & STAPLED. THE GENDER BARUNG BEATER HAS THE SAME HANDLE AS THE PANERUS. THE HEAD IS 1/2" 13mm THICK, 2 3/8" 73mm IN DIAMETER AND HAS 1/4" 6mm THICK PIANO FELT GLUED AROUND THE RIM AND SEWN

STANDARD MEASUREMENTS FOR GENDÉR KEYS

GENDÉR BARUNG

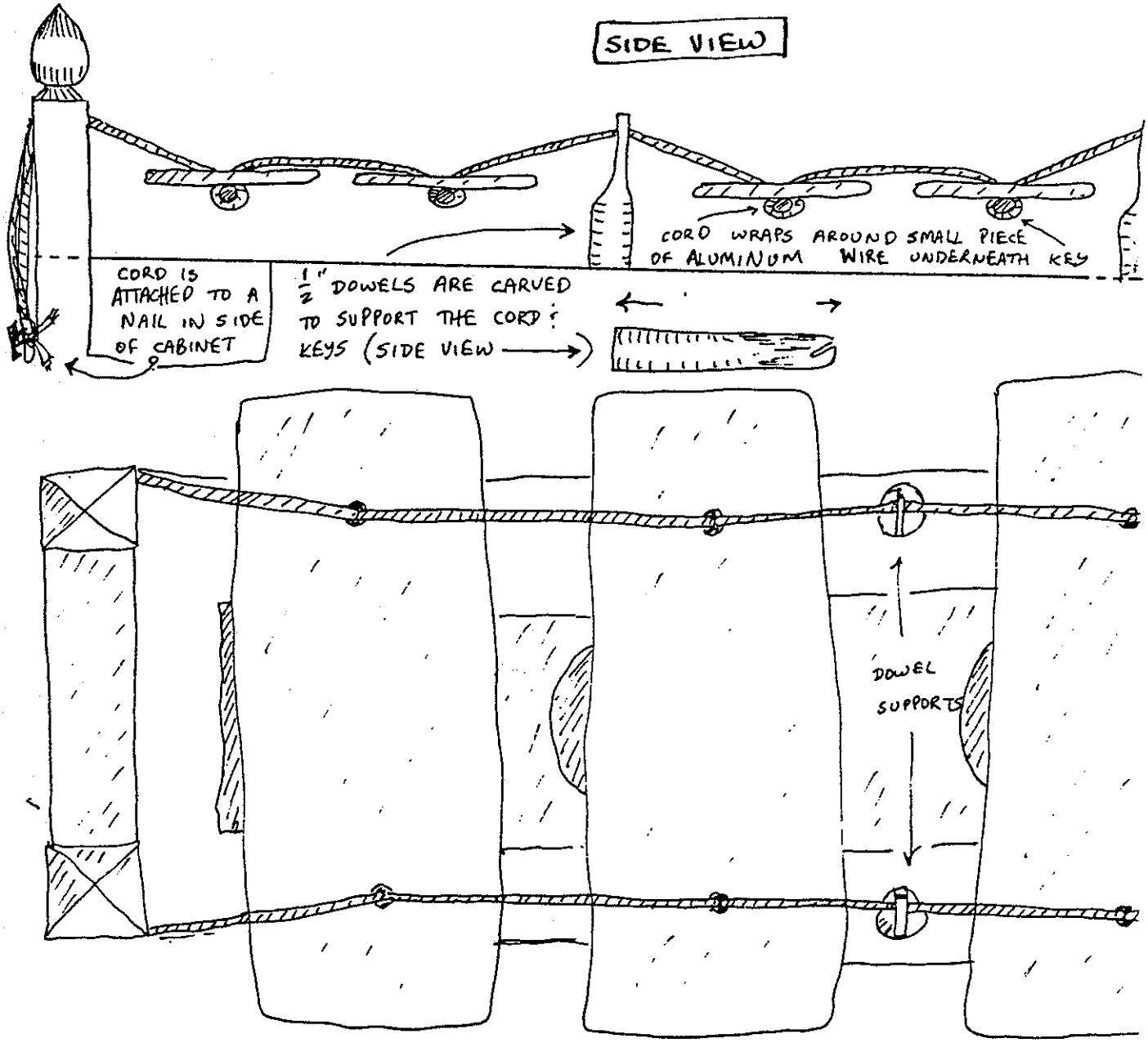
KEY	LENGTH	WIDTH	THICKNESS
5	10 13/16" 274mm	3" 76mm	3/16" 4mm
6	10 5/8" 269mm	" "	" "
1	10 3/8" 264mm	" "	" "
2	10 3/16" 259mm	2 3/4" 70mm	" "
3	10" 254mm	" "	" "
5	9 13/16" 249mm	" "	" "
6	9 11/16" 245mm	2 1/2" 63mm	" "
1	9 1/2" 241mm	"	1/4" 7mm
2	9 11/32" 237mm	"	" "
3	9 3/16" 233mm	2 1/4" 57mm	" "
5	9" 229mm	" "	" "
6	8 7/8" 225mm	" "	" "
1	8 3/4" 221mm	2" 51mm	" "
2	8 9/16" 217mm	" "	" "
3	8 7/16" 213mm	" "	" "

GENDÉR PANERUS

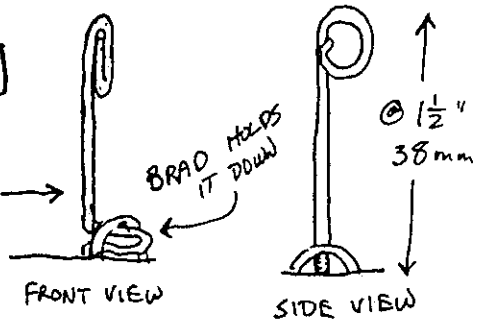
KEY	LENGTH	WIDTH	THICKNESS
5	9 7/16" 240mm	2 1/2" 63mm	3/16" 4mm
6	9 1/4" 235mm	" " "	" "
1	9 1/32" 229mm	2 3/8" 60"	1/4" 7mm
2	8 13/16" 223mm	" "	" "
3	8 19/32" 218mm	2 1/4" 57mm	" "
5	8 11/32" 212mm	" "	" "
6	8 1/8" 206mm	2 1/8" 54mm	" "
1	7 29/32" 201mm	" "	" "
2	7 11/16" 195mm	2" 51mm	" "
3	7 7/16" 189mm	" "	" "
5	7 1/4" 184mm	1 7/8" 48mm	5/16" 8mm
6	7" 178mm	" "	" "
1	6 25/32" 172mm	1 3/4" 45mm	" "
2	6 19/32" 167mm	" "	" "
3	6 11/32" 161mm	1 5/8" 41mm	" "
5	6 1/8" 155mm	" "	" "

THE MEASUREMENTS GIVEN HERE ARE WILLIAM COLUIG'S STANDARDIZATION OF GENDER KEYS WHICH WORK FOR ALL TUNINGS. THE CABINETS ARE ALSO OF STANDARD MEASUREMENTS, FOR BARUNG & PANERUS IN ANY MODE.

SUSPENDING GENDÉR KEYS



KEYS SHOULD BE SUSPENDED @ 1½" 38mm ABOVE THE RESONATORS. THERE IS ALSO AN ALTERNATE MODEL FOR THE KEY SUPPORTS, MADE OF HEAVY COAT HANGER WIRE, TWISTED INTO THE SHAPE SHOWN HERE: → IT HAS THE ADVANTAGE OF BEING ADJUSTABLE AND VIRTUALLY UNBREAKABLE.



GENDÉR BARUNG - SLENDRO

KEY	RESONATOR DEPTH	RESONATOR DIAMETER
5.	14" 356mm	1¼" 32mm
6	" "	1⅝" 41mm
!	" "	1⅞" 48mm
2	13¼" 337mm	2¾" 70mm
3	13 3/16" 335mm	3⅛" 79mm
5	12¼" 311mm	4½" 114mm 3" 76mm HOLE
6	12½" 317mm	4½" " 2½" 63mm HOLE
1	10⅜" 276mm	3⅛" 79mm × 2⅜" 60mm w/ 1⅞ 48mm × 1¼" 32mm HOLE
2	10⅝" 270mm	3¼" 82mm
3	9½" 241mm	" "
5	8¼" 210mm	2⅞ 73mm × 2" 51mm
6	6½" 165mm	2¾" 70mm
¡	3⅞" 98mm	" "
¿	4½" 114mm	2⅝" 67mm
3	3⅞" 98mm	2⅞" 74mm

GENDÉR PANERUS - SLENDRO

KEY	RESONATOR DEPTH	RESONATOR DIAMETER
5	12⅝" 320mm	3" 76mm OPEN 1¼" 32mm
6	13¾" 349mm	3¼" 82mm OPEN 2½" 63mm
1	10⅝" 270mm	3⅛" 79mm OPEN 2" 51mm
2	" "	3⅛" 79mm
3	9½" 241mm	2½" 63mm
5	8" 203mm	" "
6	7" 178mm	" "
¡	5⅞" 149mm	2¾" 70mm
¿	5" 127mm	2⅜" 60mm
3	4½" 114mm	2⅛" 54mm
s	3 5/16" 100mm	2¾" 70mm
¿	3¼" 82mm	2⅜" 60mm
¡	2¼" 57mm	2½" 63mm
¿	" "	2⅜" 60mm
3	2" 51mm	2¼" 57mm × 2¾" 70mm
s	" "	" " 4 "

GENDÉR BARUNG - PELOG BARANG

KEY	RESONATOR DEPTH		RESONATOR DIAMETER	
5	14"	356mm	1½"	38 mm
6	13⅜"	352mm	1 7/16"	31 mm
7	14"	356 mm	1 5/8"	41 mm
2	13¼"	337 mm	2 3/32"	53 mm
3	"	"	2¾"	70 mm
5	13⅜"	340 mm	3¾" 95mm OPEN 2⅜"	60mm
6	13½"	343 mm	3 7/16 82 mm OPEN 2¾"	70mm
7	"	"	3½"	89 mm
2	10⅛"	255mm	3¾"	95 mm
3	8½"	216mm	3½" 89 mm BLOCKED BY 1½" 38mm PIECE OF WOOD	
5	6¾"	171mm	3"	76 mm
6	6¼"	159mm	3⅛"	79 mm
7	6½"	165mm	3"	76 mm
2	4 5/8"	112mm	3½" 89mm x 2⅛" 54mm } OVAL	
3	4"	102mm	2¾" 70mm x 2¼" 57 mm } OVAL	

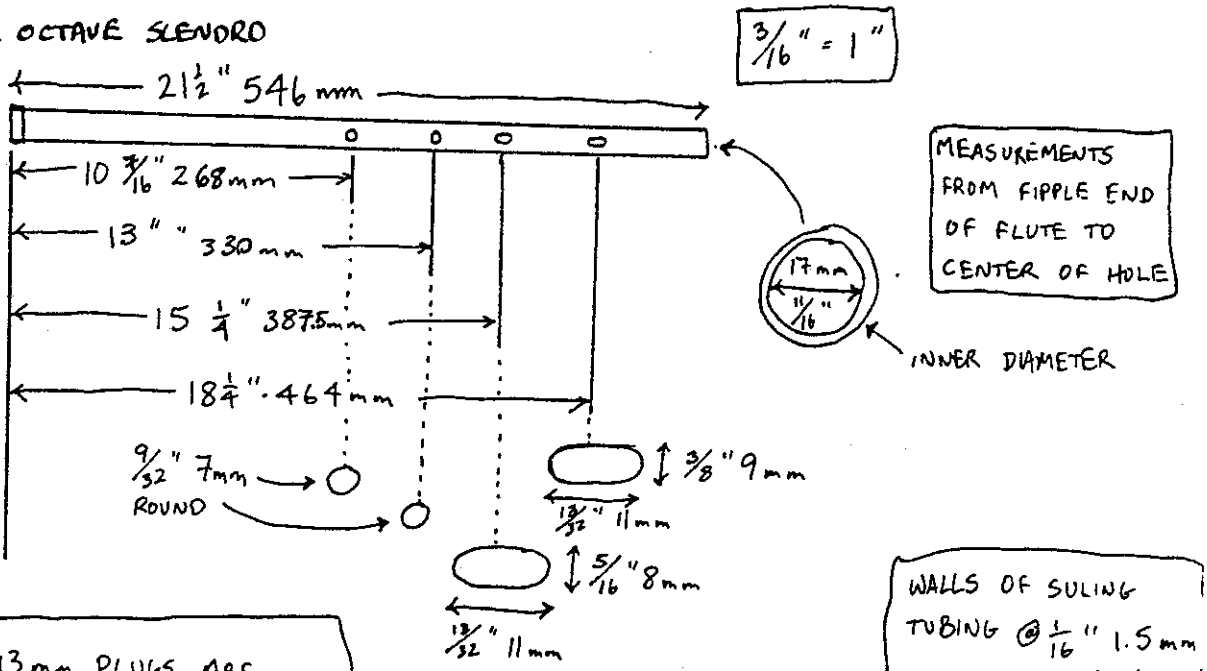
GENDÉR PANERUS - PELOG BARANG

KEY	RESONATOR DEPTH	RESONATOR DIAMETER
5		
6		
7		
2		
3		
5		
6		
7		
2		
3		
5		
6		
7		
2		
3		
5		

BASICALLY THE SAME AS PELOG LIMA. ALL THESE RESONATOR MEASUREMENTS ARE REALLY ONLY GUIDELINES. A GREAT DEAL OF TRIAL & ERROR GOES INTO MATCHING UP THE KEY AND THE RESONATOR.

SULING

LOWER OCTAVE SLENDRO

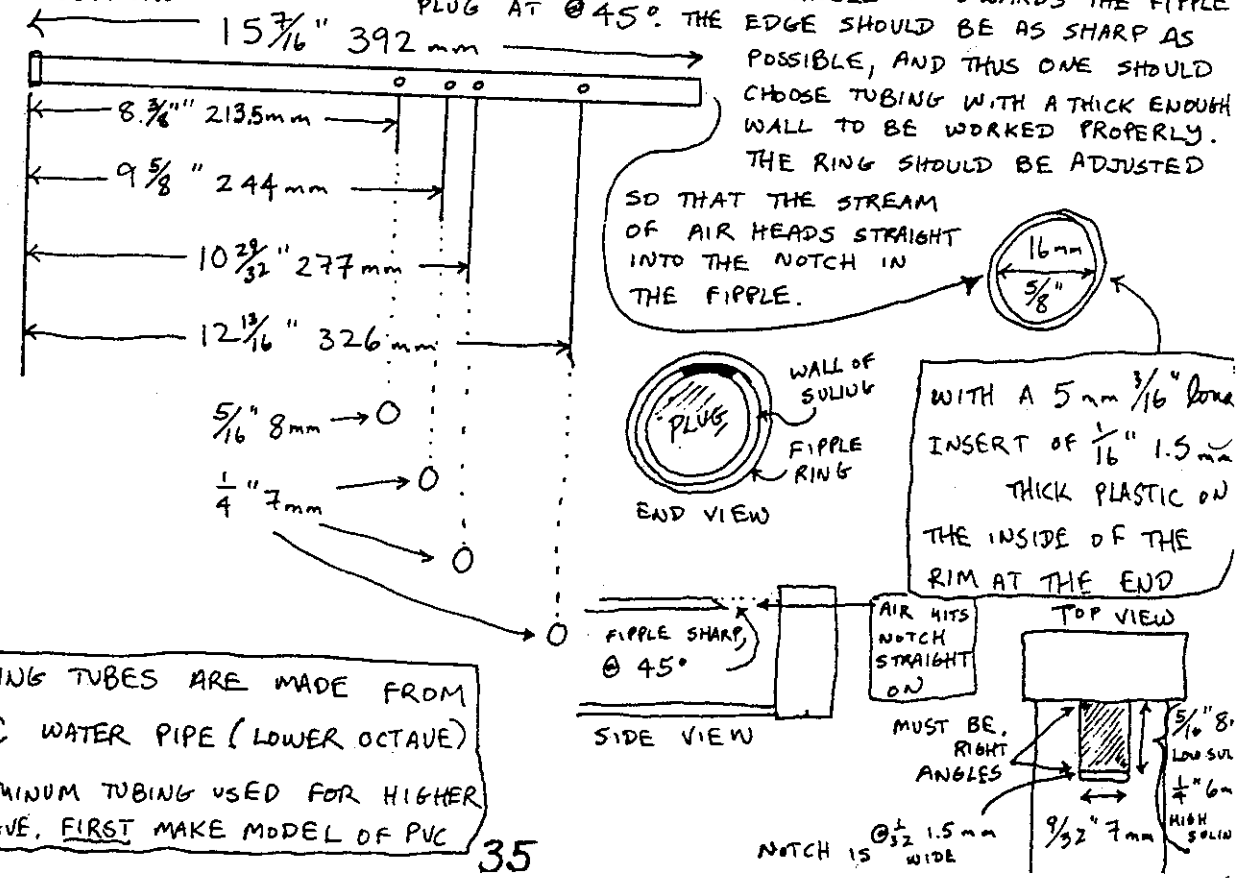


½" 13mm PLUGS ARE USED IN THE FIPPLE ENDS OF THE VARIOUS SULING.

WALLS OF SULING TUBING @ 1/16" 1.5mm THICK

ONE NEEDS TO EXPERIMENT WITH THE PLUG, RING AND THE ACTUAL FIPPLE OPENING TO OBTAIN THE BEST SOUND. THE OPENING SHOULD BE ALMOST PERFECTLY SQUARE, THOUGH A LITTLE LONGER THAN IT IS WIDE. THE ANGLES SHOULD BE SQUARE WHERE THE CUT IS MADE INTO THE TUBE, BUT THE ACTUAL CUT ITSELF SHOULD ANGLE IN TOWARDS THE FIPPLE PLUG AT @45°. THE EDGE SHOULD BE AS SHARP AS POSSIBLE, AND THUS ONE SHOULD CHOOSE TUBING WITH A THICK ENOUGH WALL TO BE WORKED PROPERLY. THE RING SHOULD BE ADJUSTED SO THAT THE STREAM OF AIR HEADS STRAIGHT INTO THE NOTCH IN THE FIPPLE.

HIGHER OCTAVE SLENDRO

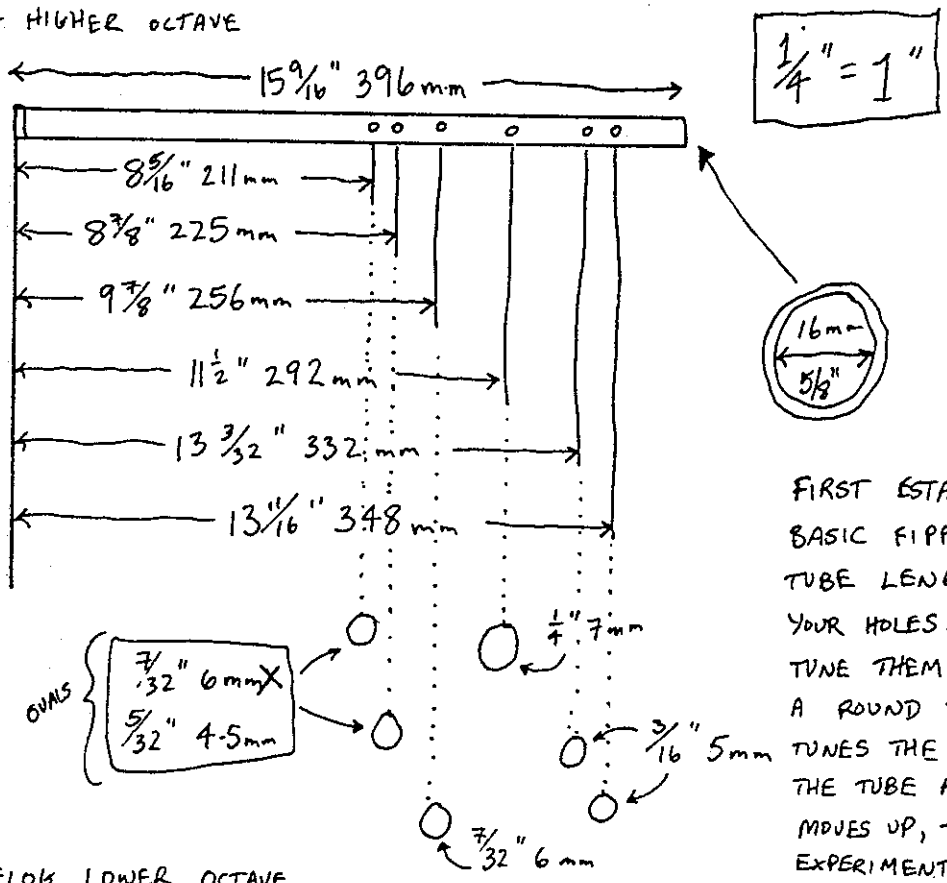


SULING TUBES ARE MADE FROM PVC WATER PIPE (LOWER OCTAVE)

ALUMINUM TUBING USED FOR HIGHER OCTAVE. FIRST MAKE MODEL OF PVC

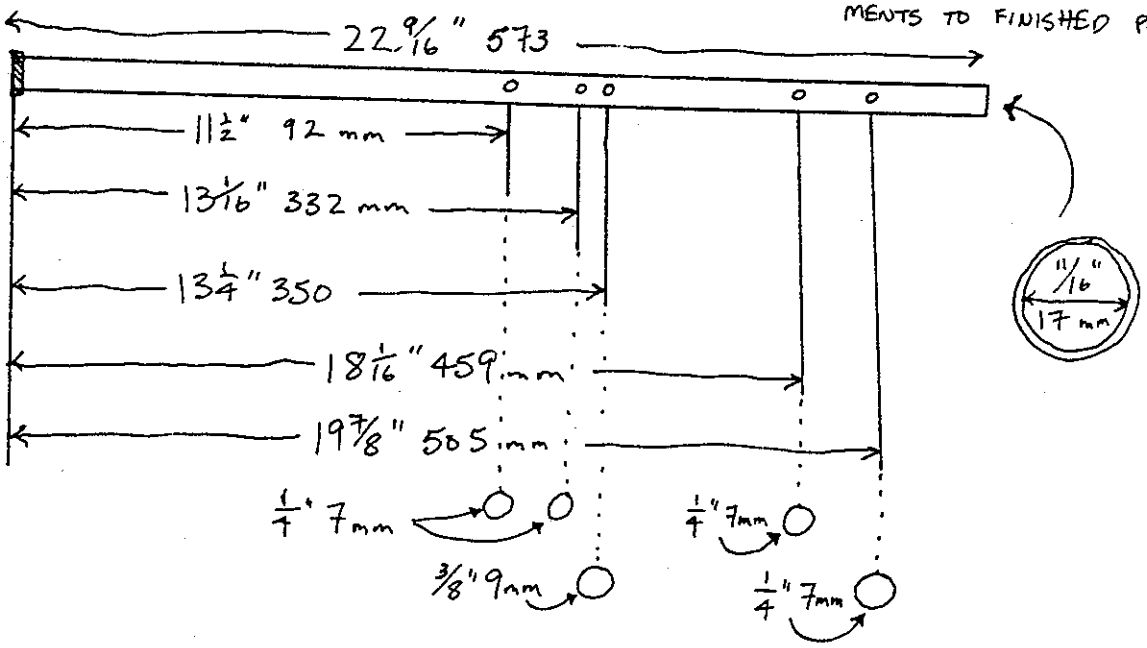
SULING

PELOG HIGHER OCTAVE

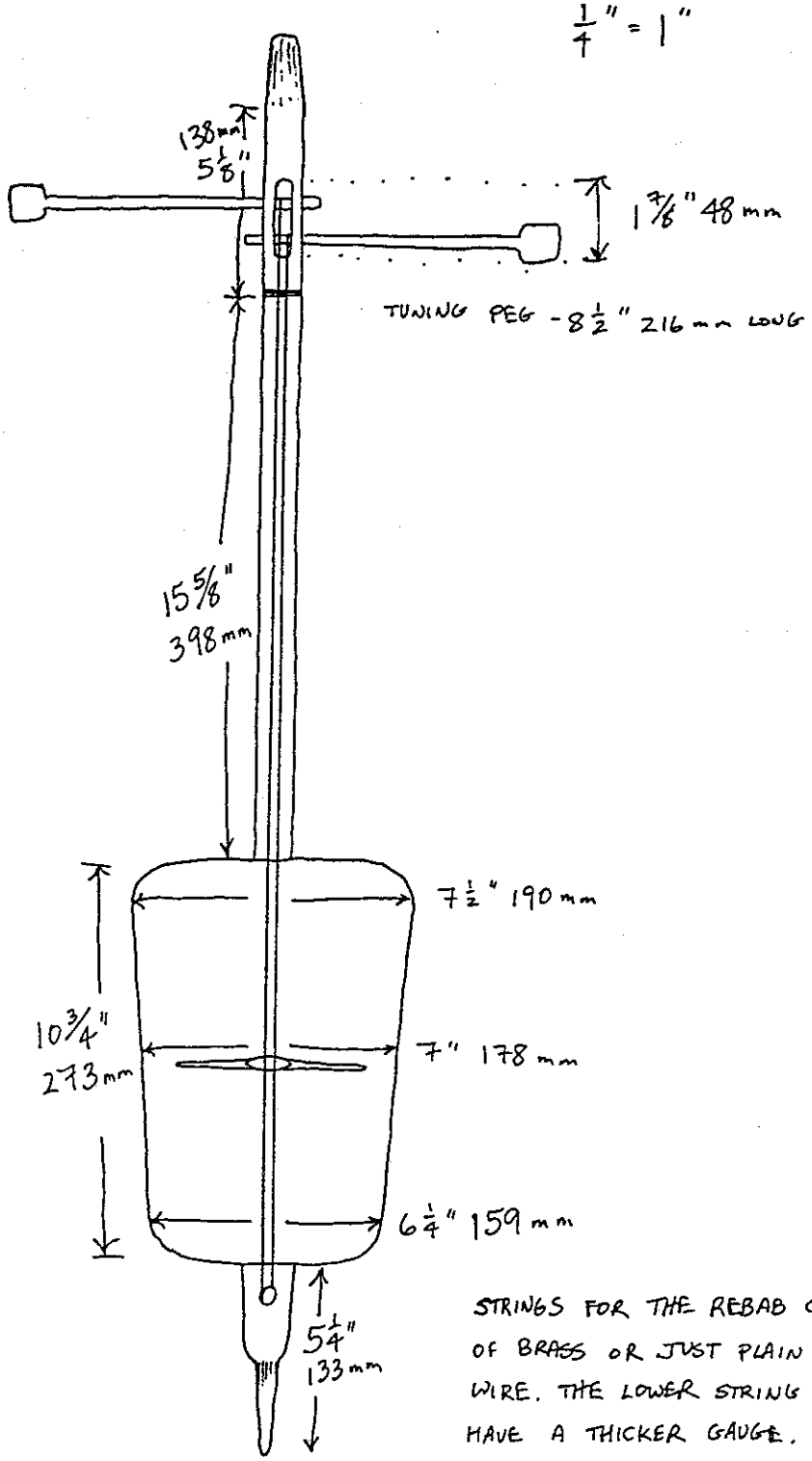


FIRST ESTABLISH YOUR BASIC FIPPLE AND THE TUBE LENGTH. THEN POSITION YOUR HOLES. START SMALL & TUNE THEM BY FILING WITH A ROUND FILE. ONE FIRST TUNES THE FULL LENGTH OF THE TUBE AND GRADUALLY MOVES UP, TONE BY TONE. EXPERIMENT FIRST ON A MODE AND THEN TRANSFER MEASUREMENTS TO FINISHED PRODUCT

PELOG LOWER OCTAVE



REBAB

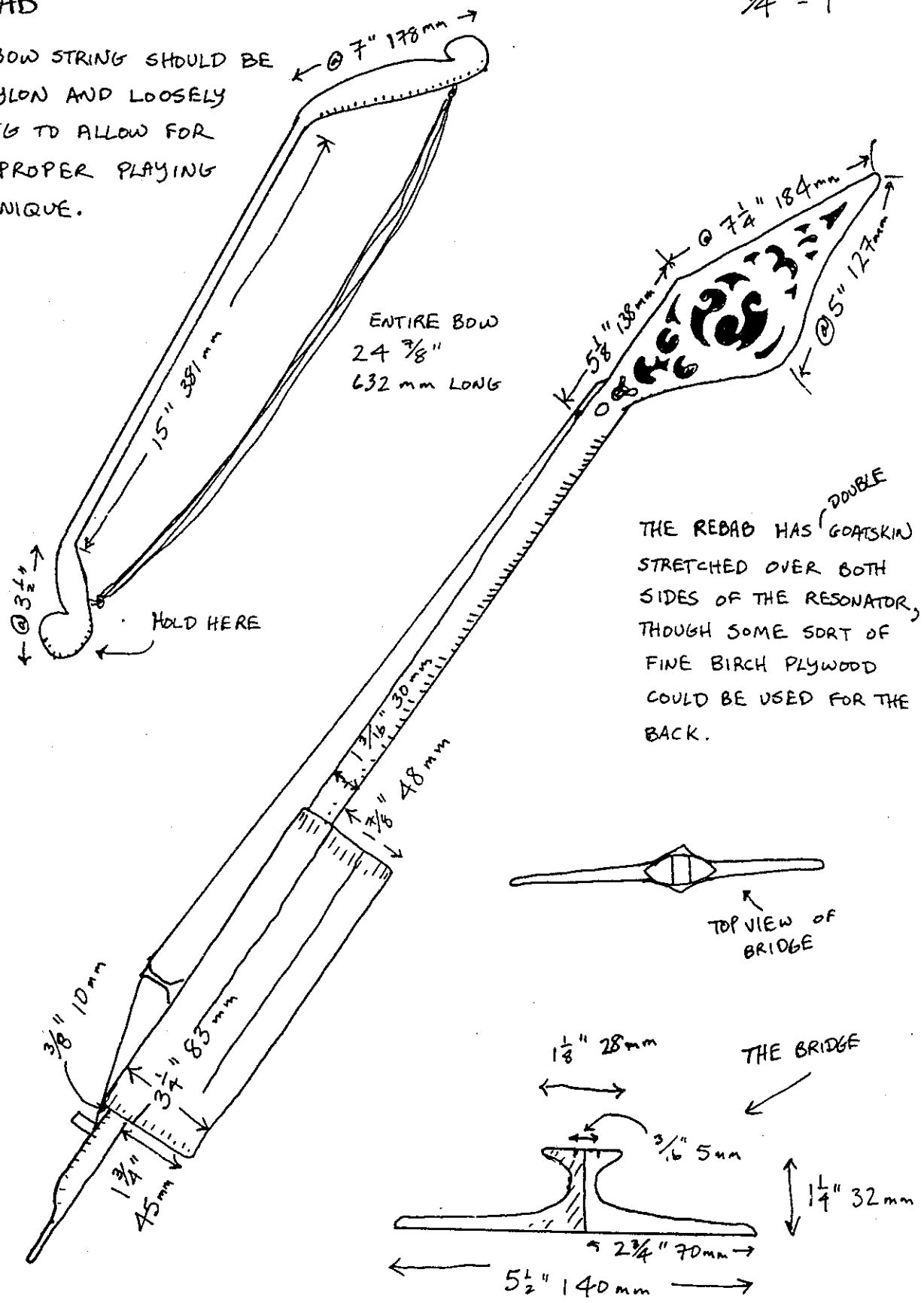


STRINGS FOR THE REBAB COULD BE OF BRASS OR JUST PLAIN MUSIC WIRE. THE LOWER STRING SHOULD HAVE A THICKER GAUGE.

REBAB

1/4" = 1"

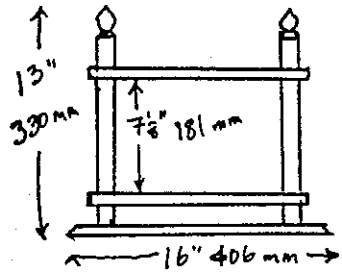
THE BOW STRING SHOULD BE OF NYLON AND LOOSELY STRUNG TO ALLOW FOR THE PROPER PLAYING TECHNIQUE.

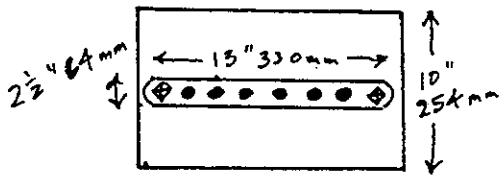


THE REBAB HAS (DOUBLE) GOATSKIN STRETCHED OVER BOTH SIDES OF THE RESONATOR, THOUGH SOME SORT OF FINE BIRCH PLYWOOD COULD BE USED FOR THE BACK.

TOP VIEW OF BRIDGE

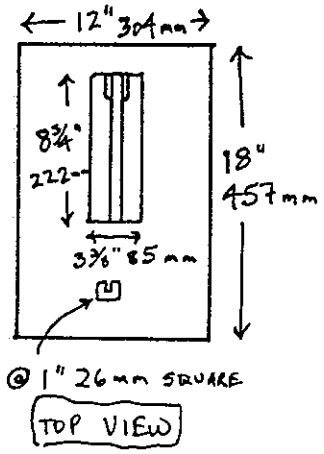
SULING STAND

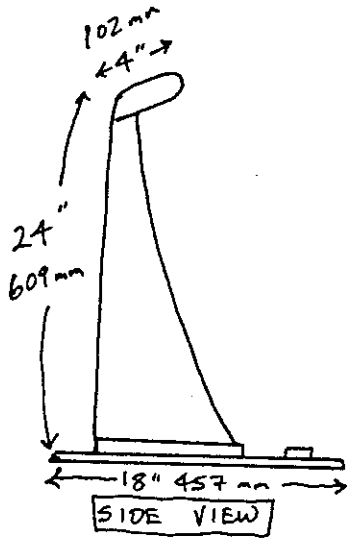




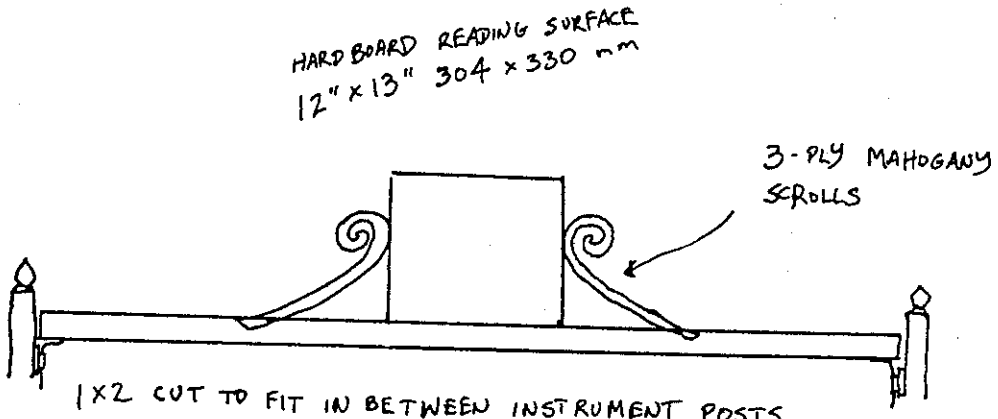
BASE IS OF ½" 13mm PLYWOOD. UPRIGHTS ARE 2X2's WITH ¾" 19mm PINE STRIPS RUNNING BETWEEN THEM, IN WHICH SIX 1" 25 mm HOLES HAVE BEEN DRILLED.

REBAB STAND



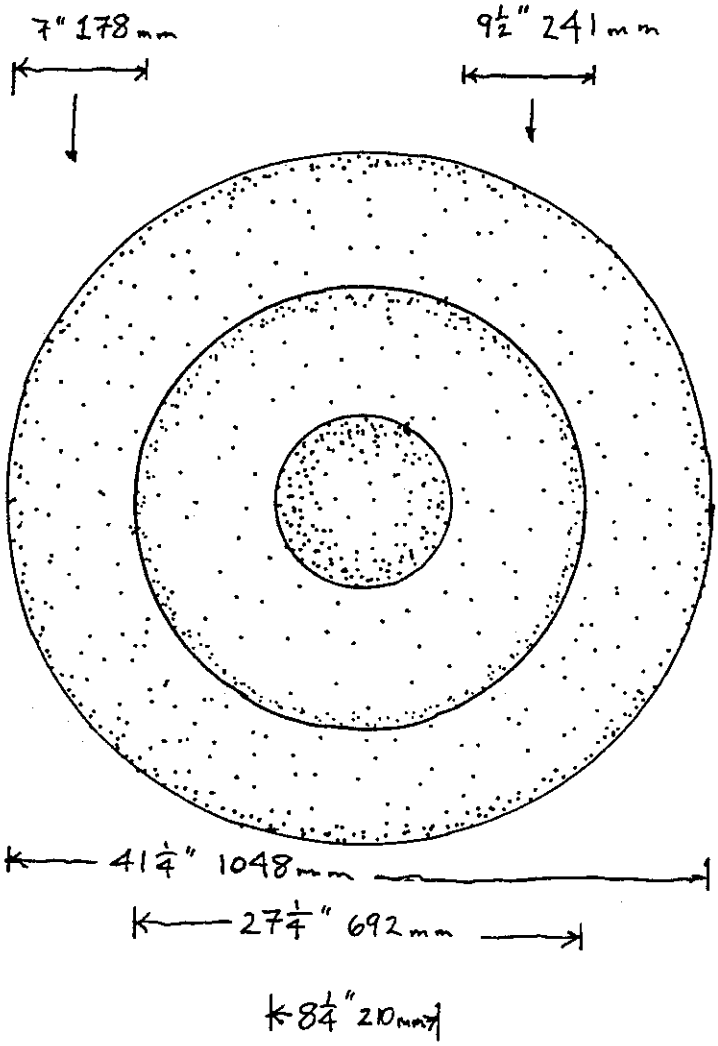


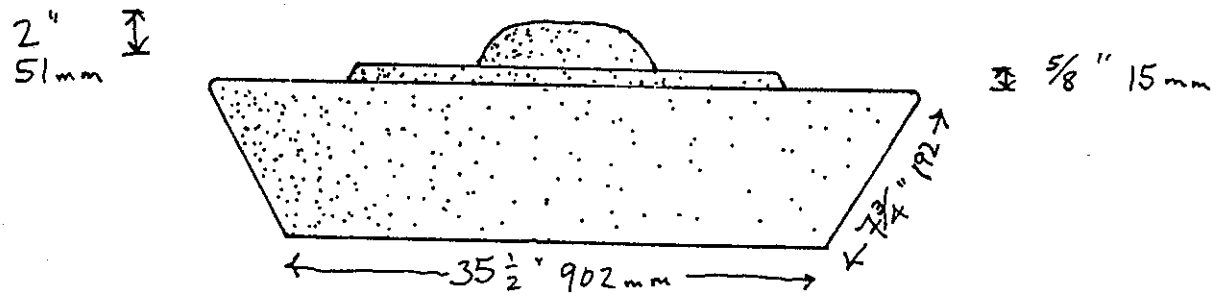
MUSIC STAND



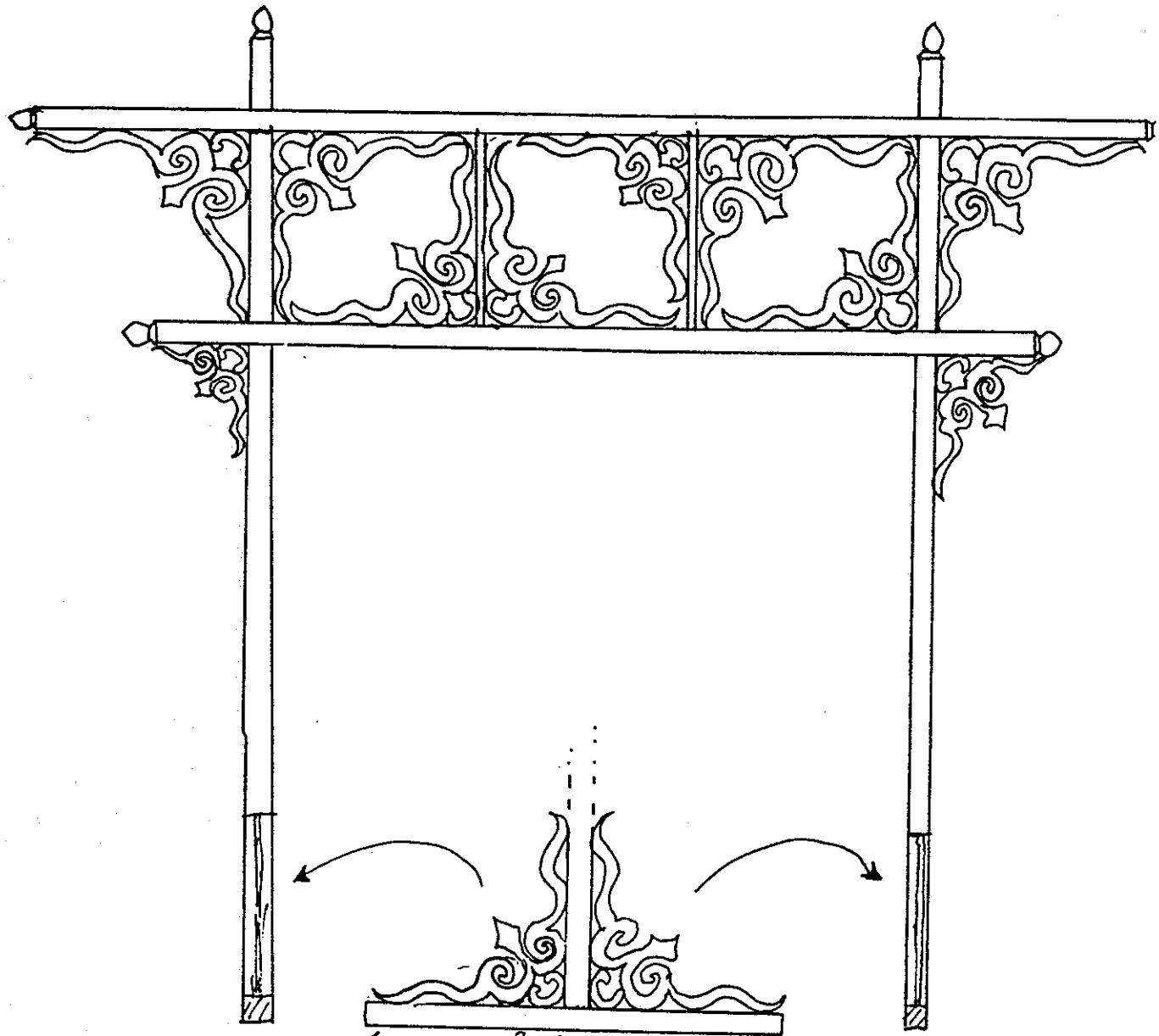
1X2 CUT TO FIT IN BETWEEN INSTRUMENT POSTS. WIRES ATTACHED TO 1X2 GO INTO HALF HINGES SCREWED INTO POSTS.

GONG AGUNG





GONG MADE OF MILD STEEL. SEE "GONG TECHNOLOGY"



SIDE VIEW OF GONG STAND BASE* (ONE FOR EACH POST)

STAND FOR GONG AGUNG

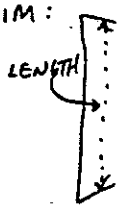
GAMBANG

ONE MODEL FOR SLENDRO & PELOG.

#	KEY	LENGTH		WIDTH		THICKNESS	
1	5	23 5/8"	600 mm	2 3/4"	70 mm	@ 13/32"	10 mm
2	6	22 23/32"	580 mm	2 11/16"	68 mm	"	"
3	1	22 1/16"	560 mm	2 9/16"	65 mm	15/32"	12 mm
4	2	21 1/4"	540 mm	2 1/2"	63 mm	1/2"	13 mm
5	3	20 15/32"	520 mm	2 13/32"	61 mm	"	"
6	5	19 13/16"	503 mm	2 7/32"	58 mm	19/32"	15 mm
7	6	19 3/16"	487 mm	2 7/32	56 mm	"	"
8	1	18 1/2"	470 mm	2 1/8"	54 mm	"	"
9	2	17 29/32"	455 mm	2 1/16"	52 mm	5/8"	16 mm
10	3	17 5/16"	440 mm	1 15/16"	50 mm	"	"
11	5	16 3/4"	425 mm	1 29/32"	49 mm	11/16"	17 mm
12	6	16 1/8"	410 mm	1 27/32"	47 mm	23/32"	18 mm
13	1	15 5/8"	397 mm	1 13/16"	46 mm	25/32"	20 mm
14	2	15 3/16"	386 mm	1 25/32"	45 mm	7/8"	22 mm
15	3	14 11/16"	373 mm	1 23/32"	44 mm	29/32"	23 mm
16	5	14 3/16"	360 mm	"	"	1"	25 mm
17	6	13 5/8"	346 mm	1 11/16"	43 mm	1 1/16"	27 mm
18	1	13 9/32"	337 mm	1 21/32"	42 mm	1 1/8"	29 mm
19	2	12 13/16"	325 mm	"	"	1 9/32"	31 mm
20	3	12 13/32"	315 mm	1 19/32"	41 mm	1 5/16"	33 mm
21	5	11 13/16"	300 mm	1 9/16"	40 mm	1 3/8"	35 mm
22	6	11 7/32"	285 mm	"	"	1 15/32"	37 mm

KEY SPACING: 5mm 3/16"

LENGTH GIVEN IS MEDIAN LENGTH OF KEY; CUT AT RIGHT ANGLES 20 mm (25/32") OR SO LONGER. TRIM:



ONE 1/8" HOLE (3mm) IN EACH KEY, 22 1/2 % ± OF LENGTH FROM END (KEY #1 135 mm, KEY #22 64mm)

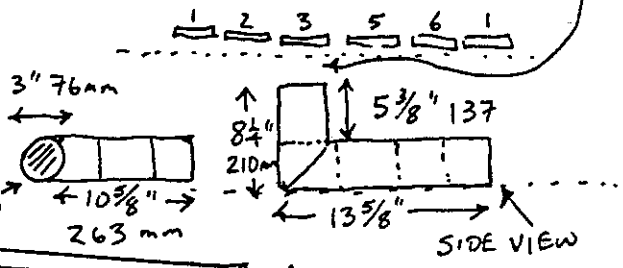
MOUNT KEYS ON 1/2" INDUSTRY FOAM RUBBER (NOT POLYURETHANE OR SOFT ROPE.

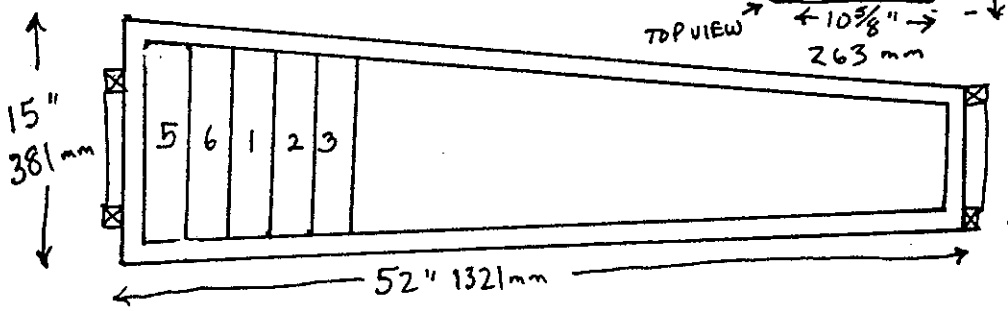
THE FIVE LOWEST NOTES OF PELOG AND THE FOUR LOWEST NOTES OF SLENDRO ARE RESONATED WITH "POCKETS". PARTITIONS SEALED TIGHTLY TOP IS 1/8" HARDBOARD.

DIMENSIONS OF SEALED "POCKETS"

	KEY	WIDTH		DIAMETER OF HOLE	
PELOG	5	2 3/8"	60 mm	1 3/8"	35 mm
	6	2 1/2"	64 mm	1 1/4"	32 mm
	1	2 3/8"	60 mm	1 1/2"	38 mm
	2	2 1/4"	57 mm	2"	51 mm
	3	2 3/8"	60 mm	"	"
SLENDRO	5	2 1/2"	64 mm	1 1/2"	38 mm
	6	2 3/4"	70 mm	1 5/8"	41 mm
	1	2 1/2"	64 mm	1 13/16"	45 mm
	2	2 1/4"	57 mm	3" 76 mm x 1 7/8 48 mm	
	3	SPECIAL TIN CAN RESONATOR: SEE DIAGRAM			

SPECIAL TIN CAN RESONATOR RESTS ON ITS LONG END WITH THE OPEN TOP END RIGHT UNDER THE 3 KEY





GAMBANG CABINET IS 8 1/2" 216 mm HIGH PLUS 1 1/2" 38 mm FEET (END PIECES LIKE DEMUNG)

GAMBANG

SLENDRO & PELOG MODELS ARE THE SAME. YOU WHITTLE THE KEYS FOR FINE TUNING. HOWEVER, IN PELOG, EXTRA KEYS ARE NEEDED AS FOLLOWS.

KEYS	LENGTH	WIDTH	THICKNESS
4	19¾" 302mm	2¼" 57mm	½" 14mm
4	16¾" 425mm	2" 51mm	¾" 19mm
4	14⅛" 359mm	1¾" 45mm	" "
4	9⅞" 250mm	1½" 38mm	1 3/16" 30mm
2 or 7	SAME AS ONE	SAME AS ONE	⅜" 10mm
7	" "	" "	¾" 19mm

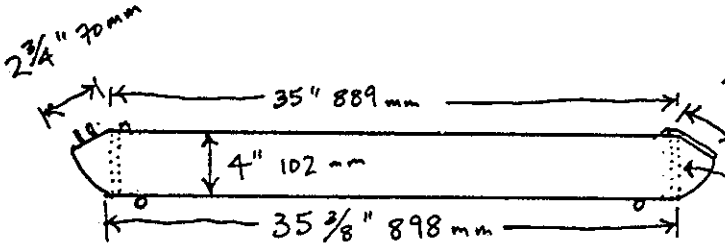
THE HIGHER TWO 7 KEYS ARE THE SAME DIMENSIONS AS THE CORRESPONDING 1 KEYS.

GAMBANG BEATERS (ONE FOR EACH HAND) HAVE 5½" 139mm LONG HANDLES, ¾" 19mm IN DIAMETER. TO THESE ARE ATTACHED A 9" 229mm FIBERGLASS ROD, ⅛" 3mm IN DIAMETER*. THE HEADS ARE ⅝" 16mm THICK AND 1¾" 44m IN DIAMETER, WRAPPED AND SEWN WITH 2 LAYERS OF FELT, THE INNER LAYER @ ⅛" 3mm THICK AND THE OUTER LAYER OF REGULAR THICKNESS.

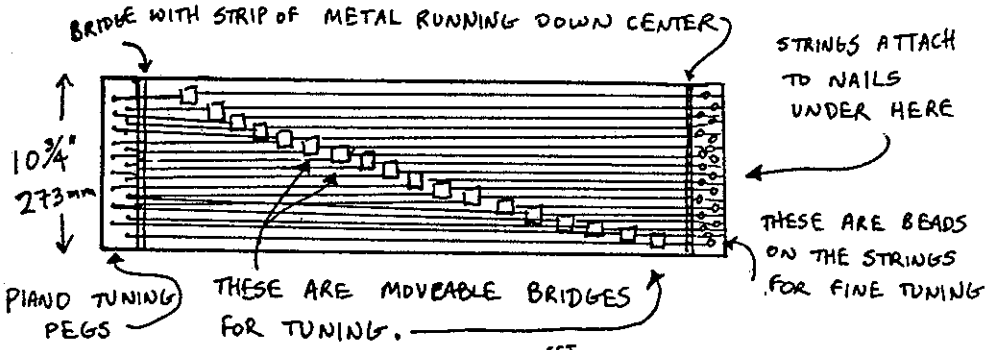
LOU HARRISON & WILLIAM COLVIG RECOMMEND FINE GRAIN REDWOOD FOR THE GAMBANG KEYS, THE FINEST GRAIN YOU CAN GET. MAPLE CAN ALSO BE USED, AS IT WAS FOR THE GAMELAN SI BETTY. K.L. WASITODIPURO, THE FAMOUS JAVANESE COMPOSER & THEORETICIAN, HEREAFTER REFERED TO AS PAK CHOKRO, PREFERS REDWOOD BECAUSE HE LIKES THE CHARACTER OF THE TREE, SO REGAL & TIMELESS.

*WILLIAM COLVIG USED CHILDREN'S FISHING POLES FOR THIS.

SITER

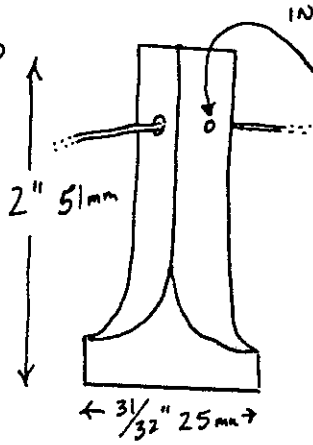


THE TOP AND BOTTOM ARE OF MAHOGANY ⅛" 3mm THE SIDES AND END PIECES OF PINE, ¾" 19mm



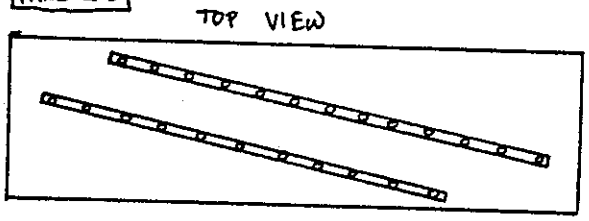
THREE RESONATOR HOLES DRILLED IN THE ENDS

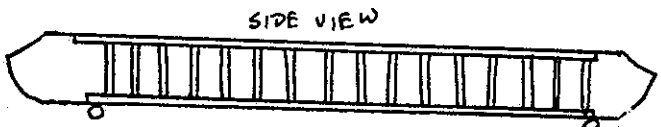
THERE ARE 18 STUDS ALONG THE LEFT BRIDGE, SPACED 13mm ½" APART TO STABILIZE THE STRINGS. THE RIGHT BRIDGE IS NOTCHED TO STABILIZE THE STRINGS.



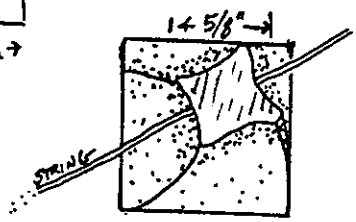
BRASS SCREW BISECTS THE STRING HOLE AT A 90° ANGLE TO PROVIDE A STRING SUPPORT. BRIDGE PICTURED ACTUAL SIZE.

TRESTLES





SITER RESTS ON THREE KNOBS ATTACHED TO THE BOTTOM.

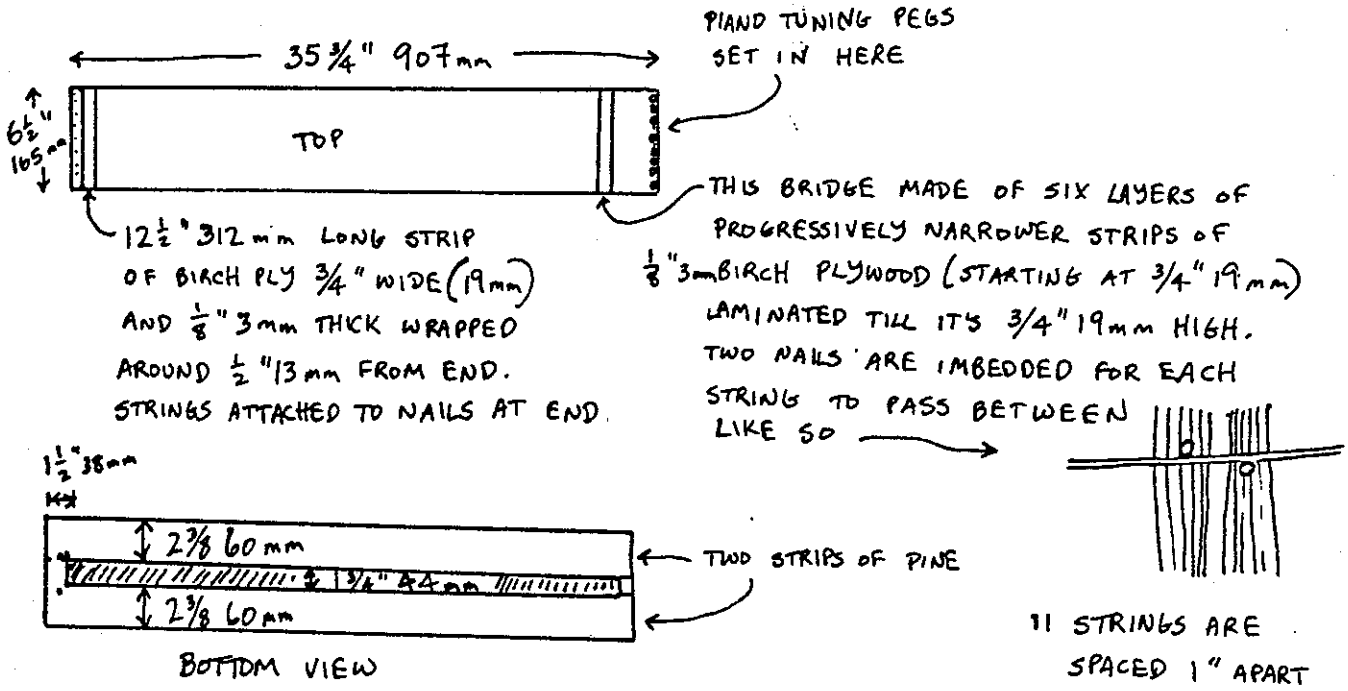


TOP VIEW OF BRIDGE

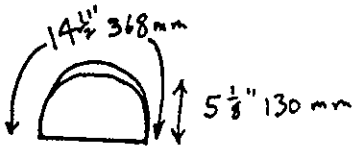
TWO STRIPS of ¼" x ½" (Ø 6mm x 13mm) WOOD ARE GLUED TO THE TOP AND BOTTOM OF THE SITER, PARALLEL TO THE LINE OF THE MOVABLE BRIDGES. THESE ARE CONNECTED BY ¼" DOWELS EVERY Ø 2", THUS JOINING THE TWO VIBRATING SURFACES WITH TWO TRESTLES. THIS INCREASES THE VOLUME AND RESONANCE.

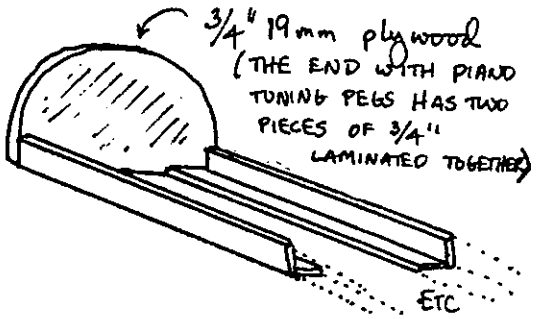
STRING IT UP WITH MUSIC WIRE, AVAILABLE AT HARDWARE STORES. MAKE SURE THAT YOUR BRIDGES ARE NOT DIRECTLY OVER THE END PIECES OF THE BODY. THEY SHOULD HAVE UNIMPEDED CONTACT WITH THE RESONATING SURFACE OF THE SITER.

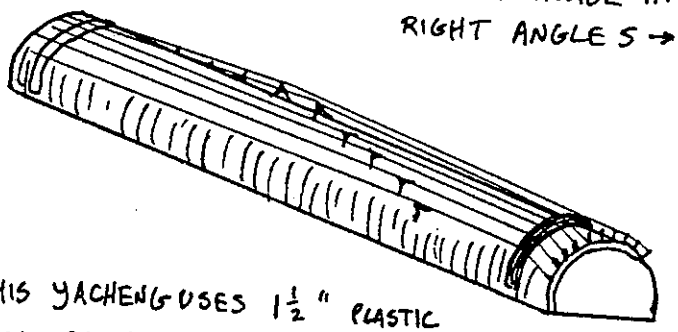
YACHENG



A STRIP OF FLEXIBLE ⅛" BIRCH PLY IS WRAPPED AROUND THE FRAME AND CLAMPED. THE TWO EDGES OF THE FRAME ARE MADE OF TWO PIECES OF 1"x2" PINE (LIT. ¾" x 1⅝" 19x41mm) NAILED TOGETHER LENGTHWISE AT RIGHT ANGLES →

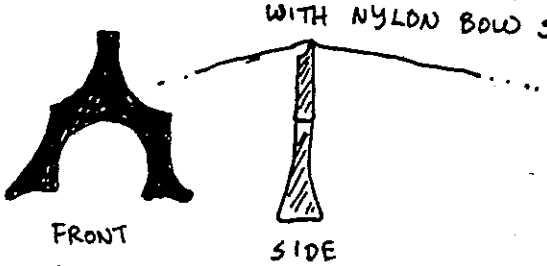






THIS YACHENG USES 1½" PLASTIC BRIDGES FROM TAIWAN, THOUGH THE OUTER STRINGS ON EITHER END USE 1" HIGH BRIDGES.

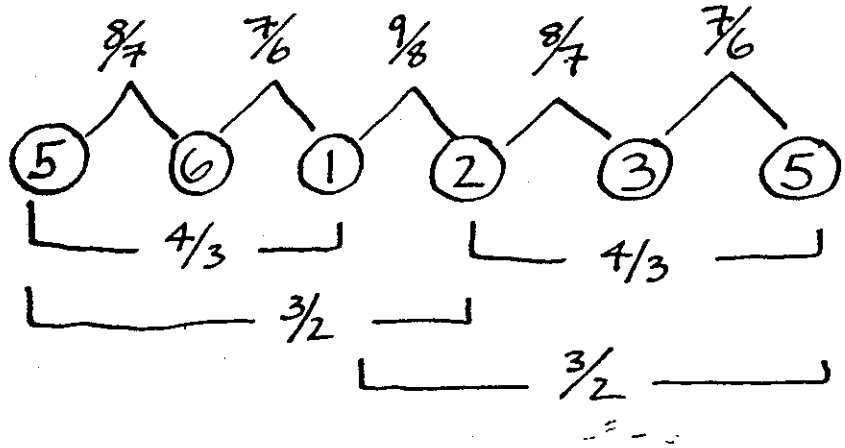
STRING WITH MUSIC WIRE. OUR BOW IS A 29" 732mm CHINESE BAMBOO BOW RESTRUNG WITH NYLON BOW STRINGS.



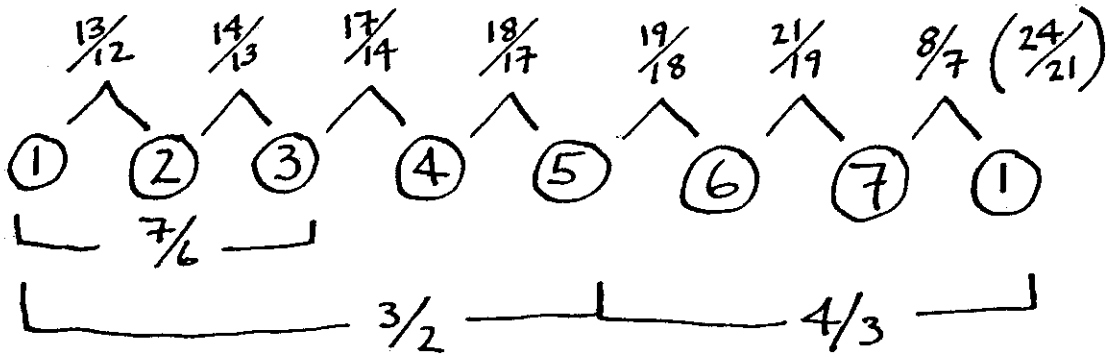
The Tuning of the Mills Gamelan Si Darius Si Madeleine

The Mills Gamelan is tuned in just intonation, meaning that all the intervals used are derived from the harmonic series, or overtone series. Thus none of the intervals are tempered; all are "real events" found in nature. The smallest possible ratio is used to describe a given interval. Here are the tunings for the Mills Gamelan:

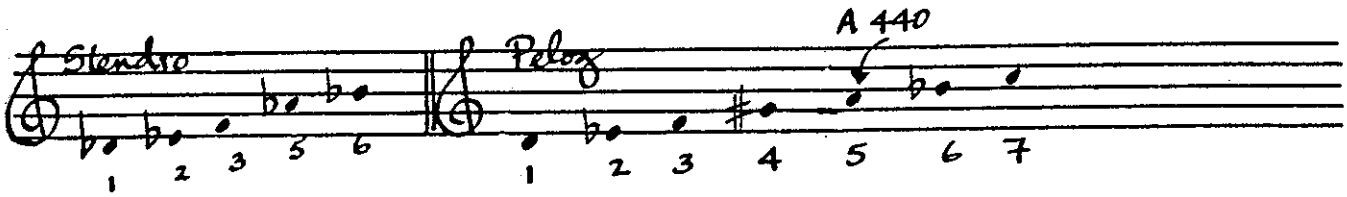
SLENDRO



PELOG



Pitch ⑥ is the same in slendro and peloz and is called the TUMBUK, or shared tone. Pitch ⑤ of PELOG is A 440.

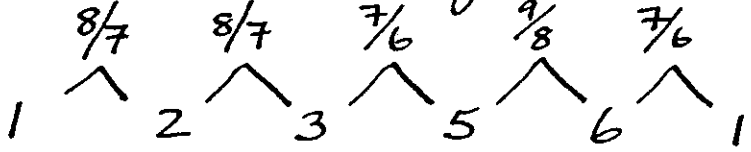


Here are the approximate Western pitches of the two tunings. Lou Harrison worked out the tuning schema by studying modes and tunings of all sorts. One finds that in the framework of just intonation, there are numerous SLENDRO tunings to choose from. The Mills Slendro is a variant of the slendro used by Lou Harrison and William Colvig for the Gamelan Si Betty which they built at San Jose State. The Javanese say every gamelan tuning should be different. There is only one difference between these two slendro tunings: the interval from 6 to 1 in the Gamelan Si Betty is a 19/16, whereas the same interval in the Mills College Gamelan is a 7/6. And yet this subtle difference is enough to give a very different "flavor" for each tuning.

Lou Harrison was assisted in his search for modes in just intonation by William Colvig, who built a metallophone for him of the first 33 tones of the overtone series. This unique and marvelous "tool" allowed Lou to search freely in the higher octaves of the overtone series for various tunings. It was during one of these "searches," in this case a quest for a suitable pelog, that Pak Cokro, Java's foremost composer and theoretician, knocked on the door and asked what Lou was doing.

Lou replied that he was searching for a suitable pelog. Pak Cokro said that the mode he'd been playing with when he knocked was quite good, and would work very well for singing. These tones happened to be the overtones 12, 13, 14, 17, 18, 19 and 21. And thus it was that the Mills pelog tuning was born.

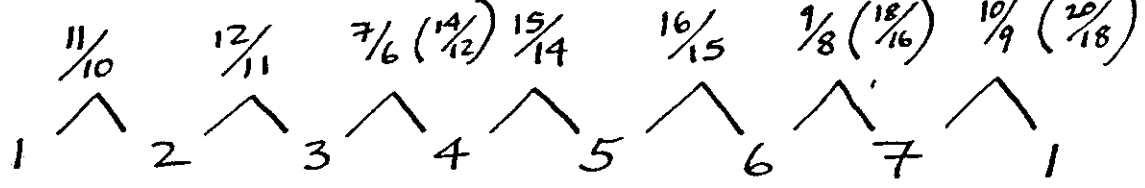
Lou Harrison says that slendro tunings are really more subtle, because the intervals you are juggling within the octave are closer together in size. The Javanese tend to like very large intervals between 1, 2 & 3. However, these three tones should be below a 4/3 (a perfect fourth); if they extend beyond a 4/3, the tuning will "flip" and the ear will tend to hear 1, 2 & 3 elsewhere in the mode. Lou wants to try this slendro in a gamelan:



He feels the large intervals between 1, 2 & 3 will be particularly pleasing to the Javanese ear. It should sound quite similar to the slendro tuning of the gamelan Kyai Kanyut Mesem (Sir Swept Away by a Smile) at the Mankunegaran Palace in Surya Karta, which features large intervals between 1, 2 & 3. This gamelan can be heard on the album "Javanese Court Gamelan Vol. II" (Nonesuch H-7204) recorded by Robert E. Brown (gamelan directed by Raden Tumenggung Soendoro Mitoeno Widjo-atmojo).

Lou Harrison heard a recording of a Javanese composition from Jogyakarta which sounded like slendro sanga (a version of slendro which cadences on 5.) However, when he asked Pak Cokro for a transcription of the piece, it was found to be written out in slendro nem, a slendro version which cadences on 2. Though at first adamant that the piece should be played in nem, Pak Cokro finally conceded that if the nem tuning of the original gamelan sounds like sanga on your gamelan, the piece could in effect be transposed. This is an important precedent for those who would transcribe Javanese pieces for American gamelan tuned in just intonation.

The Mills College Si Madeleine pelog is certainly not the only to be found directly in the overtone series. Gamelan builder Dan Schmidt has found a pelog in overtones 10, 11, 12, 14, 15, 16 and 18 which looks like this:



And of course pelog could be found by transposing and recombining various intervals in the overtone series.

TUNING THE MILLS GAMELAN

William Colvig tuned the Mills Gamelan with an old WWII army surplus oscilloscope. He started with pitch 5 of pelog, which is A 440. Using a microphone and a first-rate tuning bar, he first registered the A 440 on the oscilloscope as a sine wave with a given number of cycles. Then starting with an approximate size key, slightly lower than A 440, he would first strike the tuning bar and then the key. By gradually grinding the key on a grindstone to raise the pitch, he would acheive a perfect unison. This would register on the oscilloscope as a visual unison of the two sine waves. If the sine waves are almost in sync, but are drifting towards the left, then the higher of the tones you're testing is sharp; if it crawls to the right, then it is a bit flat.

A 440 was selected for pelog pitch 5 because it would facilitate playing Western instruments with the gamelan, especially strings and instruments such as trumpet that work with the overtone series. It also happens to be very close to the pelog pitch 5 of most Javanese gamelan.

Now that you have pitch 5 of pelog, pitch 6 is needed. Since it is the tumbuk, or common tone between slendro and pelog, it opens the door to slendro, so to speak.

We can see from our gamut of intervals that the interval we need between 5 and 6 is a 19/18. What we need then, is to tune our pitch 5 on the oscilloscope to 18 cycles per second and then tune our pitch 6 to 19 cycles per second. Since 18 cycles per second is rather hard to count on an oscilloscope, it is easier to first tune down an octave from A 440, or pitch 5. In this case, if A 440 registers on the oscilloscope as a given number of cycles per second, then A 220 will register as a sine wave with exactly half as many cycles (e.g. if you adjust the frequency to show 8 cycles for a A 440, then A 220 will register as 4 cycles per second).

Once you have tuned a key an octave down from the pelog pitch 5 you wish to tune off of, then adjust the frequency on the oscilliscope so that the screen shows 9 cycles per second for this tone. Now play your A 440 an octave up, and it will register as 18 cycles per second. Cut your key so that it is a bit lower than pitch 6. Gradually grind it so that when 5 & 6 are struck consecutively, you get one perfect envelope in your sine wave. This shows that you are in tune, that your higher tone has 19 cycles per second to the lowers 18. Again, if the higher pitch is flat, the sine wave will creep to the right, and if sharp, it will crawl to the left.

In tuning the other pelog intervals, 14/13 will give you a similar envelope effect, whereas 21/19 will register as two envelopes. 17/14 will give you three envelopes.

Once the tambuk, or common tone has been found, then slendro can be tuned in the same fashion.

Aluminum expands and contracts with temperature. William Colvig has found that 70° is a good temperature for tuning keys. Before the final tuning, he lets everything sit on the table overnight. Everytime you file or grind a bar, you add some heat, which can make it a little low. So keep this in mind.

The kenong triangles are tuned by trimming the corners. This raises the pitch. If you go too high, then gouging out the bottom with a hacksaw will lower the tone.

For the slab keys, it is nice to get a double octave overtone. This is effected by just how you grind the keys. The ideal method is to spread out your grinding surface rather than concentrating it in one spot. Experiment with this to get the overtones you want.

Mathematically, the holes on the slab keys should be exactly 22½% from either end. However, rather than agonizing over this with a calculator, the salt method is recommended.

as when tuning, lay your key out on rubber wedges. Sprinkle salt on either end. Then strike the key. The salt will gather at the nodal points of least vibration. This is where you drill. The same method works for bonang plates and the kenong triangles.

In tuning in just intonation, one tunes "without beats." Lou and Bill say they try to get it down to one beat per millenium. But realistically, one can only be accurate to a certain degree.

For bonang plates, beating up into the boss raises the tone, whereas beating around the outside edges on the top will lower the tone. It is important to beat evenly all the way around the boss. One easy way to keep track of this is to count the sides of the octagon as you go around.

The other half of the tuning process involves the resonators. For gong ouwukan, kenong and gendér, cans are used. This process invariably involves a great deal of trial and error. But you will notice just by rapping on a tin can that they all have their particular tone. William Colvig says he likes this tone to be slightly lower than the key being resonated; others prefer slightly higher. But one cannot have them equal, or they will cancel each other out. Much of the scientific background for this comes from Helmholtz's On the Sensations of Tone.

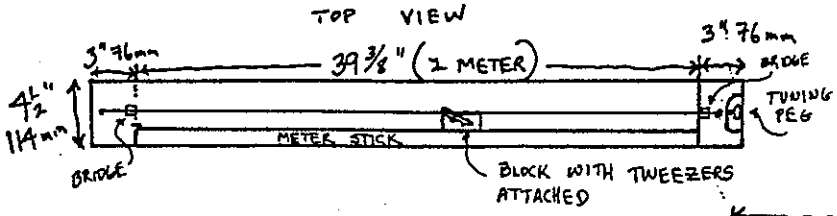
The deeper the resonating cans, the lower the tone, the shallower the higher. However, you will find that, for instance, in a gendér cabinet you only have so much space to extend your cans. This is why the first five keys are cabinet resonated. The cabinets themselves do not have to be the exact dimensions shown. They need be spaced only to be directly under the keys. Once they are tightly sealed, airtight & watertight so to speak, the resonance factor is affected by the size of the hole. The smaller the hole, the deeper the resonance and vice versa. Similar methods are used for the slentem which uses cabinet resonators, and the gembang.

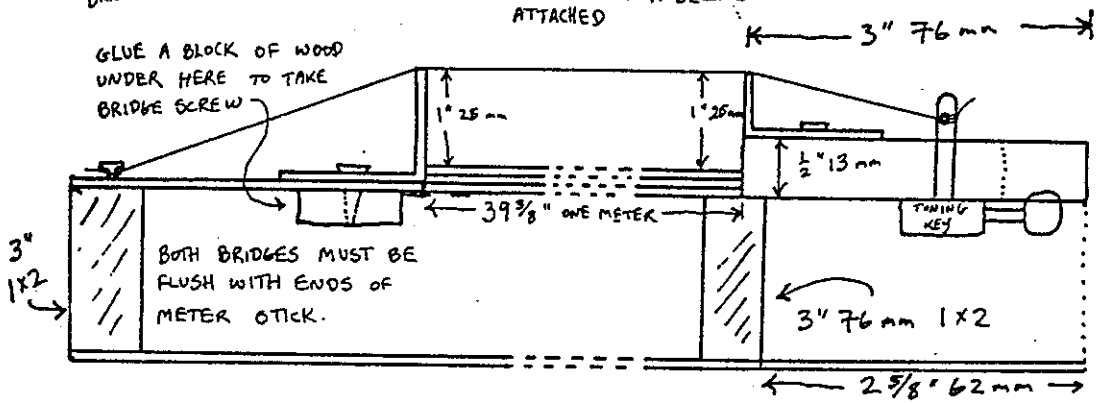
If one is resonating keys with cans and the tone needs to be deeper but there is no more space in the cabinet, one can close in the diameter of the can opening or even lay a strip of wood or hard board across it and this will deepen the tone. This is an especially useful principle for the kempul, so that one does not need to rebuild the entire cabinet to adjust the resonance!

The trough resonating instruments are adjusted in a similar way. The deeper the trough, the deeper the resonance and vice versa. All resonators <u>must</u> be tightly sealed! The gender and gong ourvukan resonators can even be tested by filling them with water.

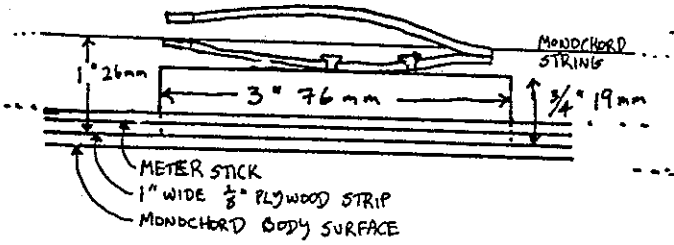
MILLS MODEL MONOCHORD

TOP VIEW

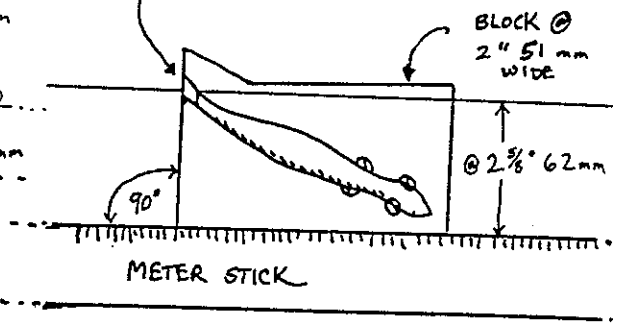




JAWS OF TWEEZERS MUST BE EXACTLY FLUSH TI WITH THE END OF THE BLOCK, AND LOWER JAW OF TWEEZERS MUST BE EXACTLY 1" 26 mm FROM BASE OF BLOCK.



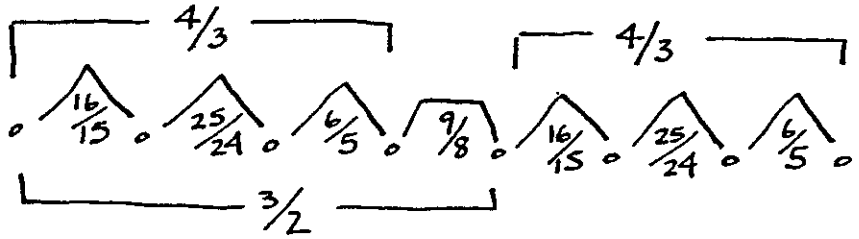
MONOCHORD STRING CENTERED ON TWEEZER JAWS



FIRST MAKE THE MAIN BODY. SIDES ARE TWO 45 3/8" 1152 mm "1X2's" (1 1/2" x 3/4" 38x19mm) LENGTHS OF PINE; TOP & BOTTOM SAME LENGTH, 4 1/2" 114 mm WIDE 1/8" 3mm PLYWOOD OR MAHAGONY. ONE 3" 76 mm 1X2 GOES INSIDE THE LEFT END, THE OTHER 2 5/8" 62mm FROM THE RIGHT END (WHICH IS 3" 76mm FROM CENTER OF BLOCK TO END). A METER LEDGE OF 1" 26 mm WIDE X 1/8" 3mm THICK PLYWOOD GOES BETWEEN METER STICK AND SOUNDBOARD. AFTER BODY IS MADE AND METER STICK MOUNTED AS SHOWN, MAKE TWEEZER BLOCK AND MOUNT TWEEZERS. MEASURE FROM CENTER OF TWEEZER JAWS TO OUTSIDE OF METER STICK TO DETERMINE POSITION OF STRING (@ 2 5/8" 62 mm). LOWER JAW OF TWEEZERS MUST BE EXACTLY 1" 51 mm FROM BASE OF BLOCK. RIGHT STRING SUPPORT (90° ALUMINUM BRACE) MUST BE AT RIGHT ANGLE FROM METER STICK END. LEFT SUPPORT (BRIDGE) EXACTLY 1000 mm FROM THE RIGHT ONE, AND ALSO AT A RIGHT ANGLE TO END OF METER STICK. STRING HEIGHT EXACTLY 1" 51 mm, LIKEWISE TWEEZER JAW. LOWER LEFT CORNER OF TWEEZERS MUST BE EXACTLY 90° FROM METER STICK. LUFKIN BRAND ALUMINUM METER STICK QUITE ACCURATE. USE A BOW FOR SUSTAINED TONE WHEN PLAYING.

TRACKING MODES ON A MONOCHORD

First you need a strip of sturdy paper slightly longer than 50 centimeters (the mid-point or octave harmonic of your monochord string). Strathmore 3-ply is the best, though 2-ply is certainly adequate. Anchor your strip along the meter stick and mark the 50 cm point; this is your 2/1 or octave. It is within this space that we will find our mode. For an example, we'll track DIDIMUS' CHROMATIC. It looks like this:



It could also be measured from the tonic and written this way: 1/1 16/15 10/9 4/3 3/2 8/5 5/3 2/1

To find a 16/15, or the relation of a sixteenth of the string to the remaining 15/16's, we divide 16 into 100 (centimeters). This gives us 6.25 centimeters, which we mark on our monochord strip. When we clamp this point with our monochord tweezers, the interval we hear in relation to the whole string is a 16/15. To find a 25/24, or the relation of a 25TH of the remainder of the string to the other 24/25's, we first must find our new string length by subtracting 6.25 from 100. We are left with 93.75; divided by 25, this gives us 3.75, which when added to 6.25 = 10 centimeters. We measure this off from the end, mark it, and when we play it, we hear the 25/24 from the second to third degrees.

Another way to approach this interval would have been to add 16/15 and 25/24 = 10/9 and found this length in relation to the whole string as we did with the 16/15. This method can be used to find our third interval, the 6/5. We can simply measure a 4/3 in relation to our 100 centimeter length which gives us 25 centimeters. Mark this on the strip. For your next interval, measure off a 3/2 in relation to the meter length. This gives us 33.33... cm. Mark this perfect fifth on your monochord strip. To find the lengths of the upper tetrachord, we add each of our intervals to the 3/2 and measure them in relation to the 100 cm length. Thus 3/2 + 16/15 = 8/5. 100 cm. divided by 8 is 12.5 cm. 5 × 12.5 = 62.5 and we want the relation of the remaining three 8THS to these 5, or 100 - 62.5 = 37.5 cm. (or just multiply 3 × 12.5). Measure it and mark it. Now 16/15 + 25/24 = 10/9, added to 3/2 = 5/3. 5 goes into 100 of course 20 times and we want 2 of these lengths, or 40 cm. Mark this on your monochord strip and there you have it. Notice that once you've measured your two 4/3's separated by a 9/8, you can use these measurements for almost every classic mode, so you've saved yourself some work.

GONG TECHNOLOGY

In Java, gong making is a religious ritual. Seven or eight men are needed; they take mythological names and undergo rites of purification. A special bronze alloy is used called gongsa, ten parts copper and three parts tin. However, the preference now is to melt down old gamelan and use this bronze to make gongs; so the exact proportion of the alloy is questionable. A pancake of hot metal is poured, 12" - 18" in diameter and 2" to 3" thick. The men beat on this with sledge hammers in a darkened hut — the metal is kept hot, and the darkness of the hut enables the beaters to perceive the subtleties of light and color in the metal which tell them where to strike. They start from the boss and gradually spread the metal outwards, eventually all the way up the sides. After it is finished, it is hung up and struck, and if it doesn't sound, then they melt it down and start over again. Java's most famous gongs are of bronze. These are considered national treasures, some of them up to seven feet in diameter. Today, any gong over one meter in diameter is not allowed out of the country. The only disadvantage to bronze gongs, if it can be called a disadvantage, is that once they are made, the tuning adjustment is minimal; the most one can do is a little filing, for if you start hammering on bronze, it will shatter.

However, by far the majority of gongs in Java are made of iron, and these are found both with iron and bronze gamelan. It is this iron gong technology that has proven transferrable to the West. The Javanese are quite resourceful, and will for instance open up oil cans and flatten them out, draw a circle with a caliper and cut out the main diaphragm of the gong. Often gongs are welded together from scrap iron.

The gong of the Gamelan Si Betty at San Jose State has a flange which has four corners of the original sheet of metal turned back into it, with four half moon sections of iron dry crimped and then rivited to form the complete flange.

Normally a gong flange is made of three sections welded or dry-crimped together and is conical, i.e. comes off the main diaphragm of the gong inwards at an angle. This is for greater rigidity. It never meets the gong diaphragm at a 90° angle.

The gamelan Si Betty gong was made by Pada Liya, a famous gong maker outside of Jogyakarta. It is an iron gong that is entirely dry-crimped and rivited, no welding. It has an original shallow iron boss onto which a heavy bronze boss is rivited, thus making a heavy weight in the middle as a kind of impeller. This, and the diaphragm of the gong with its slightly raised cheek and the rigid flange, seems to be the anatomy of a good gong. 60

The surface of an iron gong should be beaten all over to improve the tone. Pak Chokro says, "More beating, more beauty." The umbak of a gong (the deep "wah-wah" effect) can be controlled. It seems to be a function of the exchange between the weighted boss at the middle and the rest of the membrane. By adjusting the weight of the boss and pounding the cheek in or out, you can reach a desirable umbak. The pitch can be regulated this way too. By weighting the boss, you lower the pitch. If you turn it upside down and pound out, you are in effect raising the membrane; this puts more tension on the gong which raises the pitch. If you push it in, the pitch goes down. If you push it too far in, it loses its centricity of tone and starts sounding like a tam-tam

There is another sort of Javanese gong called the kemodong. Two iron slabs 6-8" wide and perhaps 18" long with bosses are tuned slightly apart and suspended next to each other over a huge 2'x2' resonator box, in reality a Helmholtz resonator with a little hole. They are struck together and produce a beautiful umbak Though the tone is not particularly loud, it has great sustain. This gong is prescribed for certain times of the year when use of the gong ageung is forbidden, and is also used with the gamelan klenengan - a gamelan which uses almost exclusively the panerusan instruments.

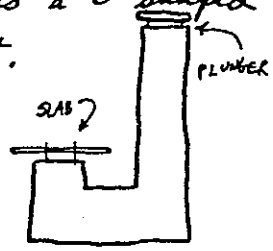
There is also a folk version of the gong agung made of two lengths of bamboo, one smaller and inside the other. In a kecapi-suling ensemble or other small street ensemble, one of the players (often the drummer) will lean over and blow into this bamboo gong, which has a lovely and quite realistic tone.

The gong agung is historically free from the pitch system of the gamelan, but in recent dates, it is said that the best gong is pitch 2 slendro an octave below the sunurkan range. Pak Chokro says that in ancient times, gongs were always 5 & 6 slendro in our sunurkan range, and were used alternately at the end of a balungan cycle. The "modern day" gong agung is pitched a fourth below these two tones. When they aim for a specific pitch, it tends to sound like a low gong sunurkan. However, the other variety is the "honeyed-thunder" kind, which does not relate to the gamelan in pitch, but is more of a deep bass "presence" thick with overtones.

When Lou Harrison and William Colvig first started building gongs, they used the "gong gender" model, i.e. a large slab of aluminum suspended over a resonator, like the gong sunurkan, described at the beginning of this book. This model successfully sounded down to pitch 5 slendro, roughly a low Ab below the cello. The classic gong agung, then, would be a perfect fourth below that, roughly a low Eb a half-step below the contrabass.

They succeeded in making such a gong; it sounded, but it needed support. First they added another slab giving the octave, like on our gong suwukan model, and then another slab giving the fifth above that. So finally they had the first three partials sounding simultaneously.

The resonating chamber for this gong was a U-shaped affair researched and modelled by Dan Schmidt. He found that, working basically in proportions of square blocks that the model pictured at the right works best. The chamber directly under the gong slab and the main resonating chamber must be separated by a cube of fairly equal proportions. This creates the U-shape, which gives the sine wave of the gong a curved path to travel. If the two chambers are side by side, i.e. separated only by one wall, the gong won't sound as well. At the top of the main resonator is added a plunger for adjusting the resonance.



One problem with this gong model is that the resonating chamber is so heavy that you loose the advantage of light weight aluminum. It's also a challenge to make it airtight. In addition, you don't really get shimmer or <u>umbak</u>; all you get is a sine wave, whereas a gong should be dense with overtones. As with any gong, it is essential that it be placed in a hall so as not to interrupt the wavelength, which can be very long (the gong gender Lon & Bill built has a 16 ft. wavelength).

Another gong experiment involved a large 3 ft. octagonal sheet of aluminum. Lou hammered in a @ 6" boss and then found the nodal points and drilled. This gong was just a plate with no flange, in effect a huge bonang plate. The sound is very good but very directional. Extensions of this idea could involve turning up the corners and bolting on a flange. Or one could cut four V-cuts into the corners of the octagon, then bend up those flaps and weld them into a flange. Another idea would be to try a totally hammered aluminum gong, perhaps adding a cheek also. In other words, aluminum should be tested at the full size. However, Lou doesn't think aluminum would deliver the amount of strength necessary for a gong agung, unless it were perhaps a huge unwieldy thing, perhaps ½" thick and 8 ft. across.

Another gong project involved the services of a metal working shop. Lou and Bill bought a large sheet of mild steel, then went and bought toilet floats and cut them in half. They took these to the metal-working shop and asked them to cut a perfect circle of a given diameter, and then a smaller circle the size of the toilet float and weld them together. Then a flange was welded on at a 90° angle to this diaphragm, edge to edge. Sure enough, it worked, but after three or four beatings, it began to buzz.

What they found to be the problem was that the flange had been welded on edge to edge. One must make sure to bend back the edge of the main diaphragm of the gong before the flange is attached. It is a tough job to bend this edge back; it tends to ripple. You just have to persist. Use a monkey wrench and a hammer to pound out the ripples.

The gong agung of the Mills Gamelan is named Kyai Mark, after the sculptor and professional welder Mark Bullwinkle who finished it for Lou Harrison, who had started it several years before. Lou started with a large sheet of mild steel, perhaps 4' square. The boss mold was the end of an oxygen tank dug into the earth. The steel sheet was stabilized over this with a 2×4 frame.

When making the boss, be sure to start at the edge and pound <u>in</u>, so you are pushing the density of the metal <u>in</u> towards the center. In this way you can build up an almost perfect hemispherical boss. Whatever sort of mold you use for the boss, don't forget to round off the edges with a file so that it slips off the gong easily. Lou Harrison finished this boss in about an hour, pounding on the metal cold.

William Colvig then cut off the corners of the steel sheet with an ordinary jig saw — he had a pan of water underneath to cool the blade and kept pouring cutting oil over it. It took time and patience, but he succeeded.

For the cheek of the gong, William Colvig made a bent pipe form which was attached to a heavy frame of 4x4's. This was then pounded out cold. There is a problem here, in that the metal tends to want to curl and warp. Lou Harrison says that you simply must persevere, and "bit by bit, you tame it."

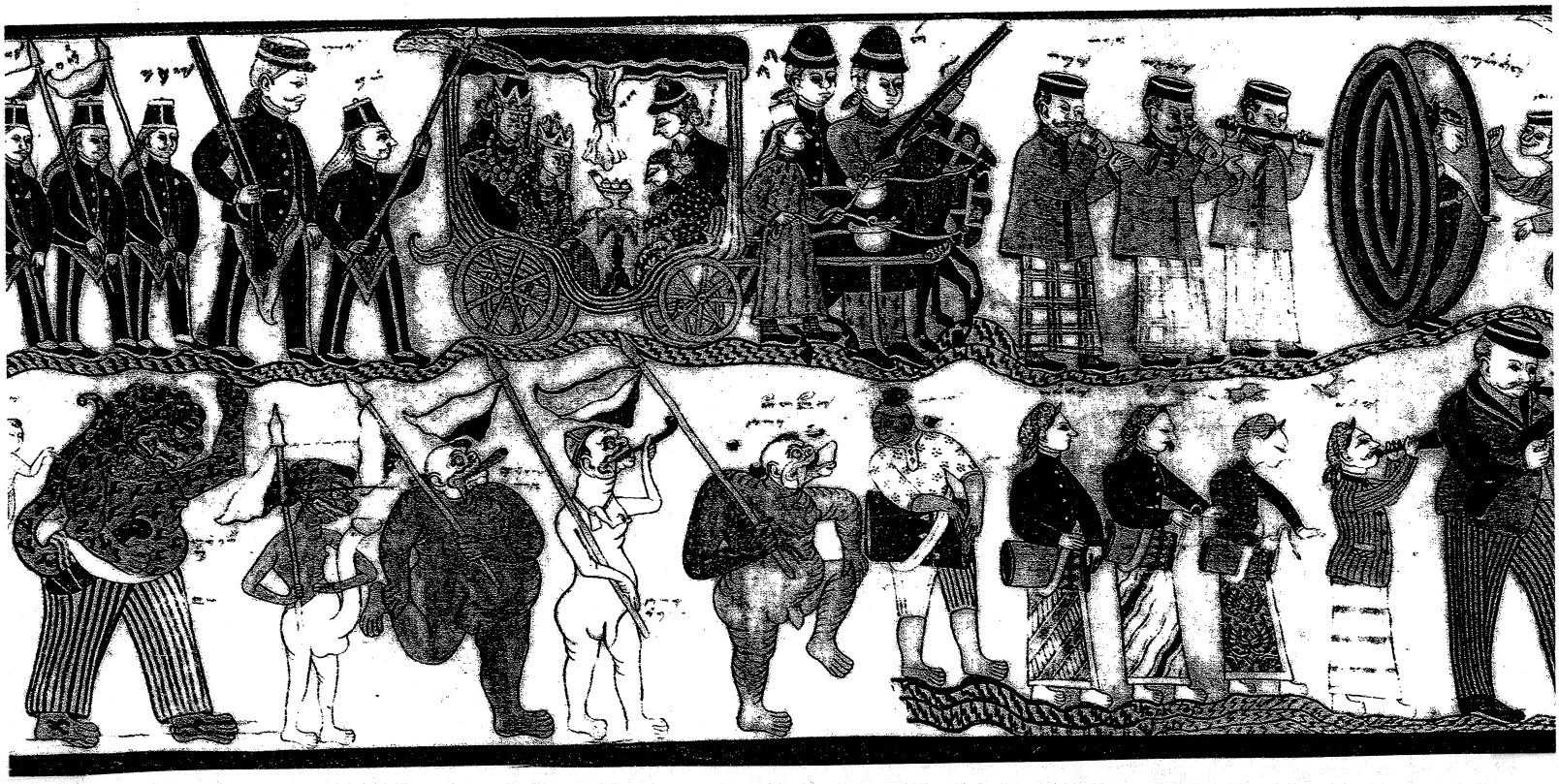
At this point, Paul Dresher returned from Java and asked Lou why he didn't use a torch like the Javanese. This makes the metal working much easier, though Mark Bullwinkle says he prefers working cold for very thin metal, as heat tends to make it curl up unpredictably.

Mark used acetylene welding to attach the flange. He first made a design of cardboard. He decided to use the Javanese method of fashioning the flange in three pieces. After he had his model, he traced the cardboard onto metal and cut it. Then he tacked it onto the gong and shaped it into the proper cone form. He then took it off before he welded it together and then welded the whole flange to the gong diaphragm. It was also found that you can pound and tune after welding. Lou Harrison says that an iron gong is like painting with oils; you can make changes after you're finished. But a bronze gong is like watercolors; you can't change it once it's finished.

after the gong was finished, the beater had to be upgraded. Lou Harrison bought a heavy rubber mallet at a hardware store and rounded off the ends so the head was capsule shaped. He then covered this with felt.

Two days after finishing his first gong, Mark Bullwinkle finished his second gong which he named Kyai Nægling, after the sword of Beowulf. He used thinner steel, and weighted his boss with beeswax melted with large lead pellets in it. It was here he discovered the relation between umbak, pitch and the weight of the boss. It is a handsome gong with a rich mellow tone that would sound lovely with a small gamelan.

The success of Lou Harrison, William Colvig and Mark Bullwinkle shows than we can successfully transfer iron gong technology from Java to the West. It is hoped that others will become involved in this exciting project.



excerpt of a cloth painting called *The Barikan Banner of Gegesik* by Sitisiwan (1865–1948) of Cirebon
from a facsimile scroll published by the Lontar Foundation, *www.gamelan.org/lontar* and *www.lontar.org*