A Guide to the Gamelan
Neil Sorrell
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The gamelan 'orchestra' has delighted and inspired Western musicians and travellers to Java and Bali for four centuries. This concise but important book introduces the reader to the history, music and instruments specifically of the Central Javanese gamelan, although reference is also made to Balinese gamelan music. There is a detailed account of the ritualistic process by which a gamelan is made, while the book begins with an assessment of the influence of gamelan music on Western composers, from Debussy to Benjamin Britten, to Steve Reich.
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Preface

Be not afeard. The isle is full of noises,
Sounds, and sweet airs, that give delight, and hurt not.
Sometimes a thousand twangling instruments
Will hum about mine ears; and sometime voices,
That, if I then had wak’d after long sleep,
Will make me sleep again; and then, in dreaming,
The clouds methought would open and show riches
Ready to drop upon me, that, when I wak’d,
I cried to dream again.

What better way to begin a study of Javanese gamelan music from an
English perspective than with lines of our greatest poet? The speech of
Caliban in Act 3 scene ii of Shakespeare's *The Tempest*, describing
Prospero's magic island, has the universality and truth of poetic beauty
to convey the essence of Java and its music better than any scholarly
prose or the efforts of this book.* We must first try to capture the poetic
inspiration and then to explain. As performers of gamelan music and
audiences increase, so it becomes more important to have a means of
understanding the sounds at a basic level. Books on the subject (in
English) have tended to be either lengthy and specialized or else brief
introductions avoiding detailed discussion of the music. Students,
teachers, and the musical public require an introduction which gives the
context of gamelan music and an insight into its workings. Over the
past ten years or so I have been asked to give introductory lectures and

* I was reminded of these wonderful lines by Alec Roth, who used the first four
of them to introduce performances of his exquisite settings, for voices and
gamelan, of two of Ariel's songs from this play.
workshops in gamelan playing. From the kinds of materials, explanations, and questions arising, not to mention constant requests for further reading, came the main impetus behind this book. It provides a grounding in the subject, from which the interested reader may continue to the longer, more specialized works, which generally assume this prior knowledge. For those who have never played gamelan it may whet their appetite to try, on one of the many sets now available!

The sight of a gamelan laid out in all its beauty provides the best definition of the word, a generic term for widely differing ensembles, comprising predominantly percussion instruments, usually made of bronze and mounted on intricately carved wooden frames. Most gamelans come from the Indonesian islands of Java and Bali, and an introduction to all the different kinds of gamelan, on equal terms, would stretch the length of this book and the expertise of its author beyond reasonable limits. Instead, the study is confined to the typical Central Javanese gamelan, and specifically the tradition in the city of Solo (Surakarta), which is not only one of the most important in Indonesia, but has also become the main gamelan type outside.

Because the justification for this book is not simply the mechanics of the gamelan and its music but how and why it has made such an impact in the West, the first chapter examines the phenomenon, especially with reference to composers and music educators. From a brief general introduction to the historical, geographical and cultural context in Java, the book proceeds to an examination of the instruments of the Central Javanese gamelan, including some information on the fascinating subject of how they are made. The following chapter, on the subject of karawitan – the traditional music of the Javanese gamelan – arms the reader with the rudiments and terminology of the 'software'. The application of this musical system to the instruments of the gamelan is described in the final chapter, in which a piece is analysed to illustrate what may be considered typical in gamelan music. The concluding summary returns to the theme of what all this means to us.

Acknowledgements

This book is dedicated to Gamelan Sekar Pethak, to its makers and to all who have played on it or will do so. It must be unusual to dedicate a book to a set of musical instruments, but the gamelan, in keeping with Javanese beliefs, is not to be dismissed as a collection of inanimate objects.

The dedication is also an attempt to include most of the people to whom special thanks are due: first and foremost to the maker of the gamelan, Tentrem Sarwanto, and his team of craftsmen; Hadi Adnan in Jakarta, Suparmin Sunjoyo in London, and Tony Sunaryo in Yogyakarta, for their help with packing and freighting the instruments; the English Gamelan Orchestra (who helped inaugurate Gamelan Sekar Pethak in York on 30 April 1982); the students of the York University music department, who stuck their necks out in the first place by coming to the department, and further by joining the gamelan group (much of the book grew out of the stimulus of working with them); to my Javanese teachers, who either helped inaugurate Gamelan Sekar Pethak in Java, on 22 November 1981, or else have played and taught on it in England, including I. M. Harjito, A. L. Sutikno, Sri Hastanto, Rahayu Supanggah, A. L. Suwardi, Supardi, Sukamso, Panggiyo, and especially Joko Purwanto (who demonstrates some of the instruments in the photographs).

The dedication also includes distinguished visitors to York who worked with us: Lou Harrison and William Colvig, who brought their creative skills from California and gave us new perspectives on gamelan and its music, and His Excellency Bapak Suharto, who gave of his valuable time and expertise to introduce us to the pinnacle of his country’s culture, wayang kulit (shadow play). Some names slip
through this net: most important are my first gamelan teacher (1969–71), the late Prawotosaputro, and his assistants at Wesleyan University (USA), especially Shitalakshmi Prawirohardjo, and Bob Brown, a driving force behind gamelan studies in those years. The present director of the gamelan at Wesleyan, Sumarsam, shared his very interesting and original theories with me during my most recent visit to Wesleyan (Fall Semester 1989), principally to study with him and, once more, with I. M. Harjito. Without the guidance of these two excellent teachers and musicians this book may still have been possible, but it would have been virtually devoid of that essential ingredient: the Javanese perspective. There can hardly be a page that does not owe some debt to the inspiration of Harjito and Sumarsam. Any mistakes and misconceptions must be the product of my own Western—hence relatively inexperienced—mind.

Finally, thanks are due to Donald Mitchell for his kindness in reading the manuscript, the wisdom of his suggestions, and the benefit of his influence, and to certain graduates of the York music department: Peter Murphy and Liz Haddon, for their help and encouragement with the more tedious business of reading, correcting, copying and typing; and Maria Mendonca for our valuable discussions. A special debt of gratitude is due to Ben Arps, who, at very short notice and with much more urgent things to do, read the entire manuscript and sent almost as thick a sheaf of comments and corrections. His expertise is welcome not only to me but to the whole gamelan community in England. Noëmie Mendelle was a dear companion and excellent critic throughout the unduly long period of writing, and I think it is no paradox that her lack of musical training gave me perhaps my clearest insight into the power and value of the gamelan.

Spelling and Pronunciation

The official language of the Republic of Indonesia, of which Java is the most populous island, is Indonesian (Bahasa Indonesia), but a great number of regional languages (bahasa daerah) are spoken throughout the islands and more than one in Java itself. The terminology used in this book is a combination of Indonesian and Javanese (the main regional language of Central and Eastern Java), which results in certain conflicts of spelling and pronunciation. A good example is the pronunciation of the letter ‘a’, which the Javanese often pronounce more like an ‘o’, especially in final and dependent penultimate open syllables. Thus words like sanga, gangsa and gatra will be pronounced by the Javanese more like ‘songo’, ‘gongo’ and ‘gorto’. Conversely, the town of Solo is rarely written as Sala, while Surabaya is hardly ever written as Suroboyo.

Further confusion arises from the fact that in 1972 the Indonesian government adopted a different orthography for the language. For English speakers it represents a simplification and general improvement, with perhaps the exception of ‘th’ for the retroflex ‘t’ (adopted from Javanese orthography in 1974). For example, the word patet is now written patet, but of course the pronunciation has not changed, and ‘th’ should never be pronounced as in English. The modern orthography has been adopted in this book (though without diacritical marks, which are given in the glossary (p. 127–35)).

The simplest approach to pronunciation is to use the approximate Received Standard English equivalents (avoiding diphthongs), with the following qualifications and exceptions:
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Vowels

a see above
e as in moment
e as in momentum
e as in mate
u variously as in truth or put, never as in but

Consonants

c as in chip
dh ‘d’ with the tongue slightly further back
g as in get, rather than gentle (thus, the instrument named gender should never be pronounced like the English word denoting the distinction between the sexes)
k glottal stop at the end of a word or syllable
–ng– as in hanger
–ngg– as in anger
r rolled
th ‘t’ with the tongue slightly further back (not as in the or thing)

It is not usual to mark plurals with the final letter ‘s’, but in spoken English it is quite normal to use it with Javanese and Indonesian words, especially the more common ones (one gamelan, two gamelans, etc.) and this liberty has been taken in this book, with the reminder that such plural forms are English modifications of foreign words.

Notation

Gamelan music is essentially an oral (or aural) tradition, but in the last hundred years various notations have been devised, firstly as a means of preserving compositions and now as part of the teaching process. The only system in common use, and certainly one of the simplest notations in the world, is the kepatihan cipher system.

Each note in the scale is given a number. A rest, or a prolongation of a note, is indicated by a dot or dash. Sequences of notes, rests, or both, are grouped into fours (each called a gatra) and spaced off from each other for ease of legibility.

The upper octave of a note is indicated by a dot above the number, and the lower octave by a dot below.

A line across two or more notes indicates that their length is halved; thus 12 33 or 1233 move at twice the speed of 1 2 3 5. Similarly, the rhythm a/w would be shown in this notation as 1 2 3 3 (assuming a pulse equivalent to a crotchet).

Certain instruments have special symbols. Although these are not completely standardized, the ones employed in this book may be considered to be as prevalent as any others.

rebab (two-stringed fiddle)
\down  down bow
/   up bow
a b c d  fingering (1st, 2nd, 3rd, 4th)
I II III etc. position
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**kendhang** (drums)

<table>
<thead>
<tr>
<th>symbol</th>
<th>sound</th>
<th>played</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
<td>tong</td>
<td>left hand: one or two fingers at the edge</td>
</tr>
<tr>
<td>+</td>
<td>tak</td>
<td>left hand: gentle slap with all fingers near the middle</td>
</tr>
<tr>
<td></td>
<td>ket</td>
<td>right hand: tap with one finger near the middle</td>
</tr>
<tr>
<td>p</td>
<td>dhung</td>
<td>right hand: bounced stroke with one or all fingers near the middle</td>
</tr>
<tr>
<td>b</td>
<td>bemlah</td>
<td>right hand: bounced stroke with all fingers near the edge</td>
</tr>
</tbody>
</table>

These are only some of the sounds. The more elaborate repertoire for the ciblon drum is excluded because it is not notated in this book. When a combination of two drums is used (**kendhang II**) the first four sounds (o, +, | and p) are played on the smaller drum, and only bem (b) on the larger. In the modified staff notation used in Chapter 5 (see below), the first four sounds are placed on the upper monotone (representing the smaller drum) and the last (b) on the lower monotone (representing the larger drum). Left-hand strokes are notated with stems down and right-hand strokes with stems up.

**Colotomic** (punctuating) **instruments** (gongs):

<table>
<thead>
<tr>
<th>symbol</th>
<th>instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>kethuk</td>
</tr>
<tr>
<td>o</td>
<td>kempyang</td>
</tr>
<tr>
<td>∧</td>
<td>kenong</td>
</tr>
<tr>
<td>v</td>
<td>kempal</td>
</tr>
<tr>
<td>(</td>
<td>gong (ageng or suwukan)</td>
</tr>
</tbody>
</table>

In the Javanese cipher system, notations for certain instruments played with two mallets simultaneously (this applies especially to the genders) separate the hands by a horizontal line: –

right hand
left hand

---

**Notation**

– which may be continuous or intermittent, according to the instrument. Notations for the bonangs (gong-chimes), which are also played with two mallets, but usually consecutively rather than simultaneously, do not normally use this line, and consequently do not indicate which hand should play which note.

**Modified staff notation**

This was devised by the author specially for the extended transcription at the end of Chapter 5 of this book, in order to help those who may prefer a more graphic and familiar notation to the Javanese cipher system. It is impossible to notate gamelan pitches accurately on a conventional stave with clefs. The first modification, therefore, is to dispense with Western clefs and to substitute a Javanese equivalent: S for slendro (the tuning system of the piece concerned) and P for pelog (the other tuning system of the gamelan). The five approximately equidistant pitches of the typical slendro tuning then fit conveniently on to the five lines for the middle octave (with upper and lower octaves being placed on ledger lines above or below the stave). Pelog can be adapted to the stave, with smaller gaps between its seven pitches, compared to the five of slendro:

\[ \text{slendro} \]

\[ \text{pelog} \]

Each stave represents the medium octave for the instrument concerned (the relative registers are explained in the written account of the instruments). Monotones are used for the kendhang (drums), since definite pitches are not usually heard, and also for the gong ageng, of which the pitch is neither standardized nor easily notated.

Another advantage of this system is that it permits the use of the normal Western rhythmic notation. The pulse of the balungan (the skeletal melody of the composition) is here taken to be a minim, and metronome marks can be used to indicate the kinds of tempi which would be typical in performance. Barlines, which could be very misleading, are avoided. Rests, shown in the Javanese cipher system by dots
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or dashes (in place of the numbers), do not necessarily mean a complete cessation of the sound. It depends on the technique of the instrument concerned and the general context. For the sake of consistency such dots and dashes are always shown as rests in the modified staff notation, with the reminder that in performance they are just as likely to be treated as ties. This applies especially to the rebab (bowed instrument) which sustains an almost unbroken sound throughout.

To facilitate comparison, both notational systems are used, the Javanese cipher equivalent under the modified staff notation. Staff notation obviously ‘Westernizes’ the music to some extent, but the aim of this book is precisely to make gamelan music comprehensible and relevant to Westerners who are unfamiliar with it, and therefore the compromise seems justified. It must be emphasized that the above system was developed only for limited use within this book, and the best rule to observe with gamelan music in performance is that, since all notations are new-fangled and unsatisfactory, the less they are used, the better.
Chapter 1

Gamelan and the West

"On the summits of awareness East and West have always met."

"Alien forms do not stay alien very long, The exotic does not exist except on travel posters."

Western interest in the musics of the Indonesian islands is a relatively recent phenomenon. The first European of note to react to Javanese music appears to have been Sir Francis Drake. A famous entry in the logbook of the Golden Hind (1580) describes a musical exchange on the south coast of Java between the local ruler and the English visitors: "Raia Donan coming aboard us ... presented our Generall with his country musick, which though it were of a very strange kind, yet the sound was pleasant and delightfull." After this passing reference, which we cannot assume to be about gamelan music, it was more than 200 years later that Sir Thomas Stamford Raffles took a more active interest in Javanese culture, researching the island's history and importing gamelan instruments and puppets into England. It appears that these instruments remained the only ones here, and, even so, in unplayable condition, until 1977, when the Indonesian embassy in London acquired a set from Solo, named Gamelan Kyai Rawatmeja. This marked the real beginning of practical studies of gamelan music in this country.

Jaap Kunst remarks that the English were always pioneers of interest and research in Javanese music, and especially so in the nineteenth century, but it should be noted that these scholars were not primarily musicians. Foremost among them was A. J. Ellis, whose study of the Javanese slendro and pelog tunings and other non-European scales, presented in his famous paper of 1885, led directly to the creation of
ethnomusicology as a scholarly discipline. As so often happens, it was
the musicians themselves who were the last to recognize the worth of an
alien culture, though it must be said that the dawn, when it broke, was
magnificent.

The year 1889, the centenary of the French Revolution, was marked
by a Grand Universal Exhibition in Paris, and there, on the Champ de
Mars where the Eiffel Tower was erected, Claude Debussy attended
performances by Javanese gamelan players and dancers. In 1887 van
Vleuten, Minister of the Interior for the Dutch East Indies, had
presented the Paris Conservatoire with a gamelan, consisting of sixteen
instruments in the slendro tuning. It had come from a court in Cirebon,
West Java (as distinct from the larger Central Javanese gamelan dis-
cussed in this book) and in 1933 it was moved to the Musée de
l'Homme, where it remains on display and is used for classes. Thus it is
possible that Debussy had already familiarized himself with at least the
(slendro) scale of these instruments before the 1889 exhibition. His
enthusiastic reactions to that event are well documented and are still
among the most interesting, perceptive—even prophetic—writings on
gamelan music. In fact, they are the key to the understanding of the
relevance of gamelan music to Western composition, and Debussy was
the first great composer to demonstrate this interest. His most famous
writing on the subject came late in his career, in 1913, long after
witnessing the Javanese performances, but this is surely proof of the
lasting impression they had made. Writing in the Revue S.I.M. with
characteristic enthusiasm and sarcasm, he made the following claims:

There were, and there still are, despite the evils of civilization, some
delightful native peoples for whom music is as natural as breathing.
Their conservatoire is the eternal rhythm of the sea, the wind among
the leaves and the thousand sounds of nature which they understand
without consulting an arbitrary treatise. Their traditions reside in old
songs, combined with dances, built up throughout the centuries. Yet
Javanese music is based on a type of counterpoint by comparison
with which that of Palestrina is child's play. And if we listen without
European prejudice to the charm of their percussion we must confess
that our percussion is like primitive noises at a country fair.

Allowing for translation this description echoes Caliban's speech with
which I began, as well as reading like a list of pieces by Debussy himself!

It is Debussy the nature-worshipper, the anti-academic, the musician
whose struggle to escape from the Teutonic stranglehold and European
ethnocentricity in general could have led him just as easily to sign
himself 'musicien mondial' as 'musicien français'. Overlooking, for the
moment, the rather invidious comparison with Palestrina, we come to
the wonderful phrase 'the charm of their percussion' (which could be
the title for this book) and the perfectly fair comparison with Western
percussion. One achievement of twentieth-century music has been the
emancipation of percussion—the realization of possibilities far beyond
the military pomp and special effects of the deservedly-named 'kitchen
department'. Simply put, 'charm' is no longer an incongruous word to
apply to percussion. In certain cases one could even talk of the 'gamelanization'
of the symphony orchestra; from the turn of this century, if
not before, composers as distinct in aesthetic aspiration as Debussy,
Stravinsky and Mahler have recognized—and capitalized upon—the
myriad of subtle, evocative timbres that can be conjured, gamelan-like,
from the extended percussion section of a symphony orchestra.

It would be incorrect to suggest that the whole impetus behind this
exploration of percussion came from the gamelan, though in many cases
this is undoubtedly so, and there is evidence of actual imitation. It is
with Debussy, however, that we come to the crux of the argument. The
assumption is that, because Debussy fell in love with gamelan music, he
felt compelled to consummate the discovery by imitating it in his own
compositions. If he ever did anything so obvious and naive it would be
most likely in immature pieces of his post-Rome, post-Bayreuth period
of exploration and experimentation. It is pointless to go through the
famous music of his maturity looking for traces of gamelan like the
fossilized footprints of some rare animal. The better the fusion, the less
identifiable the constituents. The greater the composer the less likely
such marks are to show, for the simple reason that they have been
completely assimilated within the style. It could be argued that
Debussy's best music shows no influence of Javanese gamelan at all. The
key word is influence, with its suggestion of bringing about a change of
course. With Debussy a much more fruitful word would be confirmation.
It seems far more plausible that what he heard in 1889 confirmed
what he had, at least subconsciously, always felt about music, and this
experience went far deeper than a desire to imitate something new and
exotic. The brittle textures of the String Quartet's second movement,
often cited as a possible instance of gamelan-inspired writing, are hardly
typical of the mellifluous resonances of the Javanese gamelan, and there
is no point in trying to link it with the familiar Balinese gamelan gong
kebyar, which had not yet been invented. It is not until more than a
decade later, the period of Debussy’s most mature and personal style,
and the masterpieces of the twentieth-century such as La Mer and the
Estampes, that characteristics possibly associated with gamelan music
become really interesting, if only because the ideas are more assimilated
and subtle. It is also worth noting that Spanish influence plays a far
greater role, if only because it is overt. Even here, though, it is not a
matter of imitation or souvenirs (since Debussy barely set foot in Spain)
but rather the product of a remarkable imagination.

Should we therefore conclude that the contact with gamelan music is
easily overestimated as far as Debussy’s actual music is concerned?
Although the appearance of some pages of La Mer,8 with their instru-
mental stratification, isorhythms and multiple ostinati, look like ‘gamelan
music’, (perhaps a paradoxical phrase) there is little in his output
which actually sounds like it. This emphasis on looking rather than
sounding like gamelan music could be significant, as Debussy’s interest
in gamelan music may have been almost as much in its transcribed
appearance as in its actual sound. The stratification and polyphony of
ostinati in gamelan music are abundantly obvious in attempts to repre-
sent the music in Western staff notation.9

Whether or not Debussy would have been content to study an
abstract notation without recourse to the actual timbres, which such a
notation is incapable of conveying, is another matter. He did not use the
pelog scale (with which he seems to have been unfamiliar) and the
supposed nearest Western equivalent to slendro (the ‘black-note’, or
pentatonic scale) is so common in Europe and throughout the world
that its frequent occurrence in Debussy’s music cannot be attributed
solely to Javanese sources. The pentatonic scales, ostinati and percussive
sonorities in Debussy’s music (as well as in the works of many of his
influential predecessors, from Wagner and Liszt to Mussorgsky) are as
likely to have been inspired by the local church bells as anything further
afield, in which case the experience of the gamelan was essentially a
confirmation of the connection. Nor did Debussy embark on an exten-
sive and radical use of percussion, in the manner of Varèse or Cage,
though he did exploit that quality of charm which he so admired in the

gamelan. The earlier distinction between influence (or imitation), and
confirmation (or reinforcement) can also be expressed in terms of
parallels rather than convergences. To talk about numerous parallels
between Debussy’s work and gamelan music is more rewarding, and
again we can turn to his writings for support. On the subject of his
self-confessed religion, which was Nature, he claimed that music is not
concerned with reproducing nature, but instead with the mysterious
affinity (‘concordances’) between Nature and the imagination. Thus
music does not converge with nature in some sort of crude imitation,
but parallels it in a deeper, mysterious way.

The nearest parallel to the slendro scale in Debussy is not, after all,
the ‘black-note’ pentatonic scale (which is perhaps the nearest imitation,
if one were to be sought) but the whole-tone hexatonic scale. This is not
only because it is an equidistant scale but also because it disrupts the
tonic–dominant polarity of the diatonic scale. Debussy’s other famous
remark on gamelan music was in a letter to Pierre Louÿs in 1895, in
which he wrote: ‘Do you not remember the Javanese music, able to
express every shade of meaning, even unmentionable shades and which
makes our tonic and dominant seem like ghosts?10

If the Javanese achieve this partly with their slendro scale, and
Debussy partly with his whole-tone scale, the effect in both cases is to
show a new musical domain beyond the constraints of Western classical
tonality. Non-Western music offers the possibility of maintaining some
sort of tonality without putting the clock back to the nineteenth cen-
tury. It is also arguable that this modality led to a freer use of sonority,
and here Debussy’s revolution was perhaps at its most striking. Many of
his piano pieces of the first decade of this century may remind the
listener of gamelan music through the richness, subtlety and resonance
of their sonorities. (Only one, incidentally, has a title suggesting an
unmistakably oriental origin, and that is ‘Pagodes’, the first of the
Estampes. Yet that is hardly as explicitly Javanese as, for example,
‘Soirée dans Grenade’ is explicitly Spanish; quite apart from anything
else, Java is not a land of pagodas.) In order to achieve these unique
sonorities Debussy required that the piano should sound as if it had no
hammers. In this respect the parallel with Javanese gamelan is quite
remarkable, because in its fullest and most sophisticated version that
ensemble sounds as if it is played without mallets, and, indeed, instru-
ments of the gender family most closely attain Debussy’s ideal (even if
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he may, ironically, have been unfamiliar with them). Furthermore, both the gamelan and Debussy’s piano release an extremely rich pattern of overtones. In a Javanese *pendhapa* (pavilion) one can hear this additional layer of music as if it were floating in the roof. (Perhaps it is this ‘uncomposed’ acoustical complexity that really warrants the comparison with Palestrina.) It could even be suggested that the timbre of the flute, viola and harp combination (in the second of the three late sonatas) parallels that of the *suling*, *rebab* and *celenggung* or *kacapi* (flute, fiddle, and plucked zither, respectively) instruments of Java, though there is no evidence that Debussy had any conscious desire to make such a connection.

Another interesting conjecture has arisen in occasional seminars on Debussy’s music in which various works were mentioned for their affinities with gamelan music. Apart from the much-cited *La Mer*, they were ‘*Reflets dans l’eau*’, ‘*Onidien*’, and ‘*Sirènes*’. Lockspeiser has written of the pervasive influence of water in Debussy’s music, and commentators on gamelan music use aquatic imagery to try and describe the fluid sonorities of the gamelan which manage to convey the impression of stasis and movement at the same time, like a flowing stream.

The question arising from all these opinions is: what would a Javanese musician make of Debussy’s allegedly gamelan-inspired pieces? The most recent of these seminars was held in the University of York in May 1989, to mark the centenary of Debussy’s encounter with the Javanese music at the Paris Exhibition. Paul Roberts, a pianist specializing in Debussy, presided, and we were fortunate to have Joko Purwanto, an expert gamelan player, in residence as a graduate student. After a selection of piano pieces by Debussy he was asked if he was struck by any similarities with gamelan music. His reply was most revealing and touched on the real problem. What to others may have sounded Javanese sounded to him more vaguely south-east Asian, from Cambodia for example (so, by a fortunate coincidence, he was associating the music with a real area of pagodas). The overriding factor which prevents such music from sounding Javanese to a Javanese is the tuning. Gamelan music is in *pelog* or *slendro*, and no matter how evocative the piece, the piano cannot reproduce these tunings. This may help discourage the confusion of general orientalisms in Western music with specifically Javanese gamelan elements.

Further research is obviously necessary before the degree of Debussy’s knowledge of the gamelan, one of the most exciting and discussed topics in the history of twentieth-century Western music, is understood. The points raised here cannot profess to be the last word on the subject, but a few interim conclusions may be offered. The more the written accounts of the 1889 exhibition are considered, including the attempts at notating the Javanese music, the more doubts are raised about what exactly Debussy heard there. It is highly likely that, while it was broadly similar to the music of the full Central Javanese gamelan discussed in this book, it was significantly different in detail. We must remember that we are not only dealing with an historical gap of 100 years but also a wide geographical and stylistic distribution of music within Java, which could well have been reflected at the Exhibition without any European being aware of it. If Debussy tried out the Cirebon instruments donated to the Paris Conservatoire, he would not have found all the instruments of the Central Javanese gamelan among them. Nor is it established that he heard a complete Central Javanese set at the 1889 exhibition either. We know that the musicians and dancers came from the Central Javanese courts, and so the assumption is that they played their usual instruments. It was, and still is, however, common practice for visiting troupes to save money and trouble by borrowing instruments which are already in the country they are visiting. It is possible, therefore, that Debussy heard the reduced instrumentarium of the Cirebon set, and virtually certain that he only heard the *slendro* tuning.

Though Debussy undoubtedly raised the level of Western consciousness apropos the music of the East, if one wishes to find examples of music more overtly inspired by the gamelan it is easier to look at works of later composers. The dramatic increase in performances and recordings of non-Western music in Europe and America, accompanied by scholarly investigations, has ensured the wider dissemination and absorption of these exotic sources. Messiaen’s music is perhaps no less subtle and elusive than Debussy’s, yet the difference is that Messiaen is at pains to reveal the sources of his art. When he uses an Indian rhythm he tells us, even in the score itself, and in a work like the gigantic *Turangalîla-Symphonic* he even refers to part of the sizeable percussion section as a ‘*gamelan*’. In fact, by the late 1940s, when the Symphony was written, Messiaen was scarcely better placed than Debussy for access to oriental music. Like Debussy, he did not need more than samples; his imagination and inspiration did the rest.
There have been many fine attempts, by composers such as Percy Grainger, Godowsky and Colin McPhee, to realize the inspiration of gamelan music in terms of Western music; but probably the most obvious and successful imitation is in Benjamin Britten’s ballet The Prince of the Pagodas (ironically, one of the composer’s least admired works). There is no doubt that Britten wanted to imitate the (Balinese) gamelan for a special effect, and the result, using a more or less standard symphony orchestra, is so successful that one is almost deceived into thinking that it really is a gamelan. The fascinating story behind the ballet, of Britten’s contacts with Balinese music and his trip to Bali, is well documented. Perhaps his most famous remark, which nicely balances Debussy’s comparison between the (Javanese) gamelan and Palestrina, was: ‘The music is fantastically rich – melodically, rhythmically, texture (such orchestration!) and above all formally. It’s a remarkable culture ... at last I’m beginning to catch on to the technique, but it’s about as complicated as Schönberg’.14

Britten was introduced to Balinese music during his stay in America (1939–42) by the Canadian composer and expert on the subject, Colin McPhee (with whom he played transcriptions of Balinese music at the piano). In 1952 John Coast brought a group from the Balinese village of Pliaton to Europe and America. Prior to the tour, he devised a programme with them in Bali, during which he played a recording of Britten’s Young Person’s Guide to the Orchestra and asked for a similar Balinese piece. Kapi Raja (a piece in the North Balinese kebyar style) was suggested. It appears that Britten came across this piece, possibly unaware of the part he had played in it, on a record of the 1952 visit by the Pliaton gamelan to England. We do not know that he attended the actual performances in London, or that he read John Coast’s account of the origin of Kapi Raja (and the sleeve notes of the recording make no mention of the Britten connection), or that he even visited Pliaton during his visit to Bali in 1956. (The nearest we come is a reference to ‘near Ubud’ in his sketches, which could well mean Pliaton, since the two villages are virtually connected.) It seems, therefore, a wonderful coincidence that Britten came across Kapi Raja, which he used, along with sketches from Bali, in The Prince of the Pagodas. Yet there would be nothing of profound importance if his involvement with gamelan music rested solely on this work. The point about Britten, as with Debussy, is that the contact reinforced the composer’s pre-existing beliefs. Donald Mitchell’s important insight concerning Britten is virtually the same point I have tried to make concerning Debussy (or any other prominent composer who is concerned with more than exotic opportunities for imitation):

... the experience of Bali was not so much the moment of ignition (though of course the impact of the trip was profound) but, rather, the living confirmation [my italics] of what Britten already had in mind.15

Thus, for Britten, the techniques found in gamelan music were far more important than the brief, yet highly successful, imitation in The Prince of the Pagodas. Indeed, he became interested in heterophonic textures before he even became acquainted with gamelan music. Somaks Ketukauenchian has drawn attention to the heterophony in the early operetta Paul Bunyan (1941) at the words ‘Look at the moon! It’s turning blue’; and connections with gamelan are evident almost throughout Britten’s entire output, from Paul Bunyan, through Owen Wingrave (1970), to his last opera, Death in Venice (1973).14

Although the discussion has dwelt so far on European composers, the greatest interest in gamelan music has come from outside Europe, mainly in America but also in Australia, New Zealand and Japan. There is an obvious reason for this. Even to a thoroughly European composer such as Debussy the experience of non-Western music was, as I have said, one antidote to the all-pervasive Germanic symphonic tradition, and to the influence especially of Wagner. Several American and Antipodean composers, despite a natural inclination to maintain their European connection, began to explore the musics of lands that are actually nearer to them than Europe.

The Californian perspective, expressed by Bertram Turetsky, is typical of this shift of emphasis:

I think that the point is that I and many other Americans are more interested in what is going on in the East than in looking to Mother Europe for a nod of acceptance. By Mother Europe I mean basically Germany, Italy and France – the nations with the monopoly of so many aspects of music for so many years. So many Americans still look to Europe for answers and guidance and I felt that just isn’t the answer. It is not a question of disrespect – it’s a question of a man having to find his own sound world in an aesthetic and artistic sense.15
Drawing once again on Debussy's shrewd and prophetic observations, his comparison with Palestrina should warn against exaggerating the affinity between gamelan music and so-called Minimal music, lest the implication arise that gamelan music is itself in some way minimal. True, Steve Reich studied Balinese gamelan but the real impetus for his process pieces came from experiments with tape loops, and whatever parallels he sought in gamelan music for this kind of mechanical heterophony were found later. On the inspiration of non-Western music, Reich's position is fundamentally the same as that of the great composers already discussed:

The least interesting form of influence, to my mind, is that of imitating the sound of some non-Western music.

Alternatively, one can create a music with one's own sound that is constructed in the light of one's knowledge of non-Western structures.

This brings about the interesting situation of the non-Western influence being there in the thinking, but not in the sound. This is a more genuine and interesting form of influence because while listening one is not necessarily aware of some non-Western music being imitated. Instead of imitation, the influence of non-Western musical structures on the thinking of a Western composer is likely to produce something genuinely new.¹⁶

Although he is based in New York, Reich has much in common with the predominantly West Coast composers who seek to replace European music with World music. It should not be forgotten that Americans are in the best position to understand about musical fusions since their country gave birth to the most important of inter-continental syntheses: jazz.

This interest in Eastern cultures pioneered by composers such as Henry Cowell, John Cage and Lou Harrison, has gone from strength to strength. Not only do Javanese, Balinese and Sundanese gamelans abound in America, especially California, with Indonesian teachers in residence, but also some Americans, for example Dennis Murphy, William Colvig, Daniel Schmidt and Paul Dresher have built their own gamelans, from aluminium, scrapped cars, and other materials. Alongside this move towards home-produced instruments is the composition of American pieces for gamelan. Already, quite a large repertoire has been developed which cannot be comprehensively discussed here. Lou Harrison (b. 1917) may be singled out as a key figure. He has the seniority and the technique, developed before he began working with gamelans, to merit particular respect. His work includes music for traditional Western forces, either using procedures from non-Western music or not, as well as what may be classified as 'Gending-gending California'. This is the title of an anthology (privately printed in 1981 by Harrison) of compositions for gamelan by American composers. It is perhaps the ultimate compliment to gamelan music and is far removed from the work of Debussy, Messiaen and Britten. Another important pre-condition which distinguishes such pieces is that the composers are actively involved in playing gamelan and are versed in the theory and practice of Javanese (or Balinese) music. This has led to a reliance on Indonesian models, and the danger is that some of these Western compositions may sound like pastiches of traditional gamelan pieces, but without the deep knowledge of karawitan (gamelan music) which is necessary to make them successful. One way that Lou Harrison has found of getting beyond this stage is by incorporating Western instruments (for example, violin, cello, viola, horn, and trumpet) into the gamelan (be it an actual Javanese set or a Harrison-Colvig creation in aluminium and 'just intonation') (regarded as the purest of all tunings because it is based on the natural third and fifth rather than their customary tempered versions). The results can be highly successful: a natural blend or fusion. Of the Double Concerto for violin, cello and Javanese gamelan (1981) the veteran gamelan player and teacher in California, Ki Wasitodipuro, remarked to the composer that it sounded just like the old court music.¹⁷

Interestingly enough, it seems to be Westerners rather than Indonesians who object to such works. First of all, it should be pointed out that the Javanese readily incorporated instruments from the Dutch military bands into their ensembles during the colonial period. Furthermore, it should be remembered how creative and experimental the musicians of Java and Bali can be and how receptive they are to new ideas. Western purists who reject these new pieces should note the following crucial statement from an article by Dennis Murphy:

Dr [David] McAlister [the distinguished ethnomusicologist] has also mentioned to me that when he visited Java, he found the musicians
there reasonably interested to learn that there is traditional gamelan in
the US but much more interested to hear that a few Americans are
writing new music for gamelan (and similar orchestras), and that we
are making our own instruments to perform this music.\(^9\)

Of course the controversy cannot be laid to rest as easily as this.
Anyone steeped in traditional gamelan music is likely to believe that it
far surpasses such new pieces, but to reason from this that there is no
need to study and play anything else is myopic and contrary to the spirit
of a vigorous and dynamic art. What should be conceded is that the
traditional masterpieces should be studied not only for their strength
and beauty, but also because they afford the best understanding of how
the ensemble works. The most successful Western gamelans are there-
fore, in my opinion, those which combine traditional music (in a spirit
of humility and awareness that the performance is unlikely to approach
that of an expert Indonesian group) with new pieces which, however
tentatively, attempt to break new ground. The two types should develop
naturally side by side, and it is regrettable that some groups have chosen
one to the exclusion of the other. It is not, after all, as if traditional
karawitan sprang like pure water from some mysterious source.
Creativity and experimentation within cross-cultural frameworks are
typical of this and of any other art. Lou Harrison, one of the best
possible commentators on this topic, made the following important
points in a recent film interview:

There was a conference in Tokyo in 1962 in which Henry Cowell got
up because everybody was being 'pure', and the ethnomusicologists
didn't want anybody to touch culture ... And he said 'look, all the
hybrids are healthy. They're the ones that grow new things and they
make new beauties. So don't put down hybrids.' And so I took that
on face value, because of my admiration for the man, until finally it
dawned on me, about a year later: don't put down hybrids, because
there isn't anything else.\(^9\)

This realization seemed to be the driving force behind an even more
significant conference, held at the Indonesian Pavilion at Expo 86 in
Vancouver. The symposium and concerts between 18 and 20 August
1986 constituted the First International Gamelan Festival. The inter-
national element rested largely on groups from the USA, together with

those from Indonesia, Japan, West Germany, and Canada. (No group
attended from Britain, although Alec Roth and I participated with other
groups.) The musical content tended much more towards new composi-
tions than traditional gamelan music, and some groups took the title
'gamelan' to further limits than are found even in Indonesia, with a
repertoire and performance style far different from traditional models,
and some instruments radically different from the wide variety which
normally goes under the name of gamelan. (In England, the Bow Gam-
elan would fall into the same category.) The point to make about all this
diversity and unashamed experimentation is that it was mainly
organized and supported by the Indonesians themselves. The success of
this first venture has led to plans for a second festival, in London in the
summer of 1990.

In any consideration of the gamelan's world-wide appeal, a third
dimension should be added to those of performance and composition.
Western involvement with the gamelan has not only centred on the
study of traditional Indonesian music and the creation of a new reper-
ertoire, but has also exploited the rich benefits to music education. Carl
Orff based his Schulwerk instruments on the gamelan, and closer imita-
tions made in America more recently have been widely used in schools.
England too, has produced some examples of home-made 'gamelans',
among which may be mentioned those of Norman Davis (in a school on
Merseyside), Mark Lockett's Metalworks, and Mick Wilson's Cragg
Vale Gamelan.

Yet it is no more necessary to have real or imitation instruments in
order to reap the benefits of gamelan music than it is for a composer to
use actual Indonesian music to demonstrate an affinity with it. In both
cases the real values go much deeper. What gamelan music can teach is
more than just a novel, exotic musical system; it can develop music-
icianship at its fundamental and most important level. One of the earliest
pioneers of gamelan in the West, who was in fact responsible for
initiating performance study under visiting teachers, and who well
understood the widest implications of this study, was Mantle Hood:

We Western musicians can learn much from you, the Javanese n'yaga
[gamelan players]. We can learn something from your methods of
musical training, from the rhythmic structure of your gending, from
the function and preservation of a concept like patet, from your voice
control (intonation) in singing, from your gamelan conductor who is heard but not seen, from your feeling for playing in ensemble, from the impersonal quality of your compositions. 20

A more recent programme of gamelan music in schools was discussed by the teacher Jody Diamond. She made several points which support Mantle Hood's claims, and generally subscribe to the view of gamelan music as an upholder of basic and universal aspects of musicianship:

The gamelan as a learning environment is well suited to some important educational goals: cooperative group interaction, accommodation of individual learning styles and strengths, development of self-confidence, creativity, and musical skills, an integrated study of academic areas, and direct experience of the arts of another culture. 21

Throughout, Diamond emphasizes co-operation rather than competition, which is the basis of gamelan playing. Because so many of the instruments are easy to play it is possible to operate the gamelan as a perfectly satisfactory mixed ability ensemble. As understanding and technical proficiency develop other instruments can be studied until the student has gained a working knowledge of most, if not all. At any stage, however, the player's basic skills in rhythmic and dynamic coordination will be developed, through the primary musical act of listening. Notation can of course be used, but one of the most refreshing things about gamelan music is that it does not depend on visual stimuli. Apart from the obvious value to memory training, matters of balance, tempo and so on depend on the player's ear and corporate sense, rather than on a conductor's baton. This is where gamelan is much closer to jazz, rock and improvised musics than to the Western classical tradition. There is also less interest in the finished artwork by a named composer. Significantly, Diamond stresses the importance of proceeding from a Javanese model to compositions and improvisations by the students themselves. She makes the interesting observation that the siendro scale (or their version in just intonation) 'produced few if any unpleasant sounds, which contributed to self-confidence in improvisation'. 22

It should also be mentioned that the practice of group composition, which assists enormously in the development of creative skills, self-confidence, and corporate sense, is very common in traditional gamelan music, especially in Bali. Usually the composer teaches the outline of the piece (orally) to the rest of the group, who make suggestions and try them out until a satisfactory finished product is reached through a process which, in Java, could be described as group garap.

The players are never, therefore, solely the executants of a received repertoire, and the rift between composer and performer, which is unnatural in any society but our own, does not appear. Finally, it should be noted that the children in Diamond's course included many from low-income families who would otherwise not have had the chance to play in an ensemble or to create pieces on which they could work and hear performed.

And since the cornerstone of my approach to teaching music was to assume that everyone has a basic musical ability that just needs to be brought out, the gamelan program guaranteed some musical training and experience to children who might have been completely overlooked in a more traditional educational setting. 23

It is hoped that the preceding ideas, as well as the analysis of actual gamelan music, will provide a basis for teachers to develop in their own way. I do not propose to go much beyond this and offer a repertoire of concrete examples for use in the classroom since I would be less qualified to do so than the trained teacher. A few suggestions appear in another publication 24 and many of the principles of gamelan music can be adapted to other instruments. An obvious choice is the Orff percussion, but the diatonic tuning means that one of the crucial dimensions of gamelan music - its unique tuning system - is sacrificed. For this reason, as well as adherence to the Javanese models, it is important not to neglect the contribution that can be made by the voice, as well as by instruments of variable pitch.

Notes
1 Frederick Franck The Zen of Seeing (Wildwood House, London, 1973), pp. 9, 44.
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6 Quoted in Lockspeiser, op. cit., p. 115.
7 The only research I know of which proposes a specific relationship between a piece of Debussy and a Javanese gamelan piece is by Richard Mueller, an authority on the music of Colin McPhee. In his article 'Javanese influence on Debussy's Fantaisie and beyond', 19th-Century Music Vol. X, No. 2, Fall 1986, pp. 157-86, he argues that the Fantaisie for piano and orchestra (composed between October 1889 and April 1890) uses a Javanese piece entitled Wani-want as the basis of its main cyclic theme. Without going into the merits of the argument, it could be concluded that the exception proved the rule: neither Debussy nor posterity were happy with this work, and one reason could therefore be its adherence to an alien and undigested model. Mueller also draws our attention to an even more obscure undertaking. This was the brief sketch Debussy managed in 1914 for a ballet entitled No-ja-li, in which the scenario called for an imitation of a (Malayan) gamelan. The most interesting point about this aborted effort is the date, which is very late in Debussy's career. It is tantalizing to speculate on how his efforts would have compared with Benjamin Britten's similar undertaking (albeit on Balinese models) in his ballet The Prince of the Pagodas.
8 For example, first movement: 4 bars before figure 3 (modéré, sans lenteur) to around figure 5 (au mouvement).
10 Quoted in Lockspeiser, op. cit., p. 115.
11 An appendix in Edward Lockspeiser, op. cit., Vol. II (Cassell, London, 1965), pp. 278-81 discusses the theories of Gaston Bachelard and others, the connections between water and dreams, and their relevance to Debussy and the Symbolist movement.
13 'An afterword on Britten's "Pagodas": the Balinese sources', Tempo, No. 152, March 1985, p. 9, n. 4.
15 'Bertram Turetsky Interviewed' by Leroy Cowie, Contact No. 8, Summer 1974, p. 11.
17 Personal communication, 1985.
19 'West Coast Story, 1. Frontiers of new music', BBC TV, 29 November 1986. Significantly, in the background to this interview, was one of Harrison's compositions, for a gamelan which he and William Golvig had built, entitled Main bersama-sama, which means 'playing together'.

Gamelan and the West

22 Ibid.
23 Ibid.
Chapter 2

The Setting

The best way to begin an account of the actual music is with some observations by the Javanese themselves. The music readily lends itself to poetic imagery, and perhaps the most eloquent tributes emerged in the course of conversations during my first stay in Java (June–August 1971) from which I freely quote:

‘The highest form of beauty is stillness.’

‘[Gamelan music is like] the raindrops falling from the trees after a shower.’

‘When you play the violin [rebab] it must be as if there were no violin, only a memory.’

‘The best music comes without cause. It is spontaneous, the song of life; therefore it is truly dynamic . . . but music is beyond words.’

How then can one adequately begin to describe these instruments and their sound? Fortunately the dedicated reader is in a position to see and hear them even in this country, and many good recordings are also available (see Suggestions for listening, p.137–9). In Java and Bali, gamelan music seems to hang in the air. It might be heard across the rice-fields at any time of the day or night, and numerous radio broadcasts and a large cassette industry provide an enormous resource. Gamelan music seems to transcend class barriers. It is as much a music of the poorest villager as of the court nobleman, and indeed many of the court musicians and students at urban music academies are from the villages and poorer sections of society. It is the more Westernized affluent urban middle class who are likely to reject gamelan music in favour of Indonesian or Western pop.

Gamelan is deeply embedded in the mythology, beliefs and mysticism of the Javanese, and for this reason its sound, which so readily entrances foreigners, reflects values and sensations beyond our comprehension. Yet it does not take long to realize that this is not only one of the most beautiful sounds in the world but also one of the most refined, balanced and civilized of all musical systems. The key to the understanding lies in Javanese culture as a whole, which includes what we might consider everyday behaviour. The Javanese hero is restrained, and much of his power is in direct proportion to that restraint. Sudden outbursts of loud, violent language or aggressive behaviour are considered uncool and undignified. The quiet, measured and level comportment of the refined hero, described by the important word alus, is the ideal to which one aspires, both in life and in art. It says a lot about Javanese values that the alus hero is portrayed in puppet plays by small, delicate figures and, in some traditions of live drama, by women. His strength is often a divine gift (he is usually descended from the gods) and his character must be developed and sustained through meditation.

Whatever the history of gamelan may be, the important thing to the Javanese is that it is believed to be of divine origin. The first gong was used as a kind of signalling system among the gods. To this day, animistic beliefs in spirits, especially in the large gong, but also in the other instruments, explain the great respect for the gamelan and even its distancing from mortals. (Some old gongs are so revered that they must not even be played, and only approached at certain times in accordance with established ritual.)

An important distinction is often made between the gamelan and the Western symphony orchestra. The gamelan is a set, housed in a special place. The players come to it empty-handed and depart likewise. They will probably remain anonymous, whereas the set of instruments will usually bear a name — a personality which is special to it and serves to identify the whole musical event. The Western orchestra is a collection of individuals (even of individualists!) most of whom bring their own instrument. The musicians are generally specialists in one instrument, whereas a good gamelan player is expected to be proficient in most, if not all, instruments. The cohesion of the ensemble in a symphony orchestra depends on the conductor’s ability to blend the instruments into a unit; such a need does not arise with the gamelan since the blend was ensured first at the manufacturing stage, and then by the special
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rapport between the musicians who know what everyone is playing in the ensemble.

The Western analogy with the gamelan is not, then, the relatively disparate orchestra. Instead we should perhaps consider the question from a new angle: a distinction could be made between instruments which are held or not held. One could then, arguably, regard held instruments as essentially extensions of the human body (and voice) and those which are not held as essentially depersonalized, with sacred connotations. The gamelan is in fact hardly touched at all. It is the mallets which make the contact, and only on some instruments are the hands used, usually in the secondary function of damping. It is this all-important intervention of mallets between human and instrument which has given the gamelan its name, since the word is usually translated as the action (–an) of a hammer (gamel). This priority is reinforced by taboos associated with the gamelan: removal of polluting outdoor footwear and the avoidance of all foot contact with the instruments, and even of stepping over them. In all cases the main consideration seems to be the respectful detachment of player from instrument and his subservience, as to an object with sacred or mystical associations or to the spirits of his ancestors. This notion of detachment, iklas, is central to Javanese attitudes and helps explain much about the behaviour, emotional restraint, and consequent aesthetic priorities of the people. Although we should beware of ascribing a sacred aspect, or at least the same one, to all gamelans, it does seem that the nearest among the admittedly distant analogies in our own culture might be found in churches, rather than in concert halls. The bells above and the organ below are both housed in the building; the ropes intervene between ringers and bells, and the organ keys serve to unlock the sound. Of course, bells do not provide the varied musical repertoire of a gamelan, and the organ is essentially a one-man band which depends on an array of gadgetry quite alien to the beautiful simplicity of the gamelan. Yet the sacred associations, fixed position, and the identification of the instruments, sometimes to the exclusion of the player(s), and the further detachment of the player(s), who neither hold nor own the instruments, do provide interesting parallels with the gamelan and perhaps help the Westerner to understand its peculiar significance.

To extend this analogy a little further before leaving it, such instruments may be used to give musical enjoyment, but this is not their only function, and in certain cases it may even be a subsidiary consideration.

For example, church bells are a signal, and the organ is used mostly as an accompaniment to sacred texts. The gamelan’s mythical origins are as a kind of celestial signalling system, its earliest repertoire probably developed as an accompaniment to classical poetry, and today one of its main functions — arguably the main one — remains as an accompaniment (irigan) to various Javanese mythical theatrical genres.

To consider this subject in any detail is well beyond the scope of this book. Gamelan pieces (gendhing) may be classified according to their usage, thus gendhing klenengan are the equivalent of concert music, gendhing beksan are to accompany dance (irigan tari), gendhing wayangan are used in the wayang puppet plays, and gendhing pankurnatan (from a word meaning honour or reverence) are for ceremonial functions and tend to use restricted scales and instrumentations reminiscent of the old ceremonial gamelans. Sometimes gendhings are also classified according to mood: gendhing gecul (funny or mischievous) or gendhing gobyoq referring to cheerful, even humorous pieces, and gendhing thutor or welasan to sad or pitiful ones. Perhaps the main point to underline is the close interconnection of the arts in Java, which is quite common throughout Asia but much less so in Europe. The equivalent of a music academy (in Solo, Central Java) in fact comprises three sections: for music, dance, and puppetry. In the West the close connection between music and dance has waned, yet still the two arts flourish on equal, if separate, terms; but what of puppetry?

If this art has become associated in the West with children’s entertainment, then in Java at least it is certainly true that the child is father of the man. It is here that we find the essence and summation of Javanese culture — a Gesamtkunstwerk that makes Wagner’s seem experimental and incomplete; and the Javanese example has the added important advantage of a long and deep relevance to all levels of society. The Javanese shadow play, called wayang kulit, (abbreviated to wayang), is more than a total art work: it is a ritual, enshrining myth and the religion of Java before Islam, whose purpose is not only to entertain but also to instruct, and to mark the important stages of the life-cycle and events of communal significance. The dalang (puppeteer) becomes an intermediary between humans and gods. In society he has a special position and respect, while in the wayang performance itself he is omnipotent. Everything is controlled by him: he narrates the entire story, providing all the dialogue, singing the important suluk (special
The poetry of allusion and allegory, mixed with the extremes of spiritual refinement and downright bawdiness, are typical of the range of language in wayang. Moreover, the meditations and noble deeds of heroes and gods, or the antics and robust humour of the clowns, are not restricted to this and related theatrical forms, but permeate behaviour models in Javanese society. Wayang has always been an effective vehicle of propaganda, from the mythical association of its heroes from the Hindu Mahabharata and Ramayana epics with the kings of Java, to its use of political slogans and symbols in modern Indonesia. Few art forms in the world combine so much to communicate on so many levels to such a wide spectrum of society. Yet the external trappings are relatively simple: a screen, attached to a rectangular wooden frame, a suspended lamp (nowadays electric, but traditionally a more atmospheric flickering oil lamp), two banana logs into which the puppets are fixed by means of a sharp horn spike at their base, and of course the puppets themselves. Here the crafts of leather carving and painting are applied to produce exquisite shapes from thin, flat pieces of hide. As was noted earlier, the strongest and most heroic characters are among the smallest and most delicately carved puppets. In their manipulation the dhalong must understand the art of Javanese dance. Many of the postures and movements of dance are derived from wayang, and a prominent theatrical genre is in effect wayang using live actors and actresses, appropriately known in Javanese as wayang wong, or in its Indonesian translation as wayang orang (human wayang). Nowadays, however, it is performed in theatres for a paying public, and its length is less than half that of the traditional wayang kulit performance, which begins at around 9 p.m. and goes on without a break until just before dawn. The gamelan music for wayang kulit is not continuous, neither is, necessarily, the presence and attention of the audience/spectators, but the dhalong must remain and perform in his special cross-legged seated position for the entire eight or nine hours. It is not to relieve the pressure on the dhalong but rather on the audience, that shorter wayangs, of only a couple of hours, have become more widespread.

The gamelan accompaniment to wayang may be intermittent, but it is far from incidental. The whole lakon (play) is a large cyclic structure in three main parts, and the music is totally integrated into this scheme. Traditionally the slendro tuning is used, and the three main sections correspond to the three pathets (sub-tonalities, or note-hierarchies) of the slendro tuning: nem, sanga, and manayura. (These are explained in Chapter 4.) The resultant gradual ascent in tessitura relates to the lakon as an allegory of the life-cycle and the gradual attainment of experience and enlightenment.

The use of Hindu mythology, albeit thoroughly assimilated into Javanese culture through the wayang and other art-forms, is one of the main examples of Indian influence (also found extensively in other parts of south-east Asia). If the modern Republic of Indonesia, of which Java is the centre, has taken 'Unity in Diversity' as its motto and achieved amazing results, it is the very diversity and richness of culture in the archipelago which attracts and even bewilders us.

Java seems to have been one of the first places to be inhabited by humans. Between about 5000 and 2000 BC migrants from the mainland of western China and the Malay peninsula dominated the indigenous population. The early centuries of our Christian era saw the arrival of traders from India and the absorption of Hindu and Buddhist culture. Obvious vestiges remain today in the spectacular Hindu temple complex at Prambanan and the Buddhist stupa of Borobudur, both portraying several musical instruments of Indian origin which have not endured in the modern gamelan. In fact, karawitan (gamelan music) has remarkably few affinities with Indian music, either in its priorities and organization or its terminology. Occasionally the title of a piece shows the impact of Sanskrit on the Javanese language, ‘Puspawarna’ (kinds of flowers) being a good example, but it is in religion, mythology and, of course, language that the Indian influence is felt. The so-called Hindu-Javanese period was a golden age, establishing what is now both Javanese and Balinese culture. The bifurcation was largely the result of the advent of Islam. Again, it was mainly through the agency of Indian traders that this religion came to Java. By the end of the fifteenth century, the great Hindu-Javanese Majapahit Empire had collapsed and
Islam became established as the main religion in Java. Even today, the Republic of Indonesia has the largest Muslim population in the world. Rather than submit, the Javanese nobles of the Majapahit Empire fled across the narrow strait to Bali, which then continued as a repository of Hindu–Javanese culture, and is today the only predominantly Hindu land outside the Indian subcontinent. It also managed to avoid Dutch rule, which had spread throughout Java and neighboring islands since the early seventeenth century, until 1906. The colonialists did not stay in their East Indies much longer, being driven out first by the Japanese in 1942 and finally by the Indonesians themselves between 1945 and 1949. When the Dutch began their domination, Central Java was ruled by the second Mataram kingdom, whose greatest leader, Sultan Agung, died in 1645. Thereupon the kingdom became increasingly dependent on Dutch support until the Europeans finally used their influence to divide it in 1755. A kraton (court) was established in the two capitals of Surakarta (still more commonly known by its original name of Solo) and Yogyakarta (abbreviated to Jogia), which lie about forty miles apart. Later, second courts were established in each city, first the Mangkunegaran in Solo and then, during the brief period near the end of the Napoleonic wars when Britain took control from the Dutch, the Pakualaman in Jogia. Despite a shared Central Javanese culture, and even family relationships between the royal houses, the Solonese and Jogianese styles and repertoires of gamelan music, wayang and so on have remained distinct, and the spirit of rivalry between them persists even today when the power of the courts has all but vanished. Cultural life still finds an important base in the kratons, which maintain gamelans and dancers. But dances which used to be restricted to the court are now taught in dance schools and publicly performed, while many of the court musicians also play in the gamelan at the local station of Radio Republik Indonesia (RRI), or even travel abroad to teach the growing number of Westerners studying gamelan. Major institutions were set up in Jogia, Solo, Den Pasar (Bali) and other cultural centres to widen the study of music, dance, puppetry, and other related art-forms, within the framework of the new Indonesian state. Not only education but also creativity needed to serve this broader national aim, as composers and choreographers sought new ways of addressing mass audiences. Contrary to the Western idea of placid, unchanging oriental traditions (because, after all, much does endure serenely), things do change, and perhaps nowhere more dramatically than in Bali.

Although this book is not concerned with Balinese music, which would merit at least as much attention, it is important to mention one or two things, if only to ensure that the listener will be able to distinguish Balinese gamelan from Javanese. (On more than one occasion the BBC, assuming that gamelan is gamelan regardless of where it comes from, has used recordings of Balinese music to illustrate points about Javanese music, and vice versa.) The typical modern gamelans of each island are very different, both in sound and appearance. The larger Central Javanese gamelan, with both slendro and pelog tunings, plays generally slow, dignified and gentle music. Much of Balinese music shares these traits, but the early years of this century saw a revolution in Bali no less dramatic than the contemporaneous rise of jazz in the West. Choreographers and musicians developed a new dance and accompanying musical style called kebyar, which means something like ‘bursting forth’, and is aptly named. At first in the north and later all over the small island, this new style - characterized by great exuberance, dramatic starts and stops, dynamic contrasts, rhythmic complexity and overt group virtuosity – became the kind of music for which Bali is now best known. This new gamelan (actually a somewhat rare word to the Balinese, who tend to prefer to call the ensemble 'gong') developed from the older and larger ensemble called (gamelan) gong gedhe. The tuning is pelog, but five notes are available rather than the seven of Java. (The tuning systems are explained in Chapter 4.) The Balinese scale approximates to the notes 1 2 3 5 6 of the Javanese pelog tuning. Slendro is found in Bali, and, as in Java, is associated with wayang kulit. The accompaniment is provided on a quartet of genders, called gender wayang, which are similar to their Javanese counterparts but with an important feature which typifies the difference between Javanese and Balinese music. Whereas the Javanese gender is played with padded mallets and gives a soft, mellow sound, the Balinese gender wayang are struck with 'naked' wooden mallets, which give a much louder and brighter sound. It is worth remembering that Balinese music is essentially an outdoor music, while the Javanese gamelan, at least in the courts, is played in a reverberant pavilion. Another major slendro ensemble in Bali is the four-note gamelan angklung, which again is played outdoors and even on the move, for temple processions and the like. Another processional ensemble, the gamelan bebonangan, is used
to accompany cremations. This shows the Balinese ingenuity for complex interlocking patterns: the ensemble is made up of large gongs, cymbals, and small gongs (bonang), each player carrying one and contributing an ostinato to the resulting complex pattern. A vocal equivalent to this is the famous kecak, in which men predominantly chant the syllable 'cak' in a very exciting interlocking chorus. The richness and intensity of artistic life in Bali, and the extraordinary diversity of the gamelans and other ensembles, can only be marvelled at here, rather than discussed in any detail.

Before returning to Central Java and the Solonese style of karawitan which is the focus of this book, mention should be made of the fact that gamelan music is not simply divided between Java and Bali. We have already noted that, even on the small island of Bali, there are many differing ensembles which can go under the name of gamelan. The name is also found outside Indonesia altogether, for example in Malaysia; and in Java itself we can distinguish at least two major traditions, which can in turn be subdivided. The island is divided into three main provinces: Jawa Barat (West Java), Jawa Tengah (Central Java), and Jawa Timur (East Java). West Java contains the capital of Indonesia, Jakarta, and, to the south-east, the region of Sunda, centred on Bandung. This not only has its own language but also its distinctive and very beautiful gamelan style. One of the main characteristics is a highly ornamented vocal style, which is also adapted to wind and stringed instruments, using notes outside the fixed pitches of the gamelan to great expressive effect. Central Java, which for cultural purposes includes the Daerah Istimewa Yogyakarta (the Special Area of Yogyakarta), contains the major Javanese gamelan traditions of Solo and Jogja, and also of the regional capital, Semarang. East Java has close cultural links with Central Java, as well as several regional styles of its own, including those of Surabaya (Indonesia's second city), and of Banyuwangi, the nearest town to Bali. Many of the finest gamelan players in Solo actually come from East Java. In confining ourselves to Central Java, particularly Solo, we are not, therefore, talking about 'the gamelan', but, at the most, a primus inter pares.

Notes

1. This is a large topic outside the scope of this book, since the old ceremonial gamelans, housed in the palaces, are not in everyday use (each one tends to be restricted to a specific function or event), nor do they play the kind of music associated with the modern gamelan. Many of their instruments are similar to the modern versions, but as a very general rule those of the older ensembles are fewer in number but larger in size.

2. The use of the masculine pronoun is deliberate. Dhalangs are traditionally male, but it is interesting to note that there are some women exponents of this art. We should also note here that, while there have always been female musicians in Java, gamelan players are traditionally male. In recent times, however, large numbers of women have taken up playing, not only in the West, but also in Java, where mixed groups, and also 'ibu-ibu' (all-women) groups are common. Singers and dancers are of both sexes, according to the context.
Chapter 3

The Instruments

Despite the changes over the centuries, and the diversity which still exists today, the modern complete Javanese gamelan is standardized enough for one to talk about a typical ensemble. The majority of instruments are made of metal (usually bronze but very often iron) which is struck with different kinds of mallets (tabuh). These instruments may be divided into two structural groups: wilah (bars, plates) and pencon (knobbed instruments, that is mainly gongs). To give them their complete name, both words may be preceded by the word ricik or ricikan (meaning tools and gamelan instruments) although Tentrem Sarwanto, the maker of Gamelan Sekar Pethak, the set housed in York, preferred the word benderan (sphere) to ricikan in conjunction with pencon, no doubt to distinguish the round shape of pencon instruments (gongs) from the rectangular shape of wilah.

The typical gamelan has approximately 156 individual bronze wilah and 75 pencon. This assumes that the set is in effect a double gamelan, incorporating instruments in both of the Javanese tuning systems, sonda and pelog (which are discussed further in Chapter 4). The wilah instruments include the saron and gender families (and also the gambang, with wooden bars). Two kinds of (metal) wilah are involved. (A third type, wilah pencon, characterized by a central knob, thus combining features of wilah and pencon, is still found, through not in the typical modern gamelan under discussion.) The saron type, wilah polos or lagas (simple, unadorned, referring to the smooth surface) is a thick, slightly curved bar, and all such wilah constituting one instrument are mounted over a single trough resonator. The mallets used are hard (wood or horn) and the playing may be loud or soft. The gender type, wilah blimbingan (named after the star-fruit averrhoa bilimbi, presumably because of the more jagged surface, compared to the wilah polos type) is a thin, ribbed plate, and each one is suspended over a tube resonator, or bumbung, which is tuned to the pitch of that particular wilah. The mallets have a head in the shape of a disc which is covered by a detachable ring of padding, and the strokes are usually gentle.

All pencon are (circular) gongs with a central protruding boss called pencu (the two words, pencon and pencu, are in fact virtually synonymous) which is struck during playing. As with the wilah instruments the pencon instruments may also be broadly divided into two types. The two distinguishing words, gandhul and pangkon, literally refer to the way in which the gongs are supported, rather than to their shape, but the two factors are broadly complementary, with some exceptions. Gandhul literally means ‘hanging’, and pangkon means ‘cradled’. Hanging gongs are suspended from a wooden bar so that the pencu is on the side, while cradled gongs are supported from the base (the open rim) by cords, so that the pencu points upwards. (The rim is a node and therefore this method of support does not damp the sound.) The large pencon gandhul are struck with mallets that have more or less spherical heads of heavy padding, while all pencon pangkon are struck with sticks that are lightly padded with coiled string.

The large pencon gandhul instruments are the gong ageng, gong saron and Kempul. Their shape is characterized by a flat surface around the pencu, becoming slightly concave near the edge. Smaller versions – the kethuk and the lower-pitched gongs on the bonang barung and bonang panerus – are literally pangkon (cradled, rather than hung) although they have the same shape as the large pencon gandhul. The other pencon pangkon gongs are the higher-pitched gongs on the other bonangs, the Kempangs (which are always part of a set with the kethuks) and all the kenongs. Their shape is distinguished by a surface which slopes up to the pencu. Gongs with this shape are always supported from below, and, as has already been explained, several gongs of the flatter shape associated with the large pencon gandhul are also supported in this way.

These broad distinctions are shown in Figure 1, and the following description of the individual instruments which comprise the metal idiophone section of the gamelan will be according to these four divisions.
Wilah polos

The saron family, together with the slenthem, make up the section which performs the fixed melody (balungan) of the composition (discussed in Chapter 4). Taking the register of the saron barung as a reference, the saron panerus (more usually known by its nickname peking) is pitched an octave higher, and the saron demung (known simply as demung) an octave lower. (The slenthem is an octave below the demung.) Thus the wilah of the peking are smaller than those of the saron barung, and those of the demung are larger. The measurements of the smallest peking wilah are approximately 18 cm long by 4 cm wide, while those of the largest demung wilah are approximately 35.5 cm long by 9 cm wide. The peking wilah are, however, relatively thick. As the pitch rises the arch of the wilah also rises, so that the thickness (at the centre) of the smallest peking wilah is approximately 2.5 cm while that of the largest demung wilah is approximately 1 cm. A hole is drilled at a nodal point near each end of the wilah. Pins, inserted into the wooden case, pass through these holes, securing the wilah over the resonator, which is a trough cut into the rancak. The wilah, however, have to be cushioned from the wood, otherwise a large area would be damped. The pins pass through small squares of plaited ratan (or any other effective material, such as cloth padding, cork or rubber) and the wilah rest on them.

The saron family (plus the slenthem) usually have seven wilah, whether slendro or pelog (these tuning systems are discussed in Chapter 4). Thus each of the pelog notes is present while two of the slendro notes are duplicated at the octave. (Pelog is a heptatonic system, while slendro is pentatonic.) The slendro sequence is 6 1 2 3 5 6 1 (the dots indicating notes in the octave above or below). In some gamelans one of the slendro saron has nine wilah, with ż and 3 being added to the sequence. This is to allow the performance of nyacah (divisions, kinds of variation patterns) which are frequently played in the wayang puppet plays, especially in the types of piece called srepegan and sampak. The instrument is therefore known as saron wayang, and sometimes also as saron wilah sanga (sanga meaning nine).

The mallets of the saron barung and demung are similar, (though that of the demung is considerably larger), and consist of a stick and
detachable, barrel-shaped head which is secured to the stick by a hole drilled about halfway through. Occasionally the end of the stick must be wetted or paper wrapped around it to ensure a tight fit in the hole. In extreme cases, a nail is inserted through the head into the stick. These are in fact the only mallets in the Javanese gamelan made solely of wood and where wood is in direct contact with the metal during playing. The thickness of the *wilah* requires a hard mallet and relatively strong blows. In the case of the *peking* the greater thickness of the *wilah* requires an even harder mallet, and for this instrument alone a buffalo horn is used for the head. This ensures a bright, slightly piercing sound, even in soft playing, and so the *peking* should never be struck forcefully.

The *saron* and *demung* possess the greatest dynamic range in the gamelan, from soft, almost inaudible playing, to the exhilarating sound that dominates the ensemble in the *soran* (loud) style. The mallet is gripped in the right hand and, in the case of the *saron* and *demung*, the head strikes the *wilah* at an angle with a slightly glancing blow to ensure maximum resonance. The other hand is used to damp the *wilah* as the next one is being struck. This is usually done by pinching the end of the *wilah* between the thumb and forefinger, and this combination of striking and damping, often necessitating the crossing of the hands, is the only technical difficulty of these instruments. In certain vigorous pieces a special effect called *ngencot* is called for. This is a dry sound obtained by striking (twice) a *wilah* which is simultaneously damped, and is a speciality of the Jogianese tradition. These techniques of holding the mallet and damping the *wilah* apply to the *slenthem* which is musically in the same group as the *saron* family, but structurally in the *gender* family, and therefore discussed in the following section.

**Wilah blimbingan**

As has been noted, the shape of the *wilah blimbingan* and the method of mounting them are different from the *wilah polos* family. Instead of resting the *wilah* over a common trough resonator, each *wilah* of the *slenthem* and *gender* is suspended over an individual tuned tube resonator. A section of a single length of cord is passed through the hole at each end of the *wilah* and secured underneath by a small piece of wood rather like a thick matchstick. (Formerly these pieces, called *bremara*, were made of horn, and were of a different shape which was tapered to the middle.) The cord between each *wilah* is supported by a metal hook (*sanggan*) inserted into the wooden frame and protruding about 5 cm above it. The cord itself is secured at each end of the frame. The system is not unlike that of the Western orchestral vibraphone or xylophone, except that the Javanese method of suspension permits much more movement of the *wilah*, sometimes resulting in its accidental striking against its adjacent *sanggan*.

The resonators (*bumbung*) look virtually identical from a distance but since each one is tuned there are important differences in terms of the dimension of the aperture at the top and the distance at which the tube is internally stopped. More will be said on this subject in the section on tuning later in this chapter. The *bumbung* used to be made of bamboo, but fortunately for those gamelans in the West, where the changes of climate would cause a rapid deterioration of such a fragile material, the practice nowadays is to use metal (zinc) which is then painted (usually in a yellow colour to give it the appearance of extraordinarily smooth and regular bamboo).

The *slenthem*, used to play the fixed melody (*balungan*) along with the *saron* family, has the same number of *wilah* and range as the other *balungan* instruments, albeit in a lower octave. Its *wilahs* and *bumbungs* are larger than those of the *gender barung*, which, in their turn, are larger than those of the *gender panerus*. The largest *wilah* of the *slenthem* measures approximately 36 cm long by 9.5 cm wide, while the smallest *wilah* of the *gender panerus* measures approximately 15 cm long by 4 cm wide. The *slenthem* is played with a similar technique to the other *balungan* instruments (the *saron* group), using a single mallet of which the head is a wooden disc encircled by a thick ring of felt. The *gender barung* and *gender panerus*, however, belong to the group of instruments which embellish the *balungan*, although they are structurally similar to the *slenthem*. The main difference, apart from musical function, is in the number of *wilah* and mallets. A *gamelan seprangkat* (double gamelan, comprising instruments in both the *slendro* and *pelog* tunings) will also have three — rather than two — *gender barung* and three *gender panerus*: one in *slendro* and two in *pelog*. The *pelog* instruments differ only by one note. One instrument has the notes 1 2 3 5 6 and the other the notes 1 2 3 5 6. (This difference is to do with the sub-scales and tonalities (*pathet*) of each tuning system, which are
discussed in Chapter 4.) In both cases the note 4 in pelog is omitted. It can be mentioned here that the same applies to the gambang, but on that instrument the wilab are mounted in such a way that a substitution (just between the notes 1 and 7) can be made easily and quickly on the same rancak. Such a substitution on the genders, although not unheard of, is extremely difficult, and for this reason it is necessary to use separate rancak, wilab and bumbung.

Each gender has fourteen wilab and a range from low 6 to high 3, in both slendro and pelog. (Some gender, however, have only 12 or 13 wilab.) The gender panerus is pitched an octave above the gender barung, and the three instruments are consequently smaller than their gender barung counterparts. Musically the gender barung is by far the more important, but the playing technique is essentially the same on both instruments. They are among the most difficult in the gamelan because two mallets, similar to the slenthem mallet but smaller and with a much shorter handle, must be used. Because of this, damping the wilab becomes much more difficult and it is necessary to hold the mallets in a special manner. The little finger, thumb and edge of the hand are thus variously available for damping, so the player is effectively doing four things at once: striking two wilab and damping two others. Very often, however, the gender panerus avoids playing two simultaneous lines, which is why it is easier to play than the gender barung, even though its part generally moves at twice the speed. This will be examined further in Chapter 5.

**Pencon gandhul: gong ageng, gong suwukan, kempul**

The many gongs of different sizes in the gamelan have already been divided into two main types: the hanging pencon gandhul and the clanged pencon pungkon. All gongs, with the exception of the bonang barung and the bonang panerus, perform what is often termed a 'colotomic' (phrasing or punctuating) function in the music, which will be discussed in the next two chapters. It is an interesting fact that these colotomic gongs have onomatopoeic names, including 'gong' itself. In most cases it is the second syllable (on which the stress occurs) which imitates the sound: kempul, kenong, kethuk, kempyang. The largest gongs which hang in one or two large stands (essentially two side posts supporting a crossbar) at the back of the gamelan are the gong ageng, gong suwukan and kempul. Because they are the only gongs that are hung rather than supported from below, it is necessary for the manufacturer to drill two holes in the rim, through which is attached a strong piece of cord with a loop at either end. One loop is pushed through the other and secured on the crossbar of the wooden stand by a small wooden toggle, called cakilan. The number of gongs suspended in this way varies from gamelan to gamelan. Usually there will be at least one gong ageng which is the largest (ageng means 'large'), lowest-pitched, most respected and certainly the most expensive item in the gamelan. Gong ageng can vary quite considerably in size, hence in pitch which is often beautifully at variance with all the other pitches of the gamelan. The gong ageng of Gamelan Sekar Pethak is approximately 85 cm in diameter and tuned to around note 6, which is slightly smaller and higher than the best old gongs. The next largest gong is the gong suwukan, which in certain kinds of music is used as a substitute for the gong ageng. A typical gamelan will have one suwukan, tuned to slendro 2 and quite often there will be a second suwukan, tuned to slendro 1, and of a similar size of approximately 63 cm in diameter.

The other hanging gongs are collectively called kempul. The number of kempul is not standardized, since the notes of both scales do not all have to be represented. The typical modern gamelan will have a kempul tuned to the note 6 (serving both pelog and slendro) and others tuned to pelog 5, slendro 5, pelog 1, slendro 1 and pelog 7 (both notes 1, and 7 in pelog lying above the 6 of the kempul tuned to that note). In many gamelans a kempul tuned to note 3 (slendro and/or pelog) is found, but, if not, kempul 6 may be used to accompany notes 3 or 2 (either slendro or pelog) in the melody. (The suwukan, tuned to 2, cannot be used as a kempul, but it is not uncommon to find a kempul tuned to 2 an octave above this note.) The smallest gong in the Gamelan Sekar Pethak stand, the kempul tuned to pelog 1, measures approximately 45 cm in diameter. All these gongs are struck with mallets consisting of a ball of heavy padding on a short wooden handle. The padding is usually in three sizes: the largest for the gong ageng, the middle size for the gong suwukan, and the smallest for the kempul. The fleshy side of the clenched fist serves as a good alternative in the case of the larger gongs.
Pencon pangkon: kenong

All other gongs in the gamelan are supported from below, with the central boss (pencu) pointing upwards, and are struck with mallets consisting of a stick with padding made of coiled string. The largest such gongs are the kenong which are all pencon pangkon. The rancak are like two boxes open at the top and bottom and sharing a common side. Across the top, from each corner, are attached two pieces of stout cord which cross diagonally and serve as the support for the kenongs. Since the usual number of kenongs nowadays is ten there are five such rancak (although in some gamelans there are rancaks for three kenongs, so the arrangement for the same number of ten kenongs would be two such rancaks, plus two sets of the dual rancak described above). It should be noted that although all gongs in the gamelan require some kind of support, none requires a resonator. If a pencon pangkon has a weaker sound than its neighbours, however, it is rested on a banana leaf or thin sheet of paper as a simple yet effective remedy.

It is generally accepted that the size of gamelan instruments has diminished but their number has increased over the centuries. Nowadays it is common to find a kenong for each note of pelog and slendro. As with the kempul, the notes 1 (slendro and pelog) are pitched above the note 6, and slendro 5 may be borrowed to do service as pelog 4 if required. This assumes that the two tuning systems coincide on note 6, which is most often the case (including Gamelan Sekar Pethak). The fact that there are usually more kenongs than kempuls seems to reflect their relative importance: all pieces require kenongs but not all require kempuls.

The height, from the rim to the top of the boss, is approximately 32 cm, and the (maximum) diameter approximately 34 cm in the case of the smallest kenong (pelog 1). The largest kenong (slendro 2) has a similar height, though the diameter is approximately 37 cm.

Kethuk-kempyang, bonang barung, bonang panerus

The kethuk and kempyang are usually placed next to the kenong (sometimes played by the same musician) and rest on similar (though smaller) rancak. There is a set of one kethuk and one kempyang for each tuning system. The kempyang is never played without the kethuk, whereas in certain kinds of composition the kethuk alone is used. The kethuk, similar in shape to the pencon gandhul, but with a flat surface from pencu to edge, is the lower-pitched of the pair, tuned to note 6 for music in pelog and to slendro 2 for music in slendro. The kempyang, shaped like a small kenong, is tuned to note 6 (an octave above the pelog kethuk) for music in pelog, and to slendro 1 (a seventh above the slendro kethuk) for music in slendro.

The other instruments which mix pencon gandhul and pencon pangkon shapes are the bonang barung and bonang panerus, which are gong-chimes comprising two rows of gongs smaller than the kethuk and kempyang. On these instruments the lowest notes are pencon gandhul-shaped, and the shape of the gongs gradually changes to that of the typical pencon pangkon (for example, the kenong) as the pitches rise. The smallest gong on the bonang panerus, (hence in the gamelan), a pencon pangkon tuned to slendro 3, is approximately 17.5 cm in diameter. (For comparison, the larger kempyang measures approximately 24 cm in diameter and the larger kethuk, both gongs in pelog, is approximately 26.5 cm.) The bonang rancaks resemble small bed-frames with a number of open squares through which pass two parallel lengths of cord. The gongs rest in these individual squares and are supported by the cords. The typical pelog bonang (barung and panerus) has fourteen gongs (two rows of seven) while the slendro pair have twelve gongs (two rows of six). In each case the gongs are placed so that octaves lie diagonally around the pivotal octave between the two notes 3, which are directly opposite, and the player sits in line with these notes and holds a mallet in each hand. This arrangement is shown below (Figures 2 and 3). (The bonang barung and bonang panerus are laid out in the same way, with the gongs of the bonang panerus correspondingly an octave above those of the bonang barung, and are thus smaller.)

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

player

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

player

Figure 2 bonang pelog Figure 3 bonang slendro
A Guide to the Gamelan

(The position of the notes 1 and 7 may be exchanged to facilitate easier access to whichever is the more important note in the piece. The above layout is for pieces using 7 more than 1, hence the 7 is within easier reach of the player.)

The parts played on these instruments are far more elaborate than the kinds of punctuation performed by the other gongs, and involve elaborations of the skeletal melody, which will be discussed in Chapter 5.

Other instruments

The remaining instruments do not use bronze as the main material in their construction and form a miscellany whose musical function is of utmost importance. Before discussing them, two more bronze instruments with subsidiary roles and which are neither wilab nor pencon, may be mentioned. The kecer is a set of two small bronze cymbals, measuring approximately 9.5 cm in diameter, set in a small solid ranca, and two more cymbals, tied together with string and held in each hand, which are used to strike the two in the ranca with a staccato, muted action. This instrument can be used in certain types of lighter, lively music but its presence is not essential. The kemakan, on the other hand, must be used to accompany certain kinds of vocal piece, often in conjunction with dance, but is otherwise not much used in gamelan music. The set comprises two kemakans, tuned to 6 and the slendro 1 above it, and two players are normally required, each striking one kemenak with a bonang panerus mallet. The kemenak is made from a single plate of bronze, curled to give the shape of a banana with a short handle. The two edges of the plate almost meet, leaving a slit near which the mallet strikes. The kemenak is held in the hand, and the thumb can be used to cover one end of the slit, producing a sudden stopping and slight lowering of the pitch. The two instruments, played alternately, produce no more than a simple ostinato figure to accompany the vocal melody. Another instrument may be briefly mentioned, if only because of its ingenuity. This is the gong kemobong which may, not unfairly, be described as a poor man’s gong ageng, since it is simple to make and uses only a fraction of the metal. It is used as a substitute for the gong ageng, usually in the reduced, softer ensemble called gadon, and never in conjunction with it. Two plates with a central boss (examples of the obsolescent wilab pencon type mentioned earlier) are suspended over a box resonator. The secret lies in the acoustic phenomenon of beats (which is much exploited in the Balinese gamelan). The two plates are slightly different in tuning, so that when they are struck one after the other a low throbbing sound, similar to that of the gong ageng, is produced.

The ‘non-bronze’ miscellany of instruments includes the two regarded by the Javanese as the nearest equivalents to directors of the gamelan. (‘Conductor’, with its connotation of visual stimulus, can never be used in connection with gamelan.) They are the two-stringed fiddle, rebab, and the drum set, kendhang. Because of its Arabic name (instruments called rebab, or similar names, are found throughout the Muslim world) the rebab is generally thought to be more clearly of foreign origin and recent addition to the gamelan than the other instruments. It is a spike fiddle with an almost heart-shaped body made of wood and covered with a thin and delicate skin taken from the intestine or bladder of a buffalo. The two copper strings are tuned by two exaggeratedly long and ornate pegs (which would break if gripped anywhere other than close to the neck of the instrument). The strings pass over a wide-based wooden bridge, and are secured around the bottom of the stick. As a rule they are tuned to note 6 and the 2 below it (pelog or slendro), though for pieces in pelog pathet lima (explained in the next chapter) both are lowered by one note, giving 5 and 1. In fact, what appear to be two strings really comprise a single length of wire wound around the bottom of the stick and ending in the two pegs. The bow is as ornate and fragile as the rebab itself. It is held, palm upwards, in such a way that the third and fourth fingers pull the hair, thereby giving it the required tension. The rebab is held vertically, or slightly tilting forwards, in front of the player. The fingers press the strings lightly; there is no fingerboard and no attempt is made to press them against the neck. Nevertheless, the instrument is capable of making a fairly loud, nasal sound. To soften and sweeten it various devices may be used. One is to tie the strings together with cotton an inch or so below the bridge and pinch a rolled leaf between them and the bridge; another is to wedge a piece of cloth between the strings and the lower part of the skin cover.

The kendhang typically consists of three or four drums, all of similar barrel shape with a skin (from goat or buffalo) at each end and thongs connecting them which may be tightened by small rings (to the shape of

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the letter ‘Y’) or slackened (to the shape of the letter ‘V’). The drums are of very different sizes, from the large kendhang gendhing or ageng to the small kendhang ketipung. The kendhang gendhing and the middle-sized kendhang ciblon (sometimes called kendhang batangan) and the kendhang wayangan are cradled in small stands, while the ketipung is held in the lap or rested on the floor. In each case the larger head (giving the lower sounds) of the drum is to the player’s right, and all the playing is done using the hands alone. The technique required for the kendhang gendhing and ketipung is relatively simple, as there are only about half a dozen strokes and the rhythms are uncomplicated. The ciblon and kendhang wayangan, however, are much harder to play since they have a varied range of sounds, many of which are difficult to master, and faster patterns which rely, moreover, on a subtle use of rubato. The kendhang wayangan is slightly larger than the ciblon, and is used to accompany the wayang shadow play. The ciblon is used to accompany dance, and also in concert pieces, borrowing patterns from the dance music. For this reason, the large gamelans destined primarily for concert music, may well dispense with a kendhang wayangan, and in any case the ciblon may be used to accompany wayang if necessary. The origin and essence of the distinctive ciblon style, which sounds much livelier than the somewhat reticent patterns of the other drums, is in the name itself, which means ‘splashing in water’. It is typical of the Javanese that they should have devised a musically ingenious and intricate game by slapping the surface of water in complex multi-rhythmic patterns. Many of the sounds of the ciblon drum have just this slapping quality and an almost mischievous exuberance. Kunst, who draws attention to this link between music and play, writes: ‘It is as if, in the hands of an essentially musical race such as the Javanese, everything is turned into music.’ We may add here that clapping the hands together (having the wonderfully onomatopoeic name keplok) in interlocking patterns is also an important accompaniment to gamelan music of the lively variety, usually in conjunction with the ciblon drum. These observations should also help guard against the view often held by Westerners in respect of the gamelan, and oriental culture in general, that it is an unchanging, sacrosanct tradition. ‘High art’ usually owes far more to ‘folk art’ than is acknowledged, and in the case of gamelan a rigid distinction between these categories has little value anyway.

Many complete gamelans possess a large barrel-shaped drum called bedug, which is suspended from above in a frame. The heads are of equal size and nailed, and one of the heads is struck with a beater. Because of the strong thud produced, the drum is restricted to certain loud pieces, usually associated with dance or ceremonial occasions.

The gambang has already been mentioned as a wilab instrument but the wilab are made of wood rather than bronze, hence the full name of the instrument: gambang kayu (kayu = wood). A gambang gangsa (bronze gambang), looking like a multi-octave saron, used to be found in the gamelan but nowadays it is virtually obsolete. Kunst suggests that this archaic instrument may be the prototype of the entire saron group, on a single instrument. The wood used for the normal gambang wilab must be very hard, and a type known as berlian is favoured for this purpose. The rancak is a common trough resonator, like that of the saron group, but much deeper and with thinner sides and a relatively narrow slit aperture at the top. The wilab, secured in the same way as on the saron group but with much thinner pins, are also much longer, from about 38 cm to 29 cm. (The length decreases as the pitch rises.) The number of wilab may vary but the typical arrangement is nineteen in pelog (from low 6 to high 3) and twenty in slendro (from low 6 to high 5). In pelog the scale uses either note 1 or 7. The change-over can be effected quickly and obviate the need for a second pelog rancak and duplication of wilab. The mallets have very long handles (about 35 cm or so). They are made of thin and flexible buffalo horn ending in a wooden disc surrounded by a felt ring, as on the gender mallets. Two mallets are used and the gambang part is usually among the fastest in the gamelan, providing a gentle, rippling sound quite unlike the harsher effects of the Western orchestral xylophone. Because no damping is required and also because the part is in parallel octaves for most of the time, the gambang is easier to play than the gender. The only problem with playing in octaves is that the wilab (and the octave gap) narrow considerably as the pitch rises, and it is therefore all too easy for the inexperienced player to hit a large number of wrong notes.

The siter and larger celempung also play elaborations of the melody, in the case of the siter not unlike those of the gambang but even closer to those of the gender panerus. Indeed, it is acceptable to transfer the entire gender panerus part to the siter. The word siter is from the Dutch ‘cither’, hence English ‘zither’, which basically describes the instrument: an oblong box resonator with plucked, tunable strings. A common
model has eleven or twelve pairs of unison strings, spanning the range from low 2 or 3 to the high 3 two octaves above, on each side of the box. The difference is that one side is in slendro and the instrument is turned over to give the pelog notes (which follow the scale patterns found on the genders and gambang, but in this case the change of scale can be done on the spot, using a small key). The celempong is a larger version on ornate legs (and thus cannot be turned over, necessitating two or three celempungs in a complete gamelan). The sound, especially of the more popular siter, cuts through the gamelan texture and can easily assume an unwarranted, even slightly incongruous, prominence.

This problem of balance similarly affects the remaining instruments to be discussed, including the human voice, but a major difference is that their parts are either intermittent or are actually required to stand out, or both. The suling is a simple bamboo end-blown flute, with a notch cut into the side of the (stopped) top end which is surrounded by a ratan or bamboo ring, leaving a small slit. There are five finger-holes on the pelog instrument and four on the slendro one. The pelog suling is approximately 57.5 cm long, while the slendro is approximately 53 cm. Techniques of over-blowing, cross-fingering and half-holing permit this, the simplest and cheapest instrument in the gamelan, to provide one of the most exquisite, expressive and fluid lines in the ensemble. Because of this potential, it may be grouped with the rebab and the voice, but its part is freer and comes in short, disjointed phrases rather than as a continuous line, which distinguishes it from all the other embellishing instruments.

The keprak is one of many instruments that may be used in the gamelan for special, limited purposes. It is a simple box or slit drum, essentially a small block of wood with a resonant hollow and slit along the top, which is struck with a small wooden hammer. It is used in various dance performances as a signal to the dancers, and for this reason its sound is obtrusive yet sporadic.

Although the human voice is left until the end of this section, most cultures regard it as the foremost musical instrument. There is even some justification for treating it as such in the context of Javanese gamelan, where its status has risen dramatically in recent times. More important than this, however, is the concept of an inner melody which is the common basis of all the parts in the gamelan and yet which is not stated literally by any instrument. Rather, it is in the minds of the musicians. It is therefore felt, or, one may say, internally sung. The ‘external’ vocal parts in the gamelan are further strands in the polyphony, on a par with the embellishments of the instruments, rather than any attempt to manifest this inner melody. Two main types may be distinguished: the sindhen (or sindhenan), for solo female voice, and the gerongan, for a chorus of three or four men. It is common to have more than one pesindhen (woman who sings the sindhen) in a piece but the women will sing in turn rather than as a group. Another important feature is that the women sit near the front, or even in front, of the gamelan and nowadays very often have a microphone. In most cases they are the only members of the ensemble to have such amplification, and even when a recording is being made, necessitating the use of microphones throughout the gamelan, the levels tend to be set in favour of the sindhen. Moreover, the pesindhen is often the only performer to be named. Perhaps this prominence may be explained by the fact that she is likely to be the only woman in the ensemble. The gender player in wayang kulit is often the wife or mother of the dhalang, but this is not imperative, and the player is just as likely to be a man. Although the prominence of the pesindhen is a fact of modern gamelan life, many deplore this departure from the musical equality which is one of the main attributes of the ensemble.

The sindhen may be compared with the parts for rebab and suling in its rhythmic elasticity and wealth of ornamentation. It is, however, more continuous than the suling line and more ornate than the rebab melody. The singer’s tone is not unlike that of the rebab, but — in this writer’s opinion — is even closer to an oboe than any stringed instrument.

The gerongan is a much simpler melody, in terms of rhythm and ornamentation, and it is often included with the balungan in printed notations of gamelan compositions. It is usually confined to one section of the whole piece. A typical example is Ladrang Wijayeng, discussed in Chapter 5, where the gerongan occurs only in the second section (whereas the sindhen continues throughout the piece).

These two vocal genres may be found in most large-scale gamelan compositions (thus it can be said that most Javanese gamelan music nowadays uses the human voice) but they are by no means the only ones. Among the others may be mentioned bawa, a male solo with discreet support on the gender, which is often used to introduce large
compositions, and the chorus, similar to gerongan but in fact called sindhen, which is sung by women and men in unison to accompany the court dances bedaya and serimpi.

The complete gamelan is laid out according to certain conventions, for example the largest gongs are at the back, the balungan instruments in the centre, and the embellishing instruments at the front. The audience would probably be facing the front in rather formal concert situations, but they are often free to sit at the sides or behind and to wander around.

Gamelan manufacture and tuning: the story of Gamelan Sekar Pethak

The preceding section on the instruments of the gamelan focused on the examples comprising Gamelan Sekar Pethak. The following account of how the instruments are made and tuned rests almost entirely on my observations of the manufacture and tuning of that gamelan between September and November 1981. The background to this research sheds some light on the recent history of gamelan manufacture in Java. Kunst, who gave an account of the situation before Indonesian Independence, struck a very pessimistic note, stating the craft to be 'on the verge of ruin' and noting the decline, even demise, of the Semarang gongsmithies, going on to warn of the complete extinction of the craft 'unless, in some way or other, a helping hand is offered in the nick of time'. It would appear that Kunst's warning was heeded by his own pupil Mantle Hood who encouraged Reso Wiguno in the village of Wirun near Solo to revitalize his manufacture of gamelan instruments in the 1950s. Another American, John Pemberton (a friend and fellow player with me in the Wesleyan University gamelan) became closely involved during the early 1970s with Tentrem Surwanto (born 1940) working in Semanggi on the outskirts of Solo, and actually learnt some of the skills involved in making and tuning gamelan instruments. I was introduced to Pak Tentrem in 1977 by another Wesleyan graduate student, Alex Dea, and commissioned a slendro saron and slenthem with the limited funds available. Time did not permit collection of the instruments nor funds their dispatch to England, so they remained in Solo. My next trip to Java did not occur until August 1981, when the University of York made enough funds available for the purchase of a complete gamelan. It is generally accepted that an old gamelan is preferable to a new one, assuming it has been maintained in good condition; for one thing the tuning has stabilized, and it is widely maintained that the quality of the bronze and workmanship are better.

A few weeks of hunting in the regions of Solo and Jogia (and even as far away as Jakarta) convinced me that the older gamelans were either in poor condition and incomplete or, if not, then far beyond my budget (of around £8,000). As a feeling of despair was setting in, I chanced to meet another American gamelan player, Barry Drummond, who informed me that, by a remarkable coincidence, he had that very day visited Pak Tentrem, who had raised the problem of what to do with the two instruments for which someone from England had paid four years earlier but left behind. If nothing else, this suggested an extraordinary degree of honesty and patience, and I eagerly accepted Barry's advice that I should go and discuss the project of a complete gamelan with Pak Tentrem.

Apart from the very reasonable quotation, which was well within my budget, there were two other clear and irresistible advantages in commissioning Pak Tentrem to make the entire set. One was that it would encourage the continuation of a great skill and the other was that it would enable me to to witness the birth of a complete gamelan. This extraordinary process, in which the instruments are beaten and filed, rather than cast into the final shape, and without the aid of any machinery other than a couple of very simple devices, remains one of the greatest wonders in the world of musical instrument-making. To see a gong slowly taking shape from a small black disc through patient and skilled hammering is truly an amazing experience, verging on an optical illusion!

Work commenced around 10 September (1981) and reached its climax on 22 November, when the gamelan was played for the first time. The season was ideal, remaining mostly dry. Forging during the rainy season is hazardous, since the water can easily come through the roof on to the hot bronze, thereby breaking it. Pak Tentrem told me that one kenong had suffered this fate during a freak shower but that had been the only such problem. The one advantage of the rainy season is that the lower temperatures are better for tuning the instruments.

In order to create the whole gamelan in such a short space of time,
Pak Tentrem employed about ten men (the number was not constant), working on average eight hours a day, six days a week. This was just for the bronze parts; the wooden cases, mallets, resonators and accessories were made at other workshops in Solo. The large gong ageng was made across the Solo river at Pak Reso Wiguno’s famous smithy in the village of Wirun, because Pak Tentrem’s place was not big enough for this one instrument.

The tools and other paraphernalia for making the bronze instruments will be briefly described before proceeding to an account of the work itself. It must be stressed that this is the writing of a layman, based on observation and discussion with Pak Tentrem. More detailed scientific publications devoted entirely to this craft appear to be very rare. The hut of the smithy itself is called besalen; the one used by Pak Tentrem adjoined his own living quarters and was no larger than his living room. For this reason only half a dozen men could work in it at a time. Dug into the ground near the centre of the hut is a space for the charcoal fire (prapen), and directly above it a hole is cut in the roof. A pipe connects the fire with a bellows (lamus) in the form of a leather bag. At about a similar distance from the fire and approximately at right angles are the anvils, called tandbes, which are sunk in the ground and made of iron for wilab and stone for pencon. There are also small concavities of various sizes into which the central knobs of the pencon are beaten and shaped. In a corner of the besalen is a water bath, called pelandhan, which is also usually sunk in the ground. These are the fixed items; the remaining tools and accessories are portable. Several clay cups (kowi), used for melting the metals, are stacked in a corner. Near them are the moulds, called penyingin, which are of two main kinds: one for the wilab (oblong) shape and the other for the pencon (circular) shape. Apart from the various tongs used for manipulating and carrying the hot metal, the most important tools used in the forging process are the hammers, called palu. There are about a dozen kinds, varying in shape and weight (up to about 8 kilos), but the unusual feature common to most of them is the long head, which is about the same length as the handle. In most cases the head is made of iron and the handle of wood, but one or two particularly large specimens are made entirely of wood. Other accessories in the besalen include scales to weigh the copper and tin, long tapers to light the interior of the pencon (the inside of the besalen is very dark and without electricity), gauges to check the
Slenthem

Gongs (Ageng and Suwukan) and Kempuls

Gender

Kenong
Siter suling

Kecer

Siter siter

Three Kendhangs (playing Ciblon)
uniform diameter of pencon, and pieces of matting and banana leaf as protection from the heat.

The extensive hammering necessary to fashion instruments particularly of the pencon type is first done on the hot bronze, inside the besalen, using the prapan, and then mainly outdoors, on the cold bronze, which by then has assumed the final shape of the instrument. For part of the process a curious contraption called entol is used, consisting of a long pole, one end of which slots into a tree or specially constructed post. At about a third of its length from the tree is fixed a short wooden pole, called umbul, which points perpendicularly from the entol to the ground. At the far end of the entol sit three or four men, as though on a see-saw, and their weight is used to press the umbul firmly downwards. The larger gongs are placed pencu downwards and resting in a wooden concavity and the umbul presses down on the inside of the gong at carefully determined points between the pencu and the edge. Cold hammering on either side of the umbul is then carried out, using small hammers with short heads of the familiar type. The purpose of this work is to even out the shape of the gong and ensure a uniform surface. A shorter umbul is used for hammering on the outside of the gong, since the inverted gong rests higher from the ground.

The filing is also done outside. It can be an even lengthier process than the hammering since it is usually performed by one man at a time, using a variety of files called kikir, from a very coarse, banana-shaped implement (kikir patar) to one which is no more than a curved knife-blade (kikir kesik). This, and various emery cloths, are used for the final stages. A simple manual lathe, called alat bubut, (perhaps the nearest thing to a machine in the entire process) is used to cut a groove (tikel) around the base of the pencu. Drills are used to bore holes in the larger gongs (which are hung in the gamelan) and all wilah.

The main stages in the manufacture of a bronze gamelan idiophone are:

1 Mixing the bronze

The best kind of metal is a kind of bronze known as gangsa which is distinguished by its higher than normal tin component: the correct ratio of copper (tembagau) to tin (rejasa) is 10:3. According to some, including Pak Tentrem, it is the last syllables of the two words which give the name to this special alloy. Gangsa is also the word in high Javanese for
gamelan, so the everyday Indonesian word for bronze (perunggu) is commonly used to avoid this confusion. The maker buys the metals separately, then weighs and mixes them himself. (Pak Tentrem told me that less scrupulous makers reduce the expensive tin content.) Two small pieces of bronze are made for testing. One is left to cool and then broken with a hammer. The other is hammered while still hot and should not break, but tolerate hammering until it is really thin. The inner surface of the broken piece is examined: if it is too rough, tin must be added, if too smooth, copper must be added. The tin is not only a smoothing agent but helps to give a superior sound, as well as a relatively light colour to the bronze.

2 Forging
The accepted bronze is poured into a mould. The moulds (pemyingen) are of different sizes but of two basic shapes: one for wilab and the other for pencon. The wilab emerge from the mould in the oblong shape which is very close to the final shape, whereas the pencon emerge as discs, with one surface flat and the other convex. The hammering is a lengthy process – up to two hours for a small pencon or wilab and at least two days for the largest gong – and requires up to four men. In the case of the larger pencon, which start as small discs and end as gongs with no equal in the world, the process, repeated over and over again until the desired shape is almost miraculously achieved, relies on the meticulously co-ordinated functions of a group of craftsmen. One man (panji) turns the metal in the charcoal fire (prapen) activated by the hand-operated bellows (lamus), requiring one or two men (pelamus). Another (pengalap) carries the red-hot metal from the fire to the sunken anvil (tandhes). While the metal is turned by one man (pengider) the hammerers (from one to four, depending on the stage in the process, and having various names, such as pengarep, penengah, penepong, and pengupit, according to their function) work in perfect co-ordination for around a quarter to half a minute, before the metal has cooled too much and has to be returned to the fire. (It should be noted that most of the workers appeared to exchange jobs quite freely – a nice parallel between making a gamelan and playing it.) Hammering usually begins in a circle near the centre of the disc, and then gradually moves towards the edge.

No less exciting than the sight of this extraordinary and ancient craft is the sound. Anyone with the slightest musical curiosity cannot fail to notice the variety of dramatic sounds which the work produces. The palu with the long, iron heads, used to forge pencon, emit different pitches as they strike the hot bronze, so that the rhythmic hammering sounds a little like high-pitched, staccato bell-ringing. ‘Gamelan music’ therefore begins before the instruments have even come into existence! At the end of the whole process the instrument is quenched in the bath (pelendhan), and this immersion of hot metal in cool water produces a short but dramatic roar. The larger the instrument the more dramatic the roar. So, in the case of the largest gong, in which so much time and expertise have been invested, the climactic roar, which announces literally a ‘make-or-break situation’, is every bit as crucial as any sound the gong is destined to make as the most important instrument in the gamelan.

By the time it is finally quenched the item being forged will already give a clear note, but above the desired pitch to allow for the lowering of pitch that will occur during the filing stage. The maker will have calculated this, allowing for the fact that the larger the instrument, the higher it should be above the target pitch during forging. In the case of the large gongs, further hammering must be done on the cold metal to even out the shape.

3 Filing
At this stage the bronze is still cemengan (from the high Javanese word for black) meaning that it is not only black but rough. Very often the gong ageng is left in this state except for the pencon, which is smoothed. (The cemengan state, with the many marks from the hammer blows, can be seen on the inside of all pencon instruments of the gamelan.) The filing and sandpapering can take about twice as long as the forging. At the end the bronze has its smoothness and beautiful colour, and is nearly in tune, but fine tuning is done when everything is finished and the whole gamelan can be tuned together.

4 Tuning
It is relatively easy to grasp the theory of gamelan tuning, but very hazardous to put it into practice. Wilab and bumbug (resonators) are fairly easy to tune but pencon require hammering and only an expert should undertake this to minimize the risk of cracking or breaking. The question of what to tune to (since there is no standardization of pitch or intervallic structure in Java) is answered by the maker in consultation.
pitch may be filed instead. To raise the pitch, however, the top of the penca is filed. On the larger pencon gandhul a certain amount of filing can be done in conjunction with hammering to lower the pitch. In general, the pencon gandhul instruments are by far the hardest to tune, because the sound must first be focused (kempel). This is usually done by applying clay to various parts of the gong to determine which parts must be hammered. The problem is that the subsequent hammering for tuning unfocuses the sound, so the process has to be repeated until the sound is both focused and in tune.

This information on manufacture and tuning came mostly from one maker (Pak Tentrem) and does not necessarily accord in all details and terminology with other accounts. An interesting comparison may be made with Kunst’s description of the craft half a century ago. Much of the terminology is different but the essential procedures are the same and have doubtless remained so for centuries. It would appear that as the art of forging bronze instruments declined during Kunst’s time, so the simpler skill of making gamelan idiophones from iron, which is of course much cheaper than bronze, flourished. The rebirth of bronze-working in the last thirty years has not supplanted this alternative. The best iron gamelans sound nearly as good as bronze ones, even if no amount of gold paint can make them look as beautiful, and are popular in the villages and among the less prosperous in general. Pak Tentrem’s own work in bronze appeared to be fairly piecemeal. In fact, he told me that Gamelan Sekar Pethak was his first commission for a complete pelog and slendro gamelan. Otherwise he would be kept busy making additional or replacement instruments for existing sets or repairing old instruments, with his excellent products travelling as far afield as Japan and America, as well as within Java itself.

The ceremony to inaugurate and name Gamelan Sekar Pethak, as well as to play it for the first time, took place on 22 November 1981. Crammed into the main room of a house adjoining Pak Tentrem’s were the instruments and a cosmopolitan group of musicians. Ten were Javanese professional gamelan players, mostly from the radio station and the two Solonese courts, and there were six American students and one Australian, all advanced in the art of gamelan playing. (The one European was occupied recording the whole event!) It was appropriate that this gamelan, destined for a group of Western musicians, should be inaugurated in a way that reflects the global impact of the gamelan. The
improvisation concert also allowed Pak Tentrem to listen critically to the
complete set and – in the ensuing days before everything was packed
and transported to Jogja and thence to Jakarta – to make a few minor
adjustments. This could only be a preliminary measure, however,
because a new gamelan must be ‘played in’ for a few years, as frequently
and vigorously as possible, with occasional tuning, until the bronze has
settled and the tuning stabilized. In the early years of a gamelan’s
existence lower pitches will tend to rise more than higher ones, and the
manufacturer can check this to some extent by tuning the larger instru-
ments slightly below pitch.

The inaugural ceremony was marked by typically Javanese inform-
ality, with crowds of children among those filling the doorways and
other available space, giving free voice to their interest in this unusual
spectacle. There was also a ceremonial aspect, in the form of offerings
of flowers, fruit and incense beneath the gong ageng. The gamelan also
assumed its name, an optional nicety which is essential only in the case
of old and respected palace gamelans. It is a mistake to think of all
gamelans as being sacred and enshrined in mystical beliefs and rituals.
The only instance which suggested something of the kind during the
entire manufacture of this gamelan was when Pak Reso Wiguno (whose
smithy was borrowed to make the gong ageng) refused to start the work
on the day called Sabtu-Kliwon (Saturday 31 October, Sabtu, Saturday,
coinciding with Kliwon of the Javanese five-day week) because this is
regarded as a Hari Kramat, a holy day with supernatural associations.
(It will be noted that it was Halloween: our closest example of a Hari
Kramat.) Even here, however, I was warned against reading too much
into the situation. As for naming the gamelan, if I had not made the
suggestion it is quite clear that the question would not have arisen. Pak
Tentrem told me he did not regard it as necessary, nor did he and his
men perform any rituals which are supposedly traditional in gamelan
making. It is only because the gamelan was destined for York, which is
always identified by the emblem of a white rose, that this typically
fragrant name for a gamelan was chosen. My initial translation of white
rose into Indonesian and low Javanese was Mawar Putih (the name
always used by its maker, when he remembered it at all), but Professor
James T. Siegel (in Solo at that time) indicated that a high Javanese
name would be more respectful. He accordingly suggested Sekar
Pethak. The latter word still means white, but the former is especially
rich in meanings, including flower. It occurs in the names of several old
gamelans and can refer to the music itself, especially to kinds of vocal
music. The name, enshrining music and the white flower, was therefore
considered ideal for this particular gamelan.

Since it arrived at York in April 1982, Gamelan Sekar Pethak has
been used extensively in classes and regular rehearsals within the uni-
versity music department, and has made several concert and workshop
appearances around England and Scotland (also Italy), including one at
the 1982 Heury Wood Promenade Concerts, when it was played by the
Sasono Mulyo group from Solo. It has also been used for a number of
educational projects with school and college students. This wider con-
text and application is typical of gamelan as a modern world music.

Notes
1 These and subsequent measurements are based on Gamelan Sekar Pethak, and
are included as a general guide to the dimensions of the instruments, without
discounting the possibility of wide variations in other sets.
2 Kunst, op. cit., p. 203, noted that in villages, the drums were often held the
other way round (which is still common today) conforming to the usual
association of low pitches with the left, and high with the right, which applies
to the other instruments of the gamelan.
3 Ibid., p. 294.
4 Ibid., p. 271.
5 Ibid., p. 140.
6 Three are included here, rather than in the bibliography, because none is easily
obtainable and the most detailed one in English (the first on the list) is
probably the hardest to find:
Be acquainted with the gamelan and its manufacture (a guide book for the
participants of ASEAN workshop on the manufacture of the Indonesian
gamelan, Solo, Indonesia, 26 March–1 April 1981). Manuscript compiled in
Jakarta, 1981.
Jacobson, Edward, and Van Hasselt, J. H. De Gong Fabricatie te Semarang
(Leiden, E. J. Brill, 1907). Translated by Andrew Toth, The Manufacture of
Gongs in Semarang, (Indonesia 19, 1975), pp. 127–72, Modern Indonesia
Project, Cornell University;
Rustopo Pengenaluan menubat gamelan (Knowledge of making gamelan),
I should also mention that Sam Quigley, of the Boston Museum of Fine
Arts, and a Director of the expert Boston Village Gamelan, has recently (1986)
produced a video of gong-making at Pak Tentrem’s smithy. At the time of
going to press, the tape had not been seen by the author, but copies are
available from Sam Quigley.
Rudiments of Karawitan

Karawitan (literally 'refinement') is broadly synonymous with gamelan music, in other words it is the conceptual framework and theoretical content of the gendhing (gamelan composition). Strictly speaking it is music, be it instrumental or vocal, in either of the traditional Javanese tuning systems, and the gamelan music of today, blending instrumental and vocal parts within these two tuning systems, is the fullest and most typical example of karawitan. The subject does not yield its deepest secrets willingly, and the Javanese themselves are exercised by some of its knottier problems. Here we must try and steer round such obstacles, without underestimating the depth and complexity. A knowledge of the basics of karawitan is essential, and the aim here is to keep it as clear and simple as possible. There are many ways of dividing the subject; the ordering and priority of elements which follow do not pretend to be definitive, and much has had to be omitted or treated briefly. There should, however, be enough to provide an introduction and basis for the understanding of the next chapter, which is karawitan in practice.

x Laras

The main condition for karawitan is that it is in one of the two Javanese tuning systems, or laras. Although a complete Javanese gamelan is regarded as a unit, it is usually two gamelans placed together, one for each lara, with most of the corresponding instruments placed adjacently at right angles, and this contributes to the impression of one large gamelan. The two laras are called slendro and pelog, and it is quite simply because the tuning of the gamelan cannot be altered in performance
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that it is necessary to build complete sets in each laras. A gamelan in only one of the two laras, called gamelan sepangkon, must not be thought of as incomplete, though of course to play the repertoire of both slendro and pelog pieces it is necessary to have the kind of double gamelan, called gamelan seprangkat, which has already been described as typical.

The basic information about laras is easy to grasp, and it should never be a problem to distinguish one from the other. Slendro is defined as an anhemiotic pentatonic scale. This means it has five notes and no semitones, which would also describe the scale obtained on the black notes of the piano. The crucial difference is that the five notes of slendro are more or less equally spaced, while the black notes have clear differences between whole tones and minor thirds. The problem for the Western ear is relating the pitches of such a subdivision. Divisions of the octave into twelve equal intervals (semitones), six (whole tones), four (minor thirds: the diminished seventh chord), three (major thirds: the augmented triad) and two (tritones) are familiar, but the 'missing' division between one and six is not used in Western music, and this is the territory of slendro. If the octave is divided into five equal parts, the resultant interval will lie between a whole tone and a minor third. The somewhat elusive quality of slendro is that we cannot say exactly where, because in practice the octave is not divided into five precisely equal steps. The Western love of standardization means that such a situation could be regarded as unsatisfactory, but the Javanese attach great importance to embat, or intervallic structure. Much of a gamelan's unique personality depends on its embat, and a good ear will appreciate the subtle differences between the notes of slendro or pelog from one gamelan to another.

Pelog is readily distinguished from slendro. For one thing it has seven available notes (though in a great number of pieces not all seven will be used) and for another the size of interval varies far more than in slendro and includes semitones. Having emphasized the variability and desirability of embat we may give a typical - necessarily approximate - representation of the two laras. This could be done on a grid, showing relationships to fixed intervals and notes, but this would immediately suggest something precise, and the intention here is only to give a visual impression of the two laras in relation to each other. In order to give an idea of the kinds of intervals, without being too specific, the two laras

are shown from a low 6 to just beyond the 6 an octave above (and of course the two notes 1 in slendro and 7 in pelog also span one octave). Note that in the cipher notation system the number 4 is omitted in slendro. (This is to facilitate direct comparison between the names and functions of the notes in the two laras.)

```
slendro
6 1 2 3 5 6 1
pelog
6 7 1 2 3 4 5 6 7
```

In this admittedly free scheme one important decision had to be made. Although slendro and pelog are independent and not played simultaneously, they must nevertheless coincide at some predetermined point in a gamelan seprangkat to permit effective transitions from one lara to the other. There must, therefore, be a note common to both laras. The Javanese call it the exchange or coinciding note: tumbuk. Another nice avoidance of standardization is that not all gamelan (seprangkat) have the same tumbuk note, let alone the same embat. Nowadays it must be said that the majority have tumbuk nem - note 6 as identical in slendro and pelog - though several have tumbuk lima (meeting on note five). In a tumbuk nem gamelan there is likely to be a secondary coincidence of note 5 in slendro with note 4 in pelog. The above scheme, representing a tumbuk nem gamelan, shows this, as well of course as the alignment of the two notes 6.

2. Pathet

The pitch material of even slendro and pelog together may strike the Westerner as limited, but this is to miss a very important point about oriental music, even music throughout the whole world. The greatest refinement and artistry can be demonstrated with the smallest amount of material; the limitations discipline the mind, which in turn strives to transcend these limits, and from this beneficial friction are created the pearls of the music. In India five notes are sufficient for a raga, on which a good musician can improvise for hours without feeling any need whatsoever to add any notes. Furthermore, several different ragas may
have exactly the same notes and yet be readily distinguishable. This subtlety is matched in karawitan, where the five notes of slendro may be arranged in different ways, the same applying to pelog; and this is the basis of the concept of pathet.

Even in Western music we can find a crude analogy that may help illuminate this difficult topic. Just with the five black notes of the keyboard, for example, five different tonalities can be established, or at least implied. Without recourse to harmonic devices (perfect cadences and the like) this can be done melodically by altering the hierarchy of the notes, probably by bringing out the tonic and dominant of the tonality in question and relatively underplaying other notes which may challenge this relationship. This is, at the simplest level, how pathet works, but the subject becomes far more complex, and whole treatises are written on it alone. Perhaps no other aspect of karawitan exercises the mind as much as pathet, and even the most expert of Javanese masters approach it with caution and utmost respect. Martopangrwig prefaces his account with the following remarks:

What is pathet? This question is always on my mind. I think no definition has yet been satisfactory, due to the fact that the word 'pathet' has so many different uses, and each use fulfills a particular need. So if one is to offer an explanation of pathet, the explanation must be relevant to the particular need at hand. For example, I once asked a能满足, ‘What is a knife?’ He answered, ‘A knife is a kind of machete, but smaller.’ It is understandable that his definition had to do with the shape of the object, since as a toolmaker and vendor, he assumed that the questioner was a prospective customer and would want to calculate the cost of the object. However, when I asked a noodle vendor the same question, I got a very different answer. He said that a knife is an instrument used to cut onions, cabbage, and the like, while a machete is an instrument used to split wood. He wanted to impress upon the customer that he was a man who kept things clean and would not mix dirty and clean implements.2

We must therefore attempt an account of pathet appropriate to this book. As has already been adumbrated, it is a kind of melodic tonality operating within the two laras, and there are three pathets in each. (Sometimes a fourth pathet in pelog, called pelog pathet manyura or nyamat, is found, but it is much rarer than the other three.) Pathet means 'constraint' or 'limit', which is very much in keeping with the aesthetics of Javanese and other oriental musics already discussed. The five notes of slendro are raw material, and do not take on shape and beauty until they are organized into a pathet. The same applies to pelog, where the situation is somewhat complicated by the fact that all seven notes seem too many for a pathet, and the pentatonic basis of slendro influences this lara. Of course, this can prove an advantage, since if exactly the same five notes must be used in slendro for each pathet, making it hard for the untrained ear to distinguish one from another, in pelog different sets of five main notes can be extracted from the available seven, making the task easier.

The three pathets of slendro are called pathet nem, pathet sanga, and pathet manyura; those of pelog are called pathet lima, pathet nem, and pathet barang. One of the mysteries of the subject is how these names came about. Lima and nem mean five and six respectively and can refer to actual notes, but the connection is not clear. Sanga, meaning nine, is still less clear. Barang ('thing') can refer to note 7 in pelog, which is useful since this pelog pathet is broadly distinguished from the other two by its prominent use of that note, but the significance of manyura (derived from the Sanskrit word for peacock) remains tantalizing.

Attempts are made to isolate the pathet from the material played by certain instruments in the gamelan. For example, if the balungan is considered to be the nuclear melody, the 'census firmus', to which everything relates, then it is logical to expect it to reveal the pathet. But this overlooks a far more important priority: the reality of the music is only expressed by the complete ensemble, and every contribution should be considered. In practice, the Javanese are likely to prefer the gender to the saron or other balungan instrument if only one of them is to be chosen, and they will probably stress the vocal applications — even the very origin — of pathet. Indeed, an important part of a gamelan performance and of wayang is the use of short preludes and postludes collectively called pathetan. The name indicates their importance in establishing and confirming the pathet, and the way they are performed underlines the importance of the voice (which leads in the wayang), and of the rebab, gender, gambang and suling which follow the melodic line in a free rhythm. No balungan instruments are used, and the pathetan is completely free from the metrical constraints of a balungan: in this
music lies perhaps the very essence of pathet.

A point to bear in mind in pathet analyses of larger compositions is the likelihood of ambivalence: most pieces show characteristics of more than one pathet, and it is even possible to speak of ‘pathet modulation’. A piece has its basic pathet, but often includes many phrases that lie outside it. This is analogous to a piece in a certain key which may touch on other keys, or actually establish them, before returning to the home key (which is the only one named in the title). The balungan tends to be treated by Westerners as an easy way into gamelan music theory, because some characteristics of pathet are gleaned from preliminary studies of its typical configurations. This is acceptable as long as it is remembered that it can only be a preliminary and incomplete analysis; however many balungan motifs are extracted from pieces, and even put into computers, they will never give the full picture of pathet as the Javanese perceive it (which must involve a consideration of every element of the piece, not just its balungan). Having said this, let us examine patterns which may be considered typical of particular pathets. In keeping with Javanese priorities, lara slendro will be considered first:

What can be learned from this limited information? To begin with, the dots are significant in showing a gradual rise in tessitura through these three pathets, and also in arriving at an idea of a note hierarchy. They will not have any bearing on how the patterns are played on the (one-octave) balungan instruments, but they are crucial to instruments (and the voice) that can reproduce them correctly. This general rise in tessitura is important in the all-night wayang kulit performance, which is traditionally accompanied by music in lara slendro, and is in three main sections. As the play travels through the life-cycle, from youth and inexperience, to the establishment of the individual in society, and finally to the wisdom of old age, when the trials and tribulations are finally resolved, so the music ‘rises’ through the pathets: first pathet nem, then pathet sanga, and finally pathet manyura. To try and divorce pathet from human experience and consider it only in terms of sound patterns is therefore to miss an important point close to the Javanese. In other words, it is better translated as ‘mood’ rather than ‘mode’. There are interesting parallels with Indian music, where this remark applies equally well. Perhaps the most important thing about an Indian raga is that it is an expression of feeling which flows from the heart of the musician to the hearts of the audience, instilling the bliss known as rasa. The Javanese have inherited this word and appreciate its importance, even if the precise context has changed over hundreds of years and miles.

If we examine the four-note patterns above a little further, some indicators of a hierarchy emerge. In each case one note of the slendro five is omitted, and this is regarded as the weakest in each pathet. The strongest in the group is the fourth; it often occurs at the end of phrases, when it may be further marked by a stroke on one of the punctuating gongs at the rear of the gamelan. The other three notes cannot easily be placed in a hierarchy, since their importance will vary according to context. It would not be wrong to suggest the following: in slendro pathet nem, the strongest note tends to be 2 and the weakest tends to be 1; in slendro pathet sanga, the strongest note tends to be 5 and the weakest 3; in slendro pathet manyura, the strongest note tends to be 6 and the weakest 5.

As stated earlier, in pelog, a difference of pathet often involves a difference of scale. The problem is that, instead of creating three different scales for each of the pathets, there are really only two, distinguished primarily by the use of either note 1 (bem) or note 7 (barang), and accordingly named after the note in question. Note 4 is very much the odd one out. It is avoided altogether in the numbering of the slendro notes and is unavailable on some of the pelog instruments (for example, the genders and gambang) which will therefore either have the bem scale: 1 2 3 5 6 or the barang scale: 2 3 5 6 7. The latter is the typical material of pathet barang, while the former is the basis of pathet lima and pathet nem. Note 4 may be added to either, but it tends to be used sparingly, if at all, in pathet barang, and much more in pathet nem.
and *pathet lima*. The result is that many pieces become hexatonic and quite a few fully heptatonic, though it is unlikely that the underlying hierarchy will be disturbed, because the introduction of note 1 in *pathet barang* or note 7 in the other *pathets* will be done with care and restraint. For example, the very long *Gendhing Babar Layar*, which is in pelog *pathet lima*, has a *balungan* totalling 640 beats based on the six notes from 1 to 6, and the note 7 is used just once!

As a general guide to the kinds of hierarchies which might be expected in the pelog *pathets*, notes 1 and 5 will tend to be relatively strong in *pathet lima*; 3, 6, 2, and 5 in *pathet nem*; and 6 and 2 in *pathet barang* (which should not be confused with *pathet nem*, owing to the different scale). In pelog the real problem lies in distinguishing *pathet lima* from *pathet nem*, and even the Javanese sometimes have problems. One simple clue, if it can be heard, is that the open strings of the re*bab* are always tuned to 6 and 2 below, except in pelog *pathet lima* when they are lowered a step to 5 and 1.

If this introduction to *pathet* tends towards over-simplification, a more detailed examination would inevitably develop into a long and complicated account and is not feasible in the present context. Moreover the glimpse of what *pathet* seems to be about that is offered above would be obscured in the quest to establish what it actually is.

3 *Balungan*

*Balungan* literally means bones or skeleton, an apt name for what is often called the nuclear melody of a gamelan piece. It serves as a central melodic thread from which the parts of all the instruments of the gamelan can be determined, and experienced musicians will know how to relate their parts to the information of the *balungan*. For this reason, it is all that needs to be preserved, and collections of gamelan pieces in notation usually give just the *balungan*, plus a few indications of its form and punctuation (discussed below under *bentuk*). The *balungan* can flow in even notes (*balungan mlaku*), or by alternating notes and 'rests' which in practice will usually be the prolongation of the previous note, (*balungan nibani*), or by subdivided beats or combinations of notes and rests (*balungan ngadhal*). In all cases the notation will arrange the *balungan* into groups based on units of four beats (each beat is called a *keteg*) with a space between each group. The name for such a group is *gatra*, and this is a major organizational feature of *karawitan*. A *gatra* could be constructed in various ways, as noted, but the important point is always that the fourth beat is the most important, followed by the second. To call any the strong beat might be misleading, because there is no need for accentuation. The fourth beat of a *gatra* is a kind of centre of gravity or point of resolution, and musicians realizing other parts from the *balungan* will tend to focus on this last note of the *gatra*, steering their parts to coincide with it. If the fourth beat is a rest, it will usually be treated as a continuation of the previous note.

As an example of this, (showing mixtures of notes and rests, or the previous note prolonged), and also of subdivided beats (hence elements of *balungan mlaku* and *balungan ngadhal*, but not of *balungan nibani* which has a regular alternation of note and rest), here are the first eight *gatras* of the piece called *Gendhing Babar Layar* (in pelog), with the important fourth note in each *gatra* indicated by an arrow:

The arrows suggest divisions into bars (eight bars of common time) but the essential difference is that the important beat is the fourth, rather than the first. In either case this beat is not necessarily stressed, and anyway it should be said that the problem is notational rather than aural. The reason for mentioning it is that Westerners usually learn *karawitan* through notation, and can easily be confused at first.

Because of its central importance, the *balungan* must be learned by everyone in the ensemble. Generally a beginner will be assigned to one of the group of instruments which play the *balungan*. One feature these
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instruments have in common is their restriction to an effective range of one octave. The paradox is that this restriction actually prevents them from playing the balungan as it really is. The true balungan (known in full as the balunganing gendhing, meaning 'the skeleton of the composition') usually spans a range of more than one octave, so what these instruments must do is rearrange it, with octave displacements, to fit it into their range. This is all right as long as one remembers that this is neither how the balungan would be sung nor how it would be notated. There is, for example, a crucial difference between a passage such as:

(i.e. a straight sequence of four descending notes), and the way the balungan instruments would play it:

(i.e. with a big leap upwards from the 1 to the 6). Those instruments which decorate the balungan with patterns ranging over more than one octave must follow the balunganing gendhing, and not this distorted version.

The whole concept of lagu (melody) in karawitan is fascinatingly elusive. If the balunganing gendhing is not played as it is conceived, where is it? The answer is: in the minds of the musicians. But even that is not the end of the story. The Javanese master, Sumarsam, argues the existence of what he calls the 'inner melody', which is not played by any single instrument but is a kind of intuitive melodic core which influences the movement and direction of the whole ensemble more than any single strand, including the balunganing gendhing itself. 'Inner melody is the melody that is sung by musicians in their hearts. Inner melody is the essence of melody in Javanese gamelan.' Time and again one finds this emphasis on intuition and the heart before the head, as well as a reminder that this instrumental music has a vocal basis. It also seems typically Javanese to propose this elusive hypothesis of a melody that directs all others, and yet which is not performed and is not heard; nevertheless, this unheard force can serve as a vital analytical tool, helping to explain melodic motions in the ensemble which can sometimes appear to be at variance with the balungan. But of course its understanding and use are only granted to the expert musician in whose heart the inner melody is sung. It is hardly surprising that the inner melody is not notated. On the other hand the ease with which the balungan can be isolated and notated is a major reason for the importance given to it by theorists and musicians used to analysing and performing music through notation. Its value in the understanding, teaching, and preservation of gamelan music, especially among Westerners, cannot be denied, but it is best understood in its literal sense: a melodic skeleton.

4 Irama

Irma has often been confused with tempo, probably because the appropriate word, laya (still used today in India to denote tempo), is much less commonly employed. More accurately, irama is a concept of tempo relationships. While one may speak of one irama as being faster than another, such a distinction is only partially correct, because it may apply to some parts of the ensemble, whereas the reverse may apply to others. To look for a Western analogy: if the subject of a fugue is sounded in augmentation (i.e. twice as slow as normal), and yet the other parts move in shorter note values than they did against the original subject, the overall effect will not necessarily be one of a change of tempo. So it is in gamelan music: the balungan may sound at half its previous tempo while the other parts may sound at faster rates than before, yet this would not constitute a change of laya but instead one of irama.

Concentrating on the relationships between the parts of the ensemble, the Javanese have a very simple way of expressing irama. By taking one instrument (the peking) as reference, they compare its rate of activity with the balungan; thus, in one irama, the speed of the balungan may be fast and permit only one peking note per balungan note or beat, while in another it may be so slow that the peking may fit as many as sixteen notes per balungan note. These relationships are expressed in multiples of two, an important organizational principle of gamelan music, even though the pulses of different iramas do not necessarily have to be precisely twice as fast or slow. The main iramas are called lancar (fast, moving), tanggung (half, intermediate), dados or dadi (settled), wiled
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(which has the same connotation as dados; and significantly these are the main iramas for full-scale gamelan pieces), and rangkep (doubled). Each irama, expressed in terms of the relationship of peking to balungan is as follows:

| irama lancer  | one  |
| irama tanggung | two  |
| irama dados   | four |
| irama wiled   | eight|
| irama rangkep | sixteen |

peking notes per one of balungan

They are often given numbers as well, except for irama lancer. Thus, irama tanggung may be indicated as irama I, irama dados as irama II, irama wiled as irama III, and irama rangkep as irama IV. The pulse of irama lancer (that is, the irama where the balungan is moving at its fastest tempo) is not especially fast. A typical value would be around 120 balungan beats per minute. For this reason, a much faster irama lancer is sometimes played: a 'super lancer' called irama gropak; but the all-important relationships within it remain the same. Other relationships to the balungan, according to irama, apply to the other instruments of the gamelan, and some idea of how this happens will be given in Chapter 5.

The variations of tempo (laya) that can occur within any irama are grouped into three broad areas: tamban (slow), sedheng (medium), and seseg (fast). These may apply to whole sections where both irama and laya are stable, and also to the gradual change from one irama to another, which usually involves a change of tempo (for example, irama tanggung will slow down to go to irama dados and speed up to go to irama lancer).

5 Bentuk and gendhing

Bentuk means form (in Indonesian, suggesting a recent application to karawitan) which, in musical terms, means the organization of the balungan beyond the groupings of gatras, into larger sections and complete pieces. The generic term for a gamelan composition is gendhing, and this word is also used to preface the names of large-scale pieces with various formal organizations. Shorter forms have different names, for example: lancaran, ketauwan, ladrang, ayak-ayakan, srepegan, and sampak.

Each of these bentuks has characteristics which will apply to any piece of its kind: a type of melodic line and phrase-structure (discussed below in the section on padhang-ulihan), an underlying colotomic structure ('punctuating' pattern) on the various sets of gongs at the back of the gamelan, and very often a kind of mood and association. A lancaran is usually lively, while srepegan and sampak are used to accompany moments of instability (such as starts, entrances and exits) in wayang, and so on.

The main determinant of bentuk is the gongan: the melodic sentence between strokes of a large gong. This will often constitute an entire section, and in some cases an entire piece, and each gongan will be divided into a number of kenongan: phrases between strokes on the kenong. Many compositions in the bentuks discussed below, especially ketauwan, ladrang and the larger gendhing, have more than one section: in other words the bentuk structure (one gongan) is reduplicated throughout the whole piece (several gongans). The ladrang form will be the focus of the next chapter, permitting a closer examination of one particular bentuk. In order to place it in the wider context of bentuk, some of the other main forms used in gamelan music will be briefly examined here, progressing from the shortest and simplest to some of the larger structures.

Lancaran

There are two types of lancaran: balungan nibani, in which there is a rest between each note of the balungan, and balungan mlaku where the balungan is a continuous series of notes. Either way there are sixteen balungan beats to the gongan (that is, between strokes on the gong). Because the tempo is relatively fast, the gong is usually the gong sauwkan, the weightier gong ageng being reserved for the end of the buka (introduction), for the ends of main sections, and for the very end of the piece. (The two gongs do not play together.) The rest of the 'colotomic' section is shown with symbols commonly used in Java (see page xiv). Since the actual notes of the balungan vary from piece to
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piece they are not shown in the outline below; instead the symbol 0 is used to indicate the occurrence of balungan notes. (The Kempyang is not played in lancerans):

\[
\begin{array}{cccccccccccc}
\times & \times & \times & \times & \times & \times & \times & \times \\
nibani & . & 0 & . & 0 & . & 0 & . & 0 & . & 0 & . & 0 & . (0)
\end{array}
\]

Balungan

\[
\begin{array}{cccccccccccc}
\text{mlaku} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 (0)
\end{array}
\]

There is an apparent irregularity in this and subsequent bentuk schemes owing to the deliberate omission of a Kempul stroke in the space after the gong. (It must be remembered that the gong will already have sounded before the bentuk schemes shown in these notations begin; it will have been heard at the end of the buka introduction, and occurs again at the end of the cycle which may then be repeated.) This space is called wela (a Jogianese term), and is an example of the Javanese sensitivity to orchestral density and balance. The more symmetrical form, involving four rather than three Kempul strokes and filling the wela, would mean an undue thickening of the texture just after the large gong or gong Suwukan has been struck and therefore while its powerful vibrations are still sounding.

Ketawang

This, too, has sixteen balungan beats per gongan (marked by the gong ageng; the Suwukan is not used in this bentuk, or in the typical ladrang or larger gendhings discussed below) but the colotomic part is different from that of lanceran. The Kempyang (shown by the symbol 0) is also played:

\[
\begin{array}{cccccccccccc}
\times & \times & \times & \times & \times & \times & \times & \times \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 (0)
\end{array}
\]

Ladrang

This is rather like a double ketawang:

\[
\begin{array}{cccccccccccc}
\times & \times & \times & \times & \times & \times & \times & \times \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 (0)
\end{array}
\]

This applies to iramas tanggung and dados (the most usual iramas for ladrang). In irama wiled (and rangkep) the number of balungan beats is doubled.

A relationship does, however, exist with the lanceran, ketawang, and ladrang forms, since each gongan will usually comprise either two kenongans (as in a ketawang) or four (as in a lanceran or ladrang).

Ayak-ayakan

This and the next two bentukus (srepegan and sampak) are particularly associated with the theatrical uses of gamelan (wayang and dance). They do sometimes occur in concert music (klenengan) but usually connected to other pieces in a kind of suite, rather than in isolation. Because of their essentially dramatic nature, they are subject to alteration in performance, with transitions and endings liable to occur at almost any point (determined by the dramatic action) and there is no real standardization in matters of length and form. What is given here is a typical Solonese version for each type. As in lanceran, the relatively frequent occurrence of notes played on the larger hanging gongs (shown by brackets) necessitates the use of the gong Suwukan as well as the gong ageng. When each is to be used is determined in the actual performance; as a rule the Suwukan is used more, the larger gong being reserved for ends of sections, often when the balungan note is 6, and so on. The notation usually indicates the gong without specifying which one, and this policy is followed here. The Kempyang is not played in any of the three bentukus. A basic ayak-ayakan structure could be as follows:

\[
\begin{array}{cccccccccccc}
\times & \times & \times & \times & \times & \times & \times & \times \\
. & 0 & . (0) & . & 0 & . (0) & . & 0 & . (0)
\end{array}
\]

and:

\[
\begin{array}{cccccccccccc}
\times & \times & \times & \times & \times & \times & \times & \times \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 (0)
\end{array}
\]

This is the scheme for slendro pathet manyura. In pathets nem and sanga the gong comes at the end of phrases and is replaced at the end of the other gatras by a Kempul.
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**Srepegan and Sampak**

\[
\begin{array}{cccccccccc}
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
\]

The colotomic structure becomes a little denser and the tempo usually faster in *srepegan* (shown above), and also in *sampak*. The typical *talu* (equivalent to overtone in a *wayang*) moves from the rather slow and dignified *ayak-ayakan* to the livelier *srepegan* and finally to the *sampak* in a continuous sequence, although the three pieces can also be played separately. As the excitement increases, so the melodic material simplifies. The *ayak-ayakan* is fairly free, the *srepegan* moves mainly in pairs of adjacent notes (for example \(2 1 2 1 3 2 3 2\)), while the *sampak* is characterized by complete *gatras* of the same note \(6 6 6 6 3 3 3 3 2 2 2\) etc.), with an unusually dense colotomic structure in which notes on the *kempul* occur as frequently as *balungan* notes, while the *kenong* actually moves at a faster rate:

\[
\begin{array}{cccccccccc}
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
\]

**Larger gendhings**

These cannot be grouped under a single colotomic structure since the number of *balungan* beats per *gongan* varies from piece to piece and sometimes from section to section within the same piece. In general they are larger than any of the forms so far discussed: each section will usually be divided into two or four *kenongans* (sub-section between strokes on the *kenong*) and strokes on the large *gong* are most likely to occur after either 64, or 128 or 256 beats. A basic *gendhing*, like many *ketawangs* and *ladrang* is in two sections, called *merong* and *inggah*, linked by a short section called *ompak* (or *umpak*).

The full title of the *gendhing* will usually include information on the part played by the *kethuk*, so what seems a lowly and insignificant instrument is in fact a prime determinant of form. An example of such a complete title is: *Gendhing Tukung kethuk 4 kerep minggah 8 lara*

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*Pelog pathet barang*. In this long title only the word *Tukung* refers to this particular piece. *Gendhing* means it is a (large-scale) gamelan composition, and the words at the end of the title carry the information on tuning and pathet. *Kethuk 4 kerep* means that there are four closely spaced (*kerep*) *kethuk* strokes per *kenong* stroke. The first of these *kethuk* strokes must fall at the end of the first *gatra* after the *gong*, and thence at the end of every other *gatra*. To show this, here is the first *kenongan* (section between strokes of the *kenong*, each one comprising 32 beats) of *Tukung*:

\[
\begin{array}{cccccccccc}
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
\]

This pattern will continue throughout the *merong* (and the *ompak*, to the *inggah*). In *Tukung* the *merong* has four *kenongans*, making a total of 128 beats between strokes on the *gongan* (thus four times as long as the *ladrang* form). The phrase ‘*minggah 8*’ in the complete title of *Tukung* literally means ‘rise (to) 8’, still referring to the *kethuk* beats, but as they occur in the *inggah*. Thus, in this section there will be eight *kethuk* beats per *kenongan*. The first *kenongan* of the *inggah* of *Tukung* is:

\[
\begin{array}{cccccccccc}
1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
\]

Notice that the *kempyang* is also played in the *inggah*, but not in the *merong*. The *kethuk–kempyang* pattern in the *inggah* is the standard one, which is also used in the *ketawang* and *ladrang* forms. The *kempuls* (and also the *gongan suvukan*) are not played in such *merong–inggah* forms. How often the sections are repeated and which tempi are used depends on the drummer. Thus such a piece could last anything from seven or eight minutes to half an hour or more.
Instead of the world *keren* in the title, it is common to find *awis* or *arang* (literally ‘rare’), both meaning the opposite of *keren*, (in other words widely - rather than closely - spaced). If the *kethuk* strokes are *awis* (*arang*) the first one will fall at the end of the second *gatra* after the gong, and thereafter at the end of every fourth *gatra*. This will obviously make the *kenongan* (and indeed, the whole structure) longer than in the *keren* type of *gendhang*. For example, the *merong* of *Gendhang Wedikengser* is *kethuk 4 awis* (as opposed to the *kethuk 4 keren* of *Tukung*), and the first *kenongan* is as follows:

So each *kenongan* is twice the length of one in *Tukung*, making the gong *four kenongan* also twice as long, a total of 256 beats.

The different kinds of *gendhang* according to this *kethuk* classification may be summarized in the following table:

| i  | *kethuk 2 keren minggah* 4       |
| ii | *kethuk 4 keren minggah* 4      |
| iii| *kethuk 4 keren minggah* 8      |
| iv | *kethuk 8 keren minggah* 16     |
| v  | *kethuk 2 awis minggah* 4       |
| vi | *kethuk 2 awis minggah* 8       |
| vii| *kethuk 4 awis minggah* 4       |
| viii| *kethuk 4 awis minggah* 8      |

The table indicates an obvious doubling (or quadrupling in one case) of the number of *kethuk* strokes from the *melong* to the *minggah*, with two exceptions, but in all cases the frequency of *kethuk* strokes is greater in the *minggah* where there is one per *gatra*. A *ladrang* is substituted for an *inggah* in the form called *ketawang gendhang* (or *gendhang ketawang*), in which the *merong* is *kethuk 2 keren* but there are two *kenongan* (each consisting of four *gatras*) to the *gongan*. This substitution can also occur in other forms, in which case the title would become ‘*minggah ladrang*’ (instead of the number of *kethuk* strokes); and many large *gendhings* are extended by adding *ladrangs* or *ketawangs* after the *minggah*, or by connecting different compositions in a kind of suite, equivalent in length to a nineteenth-century symphony. Such large-scale forms will invariably be for the full gamelan, including vocal parts (especially the *sindhen*, for solo female singer). The main *gendhang* is usually classified as a *gendhang rebab* because the *rebab* is the leading melodic instrument. The *inggah* will probably have *ciiblon* drumming and pass into *irama wiled*. This kind of music represents gamelan music at its most intricate. *Gendhings* like *Tukung* and *Wedikengser*, on the other hand, belong to the smaller repertoire of *gendhang bonang*. Here, the *bonangs* are the principal ‘embellishing’ instruments. None of the softer instruments (*rebab, gender, gambang* etc.) nor the voice is included, and the drumming is restrained and often just on the *kendhang gendhang*. This gives such compositions a sparser sonority, with a more prominent *balungan* and generally louder dynamic than in *gendhang rebab*. They are often used at important events such as birth celebrations, weddings and sometimes circumcisions, and also at the commencement of palace ceremonies.

6 *Padhang-ulihan*

*Karawitan* is an art of balance. Just as in Western music tonality, form and phrase-structure are interconnected, so in *karawitan* are *pathet, bentuk* and *padhang-ulihan*. These last two words refer to the art of melodic phrasing, and *padhang-ulihan* are terms for balanced phrase-structures, adequately translated by ‘antecedent’ and ‘consequent’. A *balungan* is therefore organized so that its *padhang-ulihan* structure follows the constraints of the *pathet* and in turn influences the *bentuk*.

Martopangrawit provides a clear definition, with a rather amusing extra-musical analogy, affording an insight into Javanese ways of thinking about music and human behaviour, which merits extensive quotation:
Padhang-ulihan is found in many disciplines – dance, carving, discourse, behavior, etc. In short, everything has padhang-ulihan. ‘Padhang’ [‘bright’, ‘light’, ‘clear’] is something that is clear, but whose ultimate purpose is still unknown. That which clarifies the final purpose is ‘ulihan’ [‘return’, ‘coming home’]. For an example, let us imagine that we see a man walking to the bath, and we are unaware of his intentions. Will he take a bath, or wash his face, or merely inspect the condition of the bathwater? In other words, we know the padhang, but not the ulihan.

It is clear that each padhang may have 1,001 different ulihan. But it is necessary that there be a harmonious match between padhang and ulihan. If we saw a man enter the bath and straightaway lie down to take a nap, we would certainly laugh, since his intentions are not in agreement with the original appearance of his actions.

It is necessary to keep in mind that there are different levels of padhang-ulihan. For example, if a man goes to the bath with the intention of washing his face, this set of padhang-ulihan [i.e. action, final intention] can itself become a padhang [which will then be balanced by a larger ulihan].

A simple example of padhang-ulihan analysis should clarify its principles. Taking one gongan of a very simple well-known lancaran, called Ricik-ricik:

\[
\begin{array}{cccccccc}
\text{P} & \text{P} & \text{P} & \text{P} & \text{U} & \text{U} & \text{U} & \text{U} \\
\end{array}
\]

The middle two gatras are identical, and very similar to the first (since the last note is 5 in all three cases), while the fourth is different and gives a cadential feeling, the ‘answer’ to the ‘question’, or the ulihan (U) to three padhangs (P), or even to just one if they are lumped together. (The process can be extended by considering the whole passage as a padhang or ulihan to another large section, not shown here.) This practice of joining small units into larger ones means that padhang-ulihan structures are embedded in larger ones (like Russian dolls) and in extended pieces this can lead to far more elusive structures, requiring more complex analysis. Such investigations are beyond the scope of this introduction, but it will be helpful to examine one more bentuk, in ladrang form, notably Ladrang Wilujeng, since this piece will become the basis of a detailed analysis in Chapter 5. There are two sections (gongan) and the structure is the same for each, so only one gongan need be given here. I choose the second (the lik section) because it is the part used in the detailed score at the end of Chapter 5:

\[
\begin{array}{cccccccc}
\text{U} & \text{P} & \text{P} & \text{P} & \text{P} & \text{U} & \text{U} & \text{U} \\
\end{array}
\]

This operates on three levels: (a) each even-numbered gatra acts as an ulihan to the preceding padhang gatra; (b) the first three pairs of gatras each function as a padhang to the ulihan of the fourth pair; (c) the same three pairs, each one a padhang, can be combined into one large padhang (of six gatras) to the same ulihan constituted by the fourth pair. (This is very similar to the analysis of Lancaran Ricik-ricik above.) The colotomic structure of a piece therefore not only marks the form (bentuk) in terms of beats (a kenong stroke every so many beats, the gong after so many beats, etc.) but also reinforces the cadential feel of the padhang-ulihan structure. Without an understanding of this, and of the related issue of pathet, one may compose a balungan with 32 notes, a gong stroke at the end, plus all the other punctuations of a ladrang, and yet this will not guarantee that it is a genuine ladrang. This has caused problems for some non-Javanese composers who wish to borrow bentuk terms but whose compositions wander away from the padhang-ulihan and pathet constraints of the particular bentuk, preserving only its colotomic structure. To employ the terms correctly, therefore, brings us back to the first point of this section: an awareness of how the different elements of karawitan are inextricably linked.

7 Garap

To understand this word is to grasp how Javanese musicians approach karawitan and ensure its continuing vitality and creativity. Because the word ‘improvisation’ has no absolute meaning it must always be used with care and myriad qualifications. To state that gamelan music is improvised is likely to convey the impression of a freedom, even
looseness, which it does not have; but to try and close the matter there would do the greater disservice of denying it that element of choice and interpretative spontaneity that is crucial to any great musical tradition. Garap, meaning 'treatment' (literally 'working on'), refers to the way a musician realizes another part from a given one (the balungan, or, more accurately, the elusive 'inner melody'). A similar situation would arise in our culture when one is harmonizing a given melody at the keyboard or realizing a figured bass. In each case the act involves improvisation, but a context is established and a framework within which the realization will be acceptable but beyond which it will probably be judged unclear, inappropriate, and even wrong. No problem is thought to have but one solution, and garap is the art of finding the solution that fits best but does not necessarily preclude others — nor, indeed, the desirability of variations. A gender player, for example, may study a given balungan and choose patterns from the repertoire to suit it according to its shape, direction and pathet, but may play any one pattern in a variety of ways. Garap therefore also involves an act of musical analysis in performance. The better the musician, the more varied the repertoire and performance and the more sure-footed the garap. The only likely impasse is if the given material (balungan) itself obscures any of the finely balanced principles of karawitan which govern and focus the garap. The whole of the next chapter is a study of garap in its broad sense of performance practice. It investigates how gamelan players might approach a given piece and decide what each instrument will play, according to its idiomatic repertoire and the guiding principles of karawitan. This garap may then represent only the solution on that particular occasion. The same musicians could vary it slightly on other occasions, and another group of musicians might find a substantially different garap as their basis. The flexibility and impermanence (which are not quite synonymous with improvisation) of garap make the idea of a 'score' (such as the one at the end of the next chapter) of a gamelan piece contrary to Javanese musical thought — almost a contradiction in terms — and it can only be offered as a study guide, without any Western implication of a fixed, definitive version.

Notes
1 Tables, comparing a wide range of gamelans and their tunings (expressed in Hertz numbers and Cents), are given in Kunst, op. cit., pp. 572–5.
3 Ibid., p. 262.
4 Ibid., p. 66.
Chapter 5

Theory into practice: gamelan music in performance

Having considered the structure and manufacture of the instruments of the Javanese gamelan and laid the theoretical foundations of the music, we now turn to the musical function of each instrument within the total group. As a rule, the largest instruments are placed to the rear and the smallest to the front. This also means that the louder and deeper-pitched instruments, which play slow-moving parts, are to the rear, while the softer and higher-pitched instruments, playing faster music, are to the fore. The point to be stressed in this deliberate generalization and simplification is that a clear visual and aural logic may be discerned in the beauty of the gamelan, both by the eye and the ear. This chapter aims, by avoiding complexity as much as possible, to bring out the wonderful logic and simplicity of the principles that govern the music.

The process by which this will be achieved is inevitably one of dissection and stripping down; and it is important to stress at the outset, as Kunst has done, that gamelan music must first be heard and appreciated as an aural whole:

It is undeniable that the primarily important thing is precisely this experience of the orchestral sound heard as one single, pure entirety; intellectual analysis should come later, at any rate for those who like to make themselves, as far as possible, conscious of the phenomena coming under their notice, so that intuitive apprehension and intellectual probing may supplement each other, and, together, provide an enjoyment of a higher order than either function could provide unaided.¹

Of course, the only way to experience the sound as a single, pure entirety is to hear it, preferably live or else on a recording of the best quality. But the intellectual analysis of the parts that go to make up this entirety (even though the whole is so much more than the sum of its parts) can be attempted in writing, and this is the stage we have now reached.

It is a tradition among musicologists to divide the gamelan into three main groups. Although one of these groups is a rather random mixture of some of the most important and beautiful instruments, the classification works well enough, especially for the other two groups, the first two in the following discussion.

1 Balungan

We may start with the central group, both in the sense of physical location within the gamelan and in terms of pitch register, medium pulse, and centrality of importance to the whole composition. This group plays the melodic outline on which the entire musical structure is based. The balungan is a prime determinant of the other parts, thus it is unnecessary to include them in notations of gamelan compositions, the assumption being that, once it has been learned, the part for any instrument can be derived from it.

The instruments which play the balungan are of the wilah variety. It is important to emphasize that instrumental functions within the Javanese gamelan tend to be fixed; thus it is much easier to explain the structures and functions within a gamelan than, for example, the Western symphony orchestra, where there is no longer any clear one-to-one relationship between instrument and function (for example, the violins do not always play the melody, or the violas the accompaniment, or the cellos the bass line). The balungan instruments in the gamelan can therefore be regarded as unchangingly balungan instruments. They are the saron barung (usually known simply as saron), the saron demung (usually known simply as demung), the saron panerus (usually known by its nickname of peking) and the slenthem. The typical gamelan will have two saron barung (both in slendro and pelog) and one each of the other instruments (also in both tunings). These five balungan instruments span a range of four octaves, from the lowest note of the slenthem to the highest note of the peking. The 'unison' balungan (there are important deviations, which are examined below) is therefore widely distributed
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across the compass of the gamelan, yet at the same time embedded in the centre of the group and the composition, and, despite its crucial importance, usually not aurally dominant. It is the policy of this book to explain a small amount of music in some detail, rather than to attempt to cover a wide repertoire. The important (and convenient) point is that the principles operating in one single piece may be applied extensively to virtually all the classical repertoire. For this reason, one piece will be examined to the extent that it will be possible to combine the functions of the main instruments in the gamelan into a kind of 'score' of the composition. This is the very well-known Ladrang Wilujeng, which has the added advantage of being performed in both slendro and pelog (a possibility which applies to a sizeable minority of gamelan pieces). The piece has the typical two-section form, usually performed A–A–B, and repeated ad libitum. The second section is called the lik (or ngelik), and the first section is sometimes (though not universally) called the ompak (not to be confused with the transition passage of the same name in larger gendhis). The notation of the balungan, as it would be found in a book of gamelan music, is as follows:

In slendro (pathet manyura):

First part – :

Second part – (lik):

This balungan, fitted into one octave, is played by the sarons, demung and slenthen. A variation, known as pinjalan, may be employed by the demung, slenthen and sarons, and this will be discussed below. The peking, on the other hand, must always play a variation of the balungan except in the fastest iramas (lancar and gropak). Since this ladrang (and most others) is basically in irama tanggung and irama dados, the peking part is more complex than the given balungan. Ladrang Wilujeng will start in irama tanggung and either continue for one or more complete statements in this irama, or slow down very soon (by the end of the second line) to irama dados. The peking will therefore begin by playing two notes to one of balungan, changing to four when the irama has stabilized in irama dados. In the faster irama it is usual simply to double the balungan note, and it would not be incorrect to play it four times in irama dados. A better version, and far more interesting one, however, is a simple variation known as selang-seling (meaning alternate). Once the principles are grasped it is easy to play the selang-seling part instantly against any balungan. Each pair of notes of the balungan is taken; the first may be regarded as weak and the second strong. Each note is played twice in such a way that the strong note coincides in the balungan and peking part, while the peking also strikes the strong note against the weak note in the balungan. This can be shown quite simply in notation, taking the first gatra of Wilujeng:
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This is divided into two pairs:

and the peking realization (selang-seling, in irama dados) is as follows:

Two eventualities remain to be considered: the occurrence of repeated notes and of rests. In effect they are one and the same since the peking treats rests as a continuation of the preceding balungan note, and the important rule is that the peking continues to play even when the other balungan instruments rest. What does not happen, however, in selang-seling is the straight repetition of repeated notes in the balungan, for example (in Wilujeng):

Instead, an auxiliary note, adjacent to the actual balungan note, must be inserted as a weak note, so that the characteristic line of the selang-seling variation can be maintained. The choice of auxiliary note will of course be between two (except when the balungan note falls at either extreme of the instrument), and the peking player must make the choice according to the line of the balungan, its pathet, and the general feel of the piece. Sometimes even both auxiliaries can be used. In the case of Wilujeng just given, 2 would be a better, and more obvious, choice than 5 (but both could be incorporated into the line), so the part could be:

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(remembering that the peking plays as though the note 3 of the balungan is repeated in the rests).

While the remaining balungan instruments (usually a couple of sarons, one demung and one slenthem) normally play the balungan in its basic form, a variation – mentioned earlier – called pinjalan (which means the hopping of a flea!) is often used in irama dados on the demung, slenthem and sarons, though usually confined to the pelog tuning. In this case (assuming that the peking is playing selang-seling) the 'straight' balungan is not played by any instrument, and this can pose problems of audibility for the inexperienced player or listener! Taking first the demung part of pinjalan, a clear connection with the selang-seling variation of the peking emerges. In effect, the demung plays the selang-seling part in single rather than double notes, while the slenthem plays the other note of the peking part, giving a kind of off-beat throb:

(It is because the slenthem is generally the most important and audible balungan instrument that this persistent off-beat pattern can confuse the beginner.) As with selang-seling, rests and repeated notes present slight problems. It could be argued that a strict imitation of the selang-seling line would be possible, but in fact a more interesting line is used. Below are the 'solutions' to the rests and repeated notes of the pelog version of Wilujeng:
The departures from the basic *selang-seling* pattern are thus confined to the second halves of a) and b).

In *pinjalan* the sarons (*barung*) keep in rhythmic unison with the *balungan*, but play only the notes that occur on the strong second and fourth beats of each *gatra*, for example:

![Musical notation](Image)

In certain circumstances, usually in *wayang* music, the sarons between them play the *pinjalan* pattern of the *demung* and *slenthem* (while those instruments play the straight *balungan*) and this re-instrumentation is known as *kinthilan*.

The score of the lik of Wilujeng at the end of this chapter is in the *slendro* tuning, and the sarons, *demung*, and *slenthem* play the straight *balungan*.

### 2 Colotomic Structure

The *balungan* is central in terms of structure, instrumental layout and also *rama*. To the rear of the gamelan are the larger gongs which play at the slowest rate, in keeping with the aural and visual logic discussed earlier. They collectively perform what the musicologists call the 'colotomic function': in other words, they punctuate the *balungan*. How they do this depends on the *bentuk* of the piece. Wilujeng is an example of *bentuk ladrang*. This means that there are 32 *balungan* beats between strokes on the *gong ageng*. This instrument has the lowest pitch in the gamelan and plays the least often, yet its importance is in relation to its size. It is very easy to play, as are all the colotomic instruments, yet the *gong* player must be very secure in the knowledge of the *balungan*, since a missed stroke or one in the wrong place is probably the most destructive gesture in gamelan music. For this reason the *gong* player is often a veteran musician, respected, like the instrument, above all others. In notation the *gong* stroke is shown by brackets around the *balungan* note it accompanies.
Usually in the same rack as this gong are the smaller hanging gongs (kempul), and also the gong saukian, which is not normally used in ladranges. The kempul is played at the end of the third, fifth and seventh gatras of the eight-gatra ladranges form. The omission (wela) of a kempul stroke at the end of the first gatra is, as we have already noted, one of the refinements of gamelan music (see p. 68).

The choice of kempul note is determined by the balungan and the pathet. Since a typical gamelan will have no kempul for note 2 and sometimes note 3, as a very general rule (which applies to Wirijeng) kempul 6 can be used for either of those notes, while any other balungan note can be found among the kempul. On the rare occasions that pelog 4 must be used on either the kempul or kenong, the near unison slendro 5 in the typical tumbuk nem gamelan (in which note 6 coincides in slendro and pelog) may be borrowed.

The kenong plays at the end of even-numbered gatras. This means that a kenong stroke accompanies the large gong. In slow music it is often the practice to delay both the kenong and gong strokes until slightly after the beat. In the case of the kenong this enhances its audibility since it is otherwise easily masked. In the ladranges form, the kenong beats come at the end of the second, fourth, sixth and eighth gatras. All notes are available in the kenong section of the typical gamelan, but the kenong note does not necessarily always coincide with the balungan note. In Wirijeng the second gatra ends on note 6, but, as is so typical of gamelan music, the kenong has an anticipatory function to the extent that, should a repeated note come immediately after a kenong beat, then the kenong must play that note rather than the actual balungan note with which it coincides. Thus, at the end of the second gatra the kenong note will be 3, not 6. The same rule applies in the lik at the end of the fourth gatra, where the kenong note will be 6 rather than 2, and at the end of the sixth gatra, where it will be 1 (slendro) or 7 (pelog) rather than 6. This practice is given the apt name of plesedan, meaning ‘sliding’ or ‘slipping’.

The kethuk and kempyang present no problem with regard to notes, since there is only one kethuk and one kempyang for slendro, and likewise for pelog. Although there are two gongs in each set, and each has a name, the two effectively constitute one instrument, which is always played by the same player using one mallet. The kempyang is always played with the kethuk, but the kethuk may be used on its own in certain kinds of pieces. The typical pattern which generally applies whenever both are used, as in the case in the ladranges form, is for the kethuk stroke to fall on the relatively strong second beat of each gatra, sandwiched between two strokes on the kempyang (on the weaker first and third beats). The strongest fourth beat is taken by the stronger kenong, kempul and gong, so that the whole colotomic section interlocks in a balanced manner. While the kempyang is always played with a single open stroke, in all but the fastest music the kethuk is struck with two or more strokes, played in rapid succession and damped. (Notations, however, always indicate a single stroke. Many notations in fact do not bother to indicate the kethuk and kempyang parts at all, since they are known for any particular bentuk.)

3 Embellishment

This word is often used, for want of a better, to classify the various instruments placed at the front of the gamelan which play at a faster rate than the balungan. Again, what is played must relate to the balungan, and each instrument paraphrases it in some way from a repertoire of idiomatic sequences chosen by the player to fit the balungan. Collectively these many instruments (to which must be added the voice) weave intricate polyphony around the balungan, putting not only the flesh and skin on to the skeleton, as it were, but also the finest clothes and most precious jewels. Gamelan music is inconceivable without at least some of these instruments, and the more refined the composition the more will be used. (An important exception is the repertoire of gendhing bonang, which are relatively stark.) The functions of the main embellishing instruments will be examined, one instrument at a time, but so elaborate is the repertoire of all these instruments that entire books are devoted to each one. The reader may expect here only the simplest, basic versions, as could be played by a competent rather than expert ensemble, and should bear in mind that, as in any good music, there are exceptions to all the rules, and no amount of written descriptions and notations can ever capture all the refinements and subtleties of the music as it is actually performed. This, incidentally, is also where the question of improvisation comes in. To summarize a difficult and elusive topic, improvisation – such as it can be said to
exist – lies essentially in the variation of the basic pattern, and the choice of that basic pattern (which is the subject of garap). Variation is more a matter of inflexion than complete transformation, and the listener would generally be able to discern the basic pattern (which is the concern of this study) through all the subtle changes that an individual player might impose.

**Bonang barung and bonang panerus**

The main embellishing instruments of the louder style (soran) of music, and arguably the easiest to play, are the two bonangs. Since the *bonang barung* is the more important the main reference will be to it. There are three main styles or garap: (i) gembyang (or gembyangan); (ii) mipil (or pipilan); (iii) imbal (or imbalan).

(i) *Gembyang*

This word means ‘octave’, and the essence of the pattern is the off-beat sounding of two notes an octave apart. It is used in *irama lanca* (and *gropak*), and therefore it is most appropriate to examine the pattern within compositions of the *lancara* variety, rather than in a slower one such as *Wilujeng*. Here is part of the balungan of the *lancara* quoted earlier on p. 74, entitled *Ricik-rick*:

Balungan:  
- 3 5 6 5 6 5 7 6

The bonang player will select the final note, called the seleh note, of each gatra (shown by arrows in this notation) as the basis for the gembyang, and then play this note in octaves on the first and third beats (in this case rests) of the relevant gatra. This means – and it is important to emphasize this point as typical of gamelan music – that the embellishment anticipates the balungan. This can best be seen in the notation below where the gembyang note changes from 5 to 6. The *bonang panerus*, typifying the logic of gamelan music, parallels its 2 : 1 pitch relationship to the *bonang barung* (since it is pitched an octave higher) with a version of the embellishment that is twice as fast. It would be more accurate to say that the *bonang panerus* gives the illusion of playing twice as fast in gembyangan, rather than literally

Some bonang panerus players perform instead a triplet rhythm: \( \frac{1}{3} \), but the version given above is more common.

(ii) *Mipil*

Here, the *bonang* parts are essentially an oscillation between pairs of balungan notes, performed in *irama tanggung* and *dados*, and occasionally in *irama wiled*. In *irama tanggung* the bonang pattern is called *mipil lamba* and in the other iramas it is called *mipil rangkep*. (Occasionally *mipil lamba* may be played in *irama dados*, creating a majestic effect. This depends on the piece and the feeling that the *bonang* player wishes to convey.) Both *irama tanggung* and *dados* may be used in *Wilujeng*, so let us take the first *gatra* of the piece to examine these two kinds of mipil:

Balungan:  
- 2 1 2 3

The *bonang* splits the gatra into two pairs of notes, making sure that the second note of each pair (the stronger beat) coincides with the balungan. In *mipil lamba* the *bonang* moves at twice the speed of the balungan, so each pair is played twice:

Balungan:  
- 2 1 2 3

Bonang (barung):  
- 2 1 2 (i) 2 3 2 (i)
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In performance, however, it is preferable to omit the bracketed note, leaving it to the balungan instruments. In mipil rangkep, the rate is four bonang notes per balungan beat, which would be:

But to perform it like this would be intolerably dull and would give the bonang undue prominence, so, as in mipil lamba, it is the practice to omit at least one note (which would be the fourth and twelfth notes in this example), and the most stylish way of playing mipil rangkep actually omits three per pair of balungan notes:

The bonang panerus will play the same as the bonang barung, but twice as fast, and again it is necessary to omit notes in order to give the line a more interesting shape and also to avoid thickening the texture, and even to reduce fatigue on the player's part! In irama tanggung the bonang panerus is already playing mipil rangkep, therefore it is not customary to talk about mipil lamba with reference to this instrument.

The next gatra of Wilujeng consists of a repeated note and two rests:

The simplest realization of this is the same note four times (3 3 3 3) which is what is discussed here, but it is worth pointing out, as an example of the flexibility of gamelan music, that a more sophisticated rendering would treat the two rests not as continuations of the note 3 but as note 6 (twice). This apparent anomaly is best explained by the concept of inner melody (discussed in Chapter 4), so, while the balungan
suggests a prolongation of the note 3 in the rests, the inner melody (led by the rebab) moves on to note 6. In any case, for this gatra involving a repeated note, gembryang must be used, rhythmically altered to fit the slower tempo. Treating the rests as prolongations of the note 3, in irama dados the bonangs play:

\[\text{balungan}\]
\[\text{bonang barung}\]
\[\text{bonang panerus}\]

But a better version, giving a feeling of triple metre, is:

\[\text{balungan}\]
\[\text{bonang barung}\]
\[\text{bonang panerus}\]

(In both bonang parts just the double notes could be played, the notes for left hand alone omitted.)

Another problem arises in pieces which employ balungan nibani, where a balungan note alternates with a rest, for example:

\[\text{balungan}\]

For any irama slower than irama lancar (and that includes the majority) the gembryang pattern, shown earlier for Lancaran Ricik-ricik, cannot be used. Neither can the regular mipil pattern, because each half gatra contains one note, rather than two. Effectively, the bonang adds a note in order to preserve the oscillating feel of mipil. Taking the seleh note (the final, crucial note of each gatra) the bonang begins the gatra by playing the note above and the note below the seleh note, and ends with the seleh note itself alternating with one of these notes, for example:

\[\text{ilustrasi tegung}\]
\[\text{ilustrasi barung}\]
\[\text{ilustrasi panerus}\]

(iii) Imbal

This is characterized by the interlocking of an on-beat pattern on the bonang barung with an off-beat pattern on the bonang panerus, thus placing the latter instrument on a more equal footing with the former than in the other styles. Imbal may be played in the same iramas as mipil. It is also the main style in those slower than irama dados, and it may also be used in the fastest iramas, especially in modern gamelan compositions. The main determining factor as to whether imbal or mipil should be used is the drum. As a general rule, imbal goes with the ciblon drum while mipil goes with the kendhang gendhang (kendhang I) and also the combination of kendhang gendhang and ketipung (kendhang II). Thus, when the drummer changes to the ciblon, the bonangs tend to switch to imbal after a short delay, usually at the gong.

The idea of imbal can be shown very simply by selecting first a pair of notes on the bonang barung, with a gap of one note between them, (for example, 2 and 5). The bonang panerus will then take a pair of notes, similarly gapped, so that one of them fits between the two bonang barung notes, (for example 2 and 5). Together, the two patterns may be notated thus:
The bonang panerus plays in its lower octave so that the two parts interlock within the same octave, with the bonang panerus notes above those of the bonang barung. In the example above a resultant ostinato figure is created: 2 x 5 3 which moves twice as fast as either bonang part on its own. The maintenance of such an ostinato over what would be long stretches of time in the slower tempi could become monotonous, and this is avoided by breaking up the imbal line with a series of cadential patterns called sekarans. This word means 'flowering', and it is as if the imbal line is the stem that blossoms into flower at the end of each phrase. Usually the end of the phrase means the end of the gatra, unless there is a rest at this point, in which case it is usual for the imbal to continue. The bonang players will have a repertoire of sekarans, each for a particular seleb note, and two of them will be given later.

Imbal (and ciblon drumming) are not used in Wilujeng, but some short and simple pieces (as well as larger, complex ones) allow all three styles of bonang embellishment. Lancaran Tropongbang, lara pelog, pathet nem enables us to observe the three styles applied to a single extract of balungan. Being a relatively loud and vigorous piece, it is introduced by the bonang (barung). Gamelan pieces begin with an introductory phrase, called buka (which means 'opening'), played on a solo instrument accompanied by the kendhang. In louder, faster pieces the buka is usually played on the bonang barung, and in softer, slower pieces it is usually played on the rebe, or perhaps the gender, or sometimes sung. The buka identifies the piece and also indicates tempo and the point where the full gamelan enters. To introduce Lancaran Tropongbang, the bonang barung plays the phrase:
In irama dados they play mipil rangkep:

Still in irama dados, the drum may change to ciblon, in which case the bonangs will play imbal and sekaran:

From these extracts it is as apparent to the eye as to the ear that imbal and sekaran represent the densest and liveliest of bonang patterns, paralleling ciblon among drumming styles. The liveliness of the imbal and ciblon combination is usually further enhanced by keplok, which is rhythmic clapping by the singers and anyone else with their hands free.

Rebab

With the various instruments of the softer kind among the embellishing group we come to the most refined, subtle and complex aspects of gamelan music. To do justice to these instruments (to which must be added the human voice) in even the same way as for the bonangs, offering a representative summary, would go far beyond the scope of this book.

Instead, we will return to Ladrang Wilujeng and examine a selection from the repertoire of these instruments appropriate to this composition and typical of gamelan music in general. The rebab part is among the most fluid; even when it relates closely to the balungan it is performed in a kind of rubato manner so that it never quite synchronizes with the balungan. The same applies to the sindhen (the part for solo female singer) and the suling (bamboo flute) melodies. They are, if anything, rhythmically freer than the rebab line and cannot really be accurately notated in the cipher notation. In the case of the rebab, however, many notations are available. These indicate a simple rhythm, clearly related to the balungan, and an absence of ornamentation. They are useful in understanding the basic idea of the rebab part, and can even be used in teaching. For this reason a simple rebab part will be given for Wilujeng, with the reminder that different players will perform it in different ways, employing rubato and ornaments such as turns, slides, accents and vibrato.

One point which should be made about the rebab, voice, and suling is that they are the only true sustained sounds in the gamelan. Those who may find them incongruous in the homogeneity of the bronze sonorities should bear this in mind. The rebab, more than any other member, exploits this potential to bind the sounds of the gamelan together and create a legato effect which is so aesthetically pleasing in this music. (For reasons explained in the notes on Notation, p. xiii-xvi, the notation indicates rests where in fact the rebab will almost certainly be sustaining
the previous note.) The suling does the same thing, but only intermittently. Circular breathing (snatching breaths while still blowing, so that the sound is not broken) is practised in Indonesia (for example on the suling gambuh of Bali) but, for some reason, has not been applied to the gamelan under discussion.

The other obvious attribute of the voice, the rebab and the suling is that they are the only instruments of the ensemble which may vary their pitch, and actually produce notes outside the fixed slendro and pelog systems. The solo female voice and the rebab exploit this possibility in the tuning known as barang miring, to produce certain pitches between the notes of the slendro scale to great expressive effect. Barang miring is usually inserted into certain slendro pieces to express sadness or pathos, and another name for it, minir, is close to the European ‘minor’, with its similar associations of mood.

An additional point about the rebab is that it (rather than the bonang) usually pays the buka in Wilujeng. This is because this piece is performed in the softer style, giving the more subdued embellishing instruments, led by the rebab, an important role.

The word most often used to cover the multitude of patterns for these instruments, especially the gender, is cengkok. This means the line traced by a particular instrument from one point (of the balungan) to another. The main determining factor is the seleh note and a cengkok is usually of one gatra’s duration, from one seleh note to the next, although a substantial number of cengkoks last for two gatras. The cengkoks discussed below are all conceived in terms of the structure and irama of Wilujeng. Parts for instruments like rebab, gender and gambang comprise series of cengkoks chosen to fit the particular balungan. To put the matter very simply, it is the ordering of the cengkoks rather than the cengkoks themselves which is peculiar to a given piece. (This is another reason why the study of one piece as typical of a whole repertoire is valid.)

Gender barung and gender panerus

As with the bonangs, the barung instrument is more important than the panerus and more attention must be given to it. Because the gender (barung) alone among all gamelan instruments has a part consisting of two continuous lines, its material is rich in harmonic as well as melodic possibilities, encompassing the refinements and complexities of pathet and other aspects of gamelan music. This virtual self-sufficiency makes the gender satisfying to play as a solo instrument, and the musician who understands and can perform its vast repertoire of cengkoks, introducing innumerable subtle variations, is indeed a master of gamelan. In Java probably more time and space in publications are devoted to this instrument than any other. One way of teaching is to give some of the commonest cengkoks so that a large number of pieces can be played at a relatively early stage. To restrict ourselves to Wilujeng can give a useful sample, with the emphasis on simplicity and on the kind of material taught to beginners. It is customary to give every gender cengkok a name (more so than for other instruments), but the names are by no means standardized, nor even known to all players. In Wilujeng a cengkok which may be frequently used is generally called kuthuk kuning gembyang (literally ‘yellow chick octave’; musicians often remember cengkoks from related vocal tunes and their texts). It fills one gatra ending on 6, where the previous gatra ended with rests after 6 or 2. In its simplest form (as it appears in irama dados in the score) it is notated:

![Gender barung notation]

This is later varied to:

![Gender barung varied notation]

To give an idea of how the element of improvisation may be introduced to vary the cengkoks, here are three more versions of this particular cengkok:
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Notice how the right-hand part (upper line) is relatively unchanged, the focus of activity being on the left hand (lower line), which moves at a faster rate than the right hand. This is a characteristic feature of gender playing. The notation suggests that the half notes in the left hand are evenly spaced. In performance, however, it is very common to alter this to a dotted rhythm.

The gender panerus, pitched an octave above the gender barung, usually plays twice as fast. Its part is, however, less complicated than that of the gender barung, because the two hands do not normally play together, the rapidly moving line being distributed between them. It is possible to reduce the repertoire of this instrument to a set of phrases, applicable to slendro and pelog. There is a similarity between this repertoire and the imbal-sekaran repertoire of the bonang, insofar as a basic phrase is repeated, ending with a sekaran to fit the seleh note. Confining the examples to lara slendro pathet manyura (which applies to Wilujeng) the ostinato phrase in irama dados is as follows:

This is repeated for the first three notes of the gatra and a sekaran is played on the fourth note, determined by that actual note. Some sekarans are shown in the provisional score of Ladrang Wilujeng, and it must be emphasized that this very basic repertoire, although perfectly accep-

Theory into practice: gamelan music in performance

Another convenient point about this simple repertoire is that it may also be played on the plucked instrument, the siter, and for this reason that instrument is not included in the score. In performance, it is more than likely that the siter will not play exactly the same as the gender panerus. For example, the ostinato pattern could be

which are still quite close to the gender panerus version.

Gambang

This instrument combines the speed of the gender panerus with the continuous two-handed playing of the gender barung. Two factors, however, make the gambang easier to play than this latter instrument. One is that no damping technique is necessary, since the wooden bars have less resonance; and the other is that, for most of the time, the two hands play an octave apart, and not in the more independent and complex manner of the gender barung. Gambang notations do not therefore need to show the lines for each hand; just the left-hand part is given, with the assumption that the right hand will follow it an octave higher. As with everything else, a good player will produce more interesting cengkoks, involving some departure from this 'unison' style, with syncopation, rapidly repeated notes, and so on. For example, the cengkok segment shown in the score as

may be played:
or by omitting notes (possibly the third and fifth in the right hand), while the cengkok at the beginning of the lik may be performed with a more interesting rhythm (which — according to some Javanese — imitates a limping animal):

The notation in the score, however, represents one of many possibilities for the gambang which is both simple and adequate.

**Suling**

As the only wind instrument used in the gamelan, the suling adds a distinctive timbre. Its part is among the freest, and consequently, the hardest to notate. Apart from the human voice, the only other comparable instrument in the gamelan is the rebab. They are the only two instruments without fixed pitches, and both are played with a vocal fluidity. The crucial difference, however, is that the rebab is far more important and its part is both continuous and relatively easy to notate. The little phrases from the suling which occur intermittently are so free in rhythm as to be almost impossible to notate in the cipher system, while staff notation would give them unwarranted air of rhythmic complexity, and, far worse, fix them into that complexity. Few attempts appear to exist at notating the suling part. The normal method is to learn a few cengkok phrases which can then be shaped in performance according to aural experience, and the determinants of the pathet, melodic line and register. Thus cengkok for the seleh notes of slendro and pelog could be sketched in just a few lines. To give a rough idea, taking the lik of Wilujeng, where the seleh notes are either 1, 2 or 6, possible suling cengkok for each one are:

Apart from the close similarity between them, it is clear that the notation can only make a vague attempt at indicating a possible rhythmic structure, through the proportional spacing, and any attempt to trans late that into the staff notation used in the score would be too difficult to justify with confidence.

Perhaps the best way to understand the suling part (and also why the possibility of circular breathing is not exploited) is to imagine that, while the rebab imitates the human voice, the suling imitates a bird. Its wonderfully free and intermittent chirping does sound bird-like, and we should remember that song-birds are greatly loved by the Javanese.

**Sindhen and gerongan**

It was stated earlier that the most important vocal part in the gamelan, the sindhen (-an) (for solo female voice) is too complex, especially with regard to its rhythmic freedom, to be adequately notated in the cipher notation (as is the case with the suling). There are, however, notations of the sindhenan for complete pieces, and one may be offered for Wilujeng, with the caveat that it is a simple guide and not an exact representation of how it may be realized in performance. Other vocal interjections which often occur in gamelan music need not be considered
for the purposes of the notation. They include the stylized shouts and ululations known as *senggakon* and *aluk*. Their inclusion depends on the piece (they are not necessary in *Wilujeng*), the occasion and the mood. Usually they are performed by a small group of perhaps three or four men, whose main function is to sing the *gerongan*. This is a unison melody and is almost equal in importance to the *sindhenan*. Two features (apart from the sex of the performers) distinguish these vocal parts: the *gerongan* (which is metrically far more regular) is restricted to certain sections (usually the *lik*) of pieces, while the *sindhenan* tends to be more or less continuous throughout. Both, however, must fit the phrasing of the *balungan*, as well as the particular poetic metre on which they are based. In fact it is quite common to include the *gerongan* in Javanese cipher notations, so the *gerongan* of *Wilujeng*, sung only in the *lik*, has been easily incorporated into the score (allowing for a certain amount of extra ornamentation in performance). The text (*cakepan*) of both the *sindhen* and *gerongan* parts in the *lik* of *Wilujeng* is by Prince Mangkunegara IV (reigned 1853–81) and, typically of such texts, is somewhat obscure in meaning. A fairly literal rough English translation is given beneath the Javanese original:

1. **Parabe Sang Marabangun**  
   His name is the noble Marabangun  
   *Sepat domba kali Oya*  
   A great fish in the river Oya  
   *Aja dolan lan wong priya*  
   Do not play games with men  
   *Nggerameh nora prasaja*  
   Appearances are deceptive

2. **Garwa Sang Sindura Prabu**  
   The wife of the noble King Sindura  
   *Wicara mawa karana*  
   Speaks with a reason  
   *Aja dolan lan wanita*  
   Do not play games with women  
   *Tan nyata astring katarka*  
   Or you will attract slander

Unfortunately, such a translation does not capture a major feature of such texts, known as *wangsalan*, which can be translated as 'riddle', 'hint', or 'pun', but which is a complex and ingenious poetic system of resonance between certain words or phrases. The *dhental* in a *wayang* often uses *wangsalan* to hint at the next piece he wants the gamelan to play, and it seems very characteristically Javanese to do things in what is both an imaginative and indirect way. Such a subtle use of language and cultural references only works in Javanese and a detailed analysis of the *wangsalan* in the above text would require more space and expertise than are available here. To give some idea, however, the clues are found in alternate lines. Thus we have to know that Marabangun also has the name Priya Wada, which obviously connects with the use of the word *priya* (men) in the third line, while the great fish in the second line would be, by inference, a carp, for which the word is similar to the *nggerameh* of the fourth line. The overt cautionary advice and moral instruction are fairly typical of Javanese song texts. This one is a particular favourite in Java, for exactly the same words, set to different *gerongan* and *sindhen* melodies, are used in several other pieces.

**Kendhang**

By now, the rather unsatisfactory word 'embellishment' to classify such a varied and important section of the gamelan has broken down. It certainly cannot be used to describe the function of the drums, which are something of an exception, not only because they are the only non-melodic instruments to play an important role in the ensemble, but also because their part is more akin to the foundation – rather than the decoration – of the musical edifice. Drum patterns are relatively standardized and easily notated. They are determined by the form of the piece, sometimes even by the tuning system. The drum pattern for *Wilujeng* is the standard one for the *ladrang* form. A *kendhang* player will learn the patterns for all the main forms, such as *lancaran*, *keta-wang*, *ladrang*, and the larger *gendhing*. When only the large *kendhang gendhing* (*kendhang ageng*), or that drum combined with the *kendhang ketipang* (as in *Ladrang Wilujeng*), are used, the parts are neither especially complex nor difficult to perform. When, however, the *ciblon* is introduced, or the drumming is to accompany dance or *wayang*, then an advanced knowledge and technique are required. The *ciblon* drum
may be used in certain short pieces including some ladrangs, (though not Wilujeng), but it is more usually employed in large-scale pieces and in the slowest tempi, allowing the most elaborate patterns to be played. For the purposes of the score of Wilujeng, only the basic drum part for the ladrang form, played on the largest and smallest drum, indicated by the abbreviation 'kendhang ll' need be given. It must be remembered that the drummer is the nearest equivalent to a conductor. Signals to start and finish a piece, to make the transitions of tempo, dynamics, even tuning (where applicable) are usually given by the drums. The ending, called suwuk, is particularly important, and involves a special series of drum sounds. Without them the piece would not end but continue to repeat itself, or perhaps (from another drum signal) make a transition to another piece. An essential part of the suwuk is the gradual slowing down to the end of the piece. (A few pieces do the opposite and end by speeding up in a dramatic way, and this is known as suwuk gropak.) In most pieces (including Wilujeng) the final note is slightly delayed until after the stroke on the gong ageng (but this important performance convention is never shown in notation).

Perhaps the remarkable thing about the cueing function of the drums, which reflects the egotistical and restrained nature of the gamelan, is that the drumming achieves this pre-eminence and yet remains unobtrusive (which is where any comparison with a conductor must end!). It is almost as if it is sensed rather than heard, and confirms what the rest of the gamelan already collectively feel. Loud, domineering drumming, unless for some special theatrical effect, is therefore not only unpleasant but unnecessary. The secret of the wonderful ensemble playing in gamelan music does not lie with just one instrument.

Provisional score of Ladrang Wilujeng (lik)

For a variety of reasons, discussed below, the qualification 'provisional' must be remembered in any mention of this score, the purpose of which is to provide a simple, representative extract of gamelan music, exemplifying the main points of this chapter. It should not be interpreted in the Western sense of the score as blue-print for any performance of the particular piece, but rather as one likely possibility among countless others of how the piece may be performed. A real analogy to the Western score in terms of gamelan music is in fact impossible, and, many would argue, undesirable, since it could lead to standardization and impoverishment. Just as no two gamelans should be tuned exactly alike, and should in general preserve a distinctive sound, so no two performances of the same piece should be identical or fixed through notation. Perhaps the best analogy between the present exercise and Western notation is with Baroque music, rather than with the more complete scores of the nineteenth and twentieth centuries. Just as a Baroque score may show only a melody and a bass with figures, so the usual gamelan notation (in the cipher system) is essentially a balungan and its colotomic support. The equivalents of the 'figures' are implied. They are added by knowledgeable musicians, according to their application of garap, and the results may vary greatly according to the skill of the musicians, just as in Baroque music. What we have here, to pursue the analogy, is a simple realization of the 'figures'. The composition could be performed as notated, but one would expect an expert group of performers to play a more complex version, and even a less advanced group would quickly explore new and varied possibilities.

Despite the many problems raised and the essential incompatibility with the ideals of gamelan performance, this attempt to make a score is of course neither futile nor even new. Kunst's thorough study includes a fragment of a score written by Javanese musicians in 1923 but, ironically, it relies on the usual unmodified staff notation, which has been eschewed in this book as too un-Javanese! This fascinating example apart, there is no real tradition of scores in gamelan music, so the layout here follows certain principles of Western scores alongside traditional gamelan groupings. Thus, in the centre is the balungan section (peking, saron barung, demung, and slenthem). Note that there are usually two saron barung (playing in unison). In this score they, and the demung and slenthem, carry the balungan in its simplest form. The slower irama (ira ma dados) means that the peking plays the selang-seling variation. Below the balungan instruments is the colotomic section (kethuk-kempyang, kenong, kempul and gong ageng), while above the balungan are the embellishing instruments. The leading melodic instrument, the rebab, is placed at the top of the score, and the leading rhythmic instruments, the kendhangs (two of them, as indicated by the
A Guide to the Gamelan

Theory into practice: gamelan music in performance
Chapter 6

Conclusion

Although most of this book has concentrated on the music and instruments of the gamelan, we now return to the topic of the first chapter to consider why people outside Java are attracted to the gamelan, and want to study it seriously. These are still early days in the history of the gamelan in the West, and we may not yet have the necessary perspective. It is certainly not my intention in this book to play the missionary, preaching the salvation of the world’s music through the gamelan. There are lessons in it for all of us, and, to paraphrase the well-known advertising slogan, it can reach those parts of our musical psyches that other musics leave untouched. But the popular Western idea that gamelan music is nothing less than a kind of mystical and secret rite is a misleading one. It has, of course, its spiritual aspects, and it is probably this quality that attracts people, in the same way that yoga and other manifestations of Hindu spiritualism have gained so many devout followers. Yet we should not forget that the Javanese have their bawdy side, and, like their Western counterparts, are susceptible to wine and women, and not only to song. It is, therefore, refreshing to read the work of healthy sceptics. James Siegel, who managed to produce a major study of life in the city of Solo with no more than a passing reference to the gamelan, wrote:

Such orchestras are nearly always involved in quiet scandals. The female singer in particular is often engaged in intrigue with orchestra members. Her flirtations are likely to involve the whole of the orchestra.¹

(This, no doubt, is the reason why more than one Westerner has been tempted to spend all his time playing in Javanese gamelans!) The
Javanese psyche remains complex and perhaps beyond our understanding. But we can gain insight through the music, and one thing the Javanese are not is rigidly purist. Westerners who prefer to believe the opposite are naive, failing to remember that one of the strengths of gamelan music is its propensity to reflect and absorb other influences. When the history of the gamelan in the West comes to be written, it may well provide a classic example of what anthropologists call 'marginal survival' whereby the centre of a culture constantly changes and evolves while its farthest-flung manifestations cling to traditional models, and even turn into museum cultures. A more optimistic analogy would be with dialects: every region has its own characteristics by which it is instantly recognizable, yet every variant form is still accepted and understood: *vive la différence!*

So much for speculation, but one thing we must believe is that the gamelan is here to stay. No doubt many see the gamelan only as a kind of delayed after-shock from the sixties (and some players encourage this view). But is there any such creature as the 'typical' gamelan player (remember we are discussing only the non-Javanese kind)? The cynics may say that the common bond is not so much a love for gamelan music, as failure in all others. Perhaps the most positive fact is that the gamelan attracts people from all walks of life, all social backgrounds, and all varieties of musical training, from rock musicians, to classically-trained artists, to (best of all) those whom our divisive culture would label 'non-musicians'. This variety of experiences and perceptions has its positive and negative aspects. At the sad end of the spectrum are those whose brief contact with the gamelan leads them to the simplistic conclusion that it is glorified child's play. The most frustrating character to argue with is the 'little European', for whom music consists exclusively of the great Germanic tradition. Pentatonicism and percussion are equated with childishness. Yet music is not a matter of *how many* notes are used, but *how* they are used. When first encountered, gamelan music may indeed seem simple. In reality it is a bottomless ocean: one can happily skim along its surface, but in reality its depths are profound, and even an expert Javanese musician cannot fathom them in a lifetime.

At the happy end of the spectrum are those for whom the child-like properties are among the music's most positive strengths. It is indeed bizarre that a middle-aged person, dressed in a business suit or some other formal attire, should be prepared to take off both shoes, sit on the floor, and hit a rather small percussion instrument; childhood memories will come flooding back, if only subconsciously. Such memories are just as likely to be painful as pleasurable, yet the possibility of reliving such experiences in a controlled and supportive situation through the gamelan must be one of the major factors contributing to the sense of well-being so many players experience. Nor should we overlook the element of controlled violence: in certain pieces many of the instruments must be struck hard. The context and aesthetic goal help focus the little release of aggression: it is harmless, but therapeutic.

One point which has always delighted me is that gamelan turns so many preconceptions about 'talent' and 'musicality' on their head. Perhaps this proves only that such notions are specific to our particular culture and should not be considered absolute or universal. Even so, this enthusiasm for 'other' musics represents an important step in breaking down outdated Western hegemonic dogma, and there is no doubt that the gamelan has been consciously adopted for this purpose by academicians, notably in the ethnomusicology programs of colleges in the United States. Indeed, running a credible ethnomusicology program almost necessitates possessing a gamelan and we in the United Kingdom seem to be following the same path: the gamelan is, perhaps, something of a status symbol. It would be ironic, then, if pride and rivalry were stimulated by this music when, by its very nature, it avoids them. Competitiveness is the enemy; experienced and less experienced players contribute equally and help each other. The most welcome players are often those who have had no musical training, and even consider themselves 'unmusical'. The experience of playing gamelan is not guaranteed to prove them wrong, but, with effort and, above all, the right attitude, they can find that their contribution is no less valid than anyone else's. What the gamelan can do for them personally, outside the immediate context of playing in the ensemble, is another matter, but I can report small miracles, from cured headaches, to improved memory, to the most obvious benefit of just feeling happier and more confident.

Whether we should look for much more from gamelan playing is open to question. Whether to use it for financial gain, rather than as a strictly amateur activity in its best sense, raises questions of ethics, not to mention competence. The related issue of concert-giving is also open to debate, if only because the formality of the Western-style concert distorts the traditional function of the gamelan. The idea of playing
I am sure that many of you have been asked why you are studying gamelan. Certainly it is not because the demand for gamelan players is so great. I believe it is a pleasant way to learn about another culture. It is another alternative to make music. It presents a different aesthetic experience. But to me the most interesting reason is the one that my fifth grade teacher gave us, namely that we should study gamelan and dance in order to refine our behavior. Goodness knows we needed it. I find it interesting in retrospect that we should study dance and music not to become the best dancers and musicians, but to become better persons. I suppose ultimately that is what counts. Playing gamelan will neither make me rich nor save my soul, but it might just make me a little more civilized.³

Yet even here the cynic may point out that it emphasizes the potential of gamelan music rather than what it may actually have achieved. Music should refine our behaviour and balance our emotions, but so should our behaviour and emotional control refine our music. The circle can only be broken by as much effort towards personal development as towards musical knowledge. I hope that this book will contribute to the latter, but the former is another story.

Notes

Glossary

The policy is to provide as concise a definition as possible, according to how the term is used in this book, therefore without necessarily giving all meanings or etymologies.

*alat bubut* lathe used in gamelan manufacture to cut a groove on gongs
*alok* stylized male cry or shout
*alus* refined
*aulis (arang)* widely-spaced (beats on the kethuk)
*a yak-ayakan* form of gamelan piece, especially associated with *wayang*
*babon* gamelan used as a model for the tuning of a new set
*bahasa daerah* regional language
*Bahasa Indonesia* official language of Indonesia
*balungan* skeletal melody of a gamelan composition, more correctly called *balungan gendhing*. Different types include *balungan mlaku* (regular notes), *balungan ngadhal* (subdivided) and *balungan nibani* (alternating notes and rests)
*barang* name of note 7 in *pélog* and 1 in *sléndro* (see also *pathet*)
*barang miring* a tuning (also called *minir*) used in some *sléndro* pieces to impart a feeling of sadness through the use of certain notes between the fixed pitches, thereby restricting it to the voice and the *rebab*
*bawa* solo male vocal introduction to a gamelan piece
*bedhaya* court dance usually performed by nine women
*bedhug* large drum played with a mallet
*bem* name of note 1 in *pélog* (see also *pathet*)
*bentuk* (musical) form
*berlian* hard wood used to make *gambang wilah*
*besalén* hut used for gamelan manufacture
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bonang gong-chime, referring to the bonang barung. The bonang pan-
erus is pitched an octave higher (see also pencon)
bremara small wooden sticks used to secure the supporting cord to the
wilah of the gendér and slenthem
buka solo introductory phrase of a gamelan piece
bumbung tubular resonator (on the gendér and slenthem)
bunderan sphere, used in describing gongs
cakepan text (of vocal item)
cakilan toggle used to suspend gongs
celempung zither
cemengan black, unfired condition of bronze
céngkok melodic pattern used by embellishing instruments
ciblon see kendhang
demung gamelan instrument (see also saron and wilah polos)
dbalang puppeteer
embat intervalllic structure
toll long pole used, in conjunction with the shorter umbul, in gamelan
manufacture
gadhon chamber gamelan of the softer instruments (see also soran)
gambang xylophone, usually referring to the wooden type (gambang
dhuyung). There is also the obsolete bronze type (gambang gangsa)
gamelan generic term for ensemble of predominantly struck instruments
found in the Indonesian region, especially in Java and Bali. The
different types are usually distinguished by suffixes, for example
the Balinese gong gedhé (large, archaic gamelan), gong kebyar
(modern version), gamelan angklung, and gamelan bebonangan
(ensembles carried in processions). Javanese gamelans are often
given names, for example Gamelan Kayai Kanyut Méesem (in Solo)
and Gamelan Sekar Pethak (in York). A set in one of the two tuning
systems is termed a gamelan sepangkon, and in both a gamelan
seprangkak
gangsa bronze used in gamelan manufacture. Can also be used as an
alternative word for gamelan
garap the way by which musicians work out their parts in a composition
gatra unit of four notes, rests, or combination of both
gembyang octave. Also used for the octave playing style on the bonangs
gendér gamelan instrument, referring to the gendér barung. The gendér
panerus is pitched an octave higher (see also wilah blimbingan).
The accompanying quartet of gendér is the Balinese shadow play
is called gendér wayang
gendhing generic term for a gamelan composition, also used in the title
of larger pieces, for example Gendhing Babar Layar. Such large
pieces are also classified according to the leading melodic instru-
ment and are mostly gendhing rebab, with a sizeable minority of
gendhing bonang. Suffixes, such as klenèngan (concert), bekasan
(dance), wayangan (shadow play), pakurmatan (ceremonial), geural
(funny), gobyog (cheerful) and rlutur or welasan (sad) may be used to
classify pieces according to mood and usage
gérongan male chorus
gong this is used in two ways in this book: (1) as the general
organological term for the shape of many instruments found in the
gamelan (see pencon); (2) as the Javanese use it, specifically to refer
to the main gong of the gamelan: the gong ageng, or its smaller
substitute gong suweukan. To distinguish, this latter usage is
italicized
gongan section of music between strokes on the gong
gong kemodhong instrument normally found in reduced ensembles as a
substitute for the large gong (see also wilah pencon)

iklas detachment, repose
imb àl interlocking patterns of alternate notes on two similar
instruments
inggah second main section of a large gendhing
irama related to tempo, but strictly a concept of rhythmic proportions
between instrumental parts. The different iramas are called irama
lançar (also a faster version called irama gopak), irama tanggung,
irama dadas (or dadi), irama wiel (or wiel), and irama rangkèp
iringan accompaniment
jati teak
kacapi zither from Sunda (West Java)
karaútan gamelan music (specifically instrumental and/or vocal music
in the Javanese tuning systems)
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kawi archaic form of Javanese, still used in wayang and certain other connections with gamelan
kebyar originally a dance, and then the prevalent style of gamelan music in Bali this century (see also gamelan)
kekac Balinese male chorus consisting of interlocking shouts mainly of the syllable cak
kekèr small cymbals often used in the gamelan
kemenak a pair of bronze banana-shaped instruments often used in specific vocal choruses
kempel denotes a clear, focused sound from a newly made gong
kempul smaller hanging gong (see also pencon)
kempyang see kethuk
kendhang drums of the gamelan, called (from largest to smallest)
  kendhang gendhing (or ageng), kendhang wayangan, kendhang batangan, or kendhang ciblon (or simply ciblon), and kendhang ketipung (or simply ketipung)
kenong largest of the gongs supported from beneath (see also pencon)
kenongan section of music between strokes on the kenong
kepatihan the cipher system of notation generally used for gamelan music
keplok rhythmic, interlocking clapping, usually associated with ciblon drumming
keprak small wood block drum
kepyak bronze plates struck by the dhalang
kerop closely spaced (beats on the kethuk)
ketauung form of gamelan piece with 16 beats to the gongan (for example Ketawang Puspawarna)
ketauung gendhing larger-scale form
keteg pulse or beat, one quarter of a gatra
kethuk small gong, suspended from beneath, with which the kempyang forms a pair (see also pencon)
kikir file used in gamelan manufacture. Many are used, ranging from the coarse kikir patar, to the blade kikir kesik
kinthilan interlocking pattern between two sarons, used especially in wayang
klembengan concert music, i.e. gamelan music not used as accompaniment
kowi cup used for molten bronze in gamelan manufacture

Glossary

krama High Javanese
kraton court or palace
kuthuk kuning gendhing name of a cèngkok
ladrang form of gamelan piece with 32 beats to the gongan (for example Ladrang Wilujeng)
lagu melody
lakon story of a wayang play
lanus bellows to activate the fire used for gamelan manufacture
lancaran form of gamelan piece with 16 beats to the gongan (but with a different structure from ketawang). For example Lanceran Ricik-Ricik and Lanceran Tropongbang
laras tuning system, of which there are two (see pélog and sléndro)
laya tempo
lik usually the second section of a gamelan piece, characterized by a higher tessitura and a gérongan chorus
lima name of note 5 in both pélog and sléndro (see also pathet)
manyura see pathet
mérong first main section of a large gendhing
minggah used in the title of a large gendhing to indicate the main structural changes in the transition from mérong to inggah
minir see barang miring
mipil embellishing pattern on the bonangs. According to the irama it can be slow (mipil lamba) or doubled (mipil rangkep). Also called pipilan
nem name of note 6 in both pélog and sléndro (see also pathet)
ngelik full name for lik
ngencot technique of striking a wilah at the same time as damping it
niyaga gamelan player
nyacah variations played on the saron and peking in pieces like srepegan and sampak during a wayang performance
ompak usually denotes the transition between the mérong and inggah of a large gendhing, but is sometimes also used to refer to the first section of a shorter form, such as a ladrang (often written as umpak)
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padhang-ulihan antecedent and consequent. Two words used to describe the phrase-structure of gamelan pieces

Pak shorter form of Bapak, used to address an older man. Roughly equivalent to ‘Mr’

pala hammer used in gamelan manufacture

panji the name of a Javanese prince, borrowed for the major role in gamelan manufacture

pathet sub-modalities within each of the two lara s. The three pathets of sléndro are called pathet nem, pathet sanga, and pathet manyura, and the three of pélog are called pathet lima, pathet nem, and pathet barang. A fourth, rarer, pathet in pélog is called pathet manyura or nyamat, and sometimes a combination of pathets lima and nem (in pélog) is called pathet bem

pathetan sung by the dhalong in a wayang, with reduced instrumental accompaniment, or played just by those instruments as preludes or postludes to gamelan pieces, of which the primary function is to establish or confirm the pathet

peking nickname, generally used in this book, for the saron panerus, which is the highest-pitched instrument of its group (an octave above the saron barung. See also wilah polos)

pelamus bellows operator

pelandhan water bath used in gamelan manufacture

pélog one of the two lara s, comprising seven notes

pencon gong, applied generally to circular instruments with a central boss (the part which is struck). Of the many examples and sizes in the gamelan, two main shapes are discerned. In the Javanese terminology they are strictly defined by the way in which they are supported: pencon gandhul, hanging, and pencon pangkon, supported from beneath. All pencon gandhul are of a flatter shape (for example the gong ageng, gong suwukan and kempul) and most pencon pangkon have more raised sides (for example the kenong). Some instruments, notably the bonangs, and kethuk-kempyang pair mix these shapes, but their gongs are all supported from beneath

penca central boss of a gong

pendhapa palace audience hall, or kind of pavilion, which usually houses at least one gamelan

penengah one of group who hammer during gamelan manufacture

penépong another in the group who hammer

pengalap man who carries the metal from the fire to the anvil during gamelan manufacture

pengapit another in the group who hammer

pengarep another in the group who hammer

pengider man who turns the metal on the anvil during gamelan manufacture

penyingèn mould used in gamelan manufacture

perunggu Indonesian word for bronze

pesindhèn woman who sings the sindhèn

pinjalan interlocking pattern between the sléndro and demung, combined with a different pattern on the saron

pipilan (see mipil)

plésèdan the anticipation by an instrument, for example kenong, of a strong (usually repeated) note

prapèn charcoal fire used in gamelan manufacture

rāga melodic basis of Indian classical music

rancak wooden rack, frame or case used to support the bronze parts of gamelan instruments

rasa roughly synonymous with mood or feeling, originating in Indian aesthetic theory

rebab two-stringed fiddle

rejasìa tin

ricik tool (referring in this book to those used in gamelan manufacture), also the instruments themselves

sampak form of gamelan piece, especially associated with wayang

sanga see pathet and saron

sanggan a kind of hook used to support the connecting cord between the wilah on the sléndro and genders

saron gamelan instrument, referring to the saron barung. The saron panerus (commonly known as peking) is pitched an octave higher, and the saron demung (commonly known just as demung) is pitched an octave lower (see also wilah polos). Although the number of wilah on the saron is usually seven, a special one with nine keys in the sléndro tuning is sometimes found for use in wayang, and is called saron wayang or saron (wilah) sanga

sedheng medium (referring to tempo)
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sekaran florid cadential phrase
selang-seling pattern, based on pairs of notes, played on the peking
升华 note of resolution or focus on which parts tend to meet, usually
the last note of a gatra
sentungkan stylized interjections sung by men
serimpi court dance usually performed by four women
seseg fast (tempo)
sindhèn (-an) ornate and prominent vocal line in a gamelan piece sung
by a solo female. It can also refer to the unison male and female
chorus sung in the accompaniment to the court dances bedhaya
and serimpi
siter small zither
slèndro one of the two laras, comprising five notes
slenthem gamelan instrument (see also wilah blimbingan)
soran loud, usually referring to instruments like the saron family and
bonangs, and excluding the softer instruments at the front of the
gamelan. In effect the opposite of gadhion
srepegan form of gamelan piece, especially associated with wayang
suiling end-blown bamboo flute
sulaik chants sung by the dhalang in a wayang
suwuk ending of a piece, usually by slowing down. If the opposite
(speeding up) it is called suwuk gropak
suwunkan see gong
tabuh mallet, used to strike gamelan instruments
talu overture to a wayang
tamban slow (tempo)
tandhes sunken anvil, used in gamelan manufacture
tari dance
tembaga copper
tikel groove around the central boss on gongs
tumbuk exchange note on which the two laras coincide
ulihan see padhang-ulihan
umbul see entol
umpak see ompak
wangsalar riddle or other word-play featured in Javanese texts

wayang refers to the shadow puppet play wayang kulit. Other forms of
wayang are known by their full name, for example wayang wong
or wayang orang in which actors and actresses are used instead of
puppets
wela omission of a colotomic part, usually just after a stroke on the
gong
wilah bar or plate of a gamelan instrument. Apart from those of the
gambang, they are all bronze (or other metal) and two types may be
distinguished: (1) the thick bar with a smooth curved surface,
called wilah polos or lugas (used on the instruments of the saron
family); (2) the thin rectangular plate with a ribbed surface called
wilah blimbingan (used on the genders and slenthem). A third type,
called wilah pencon, has a boss in the middle, but is not used in the
typical modern bronze gamelan, except for the optional gong
ekemodhong
Further Reading

Many scholarly writings on the subject of karawitan have been published, especially in American journals of ethnomusicology, Asian music, and Indonesian studies. The aim here, however, is to suggest a few more generally available books which will draw the reader into the subject. In the list below, 1, 2, 3, 5, 6, and 8 are all substantial works of scholarly dimensions. Number 8, still a classic, is included for those who wish to find out more about the Balinese types of gamelan. 7, 9, and 10 are shorter introductions to aspects of the subject touched upon in this book, while number 3 is a journal devoted to the world of gamelan for those who may wish to subscribe.

3. Diamond, Jody, ed., *Balungan*, a publication of the American Gamelan Institute, Box 9911, Oakland, California 94613
7. Lindsay, Jennifer, *Javanese Gamelan*, Oxford University Press, 1979

Suggestions for listening

This list is by no means exhaustive, and represents only some of the LP recordings of gamelan music which have appeared in Europe and the United States. The large Indonesian cassette industry is not included because its products, covering just about everything mentioned in this book, are not generally obtainable in the West. Apart from reasonable availability, the main criteria are quality and interest. A very good place to start (and probably the best value for money) is the Nonesuch Explorer Series (USA), which has fine LPs of Central Javanese and Balinese gamelans. If a recording in the list is deleted or otherwise hard to find in the shops, it can often be found in good record libraries.

Central Java

*Javanese Court Gamelan*, three records: Nonesuch Explorer Series, H-72044, H-72074, and H-72083

*Indonesia 1: Java Court Music*, Unesco Collection: a Musical Anthology of the Orient, 31, Bärenreiter-Musicaphon BM 30 SL 2031

*Java: l’art du Gamelan* Musiques de l’Asie traditionnelle, vol. 7, Playa Sound PS 33507
   — the best and most relevant recordings for this book (although the majority represent the Jogianese traditions).

*Java: Gamelans from the Sultan’s Palace in Jogjakarta* ‘Musical Traditions in Asia’, double album, Archiv 2723 017
   — a selection of archaic ceremonial gamelans, and a whole side devoted to a modern standard. The contents reappear on other records, but it is worth looking out for this complete original.
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Street music of Central Java Lyricord LLST 7310
- a folk perspective on gamelan music, as it is played by wandering street ensembles in Jogja, with an emphasis on portable instruments (zither and drum) and voices.

Surinam: Javanese music Lyricord LLST 7317
- a glimpse of a culture transplanted thousands of miles away from its source, by a Javanese community in South America.

The other areas (West Java and Bali) are not covered in this book, but a few representative recordings are included for general interest, and sheer enjoyment:

West Java

Sunda: les kratons de Cirebon Collection Musique du Monde 2, Galloway records GB 600 521
- Cirebon is both geographically and stylistically on the border between West and Central Java and another point of interest is that it supplied the gamelan with which Debussy may have been most familiar.

Sunda: le gamelan degung Collection Musique du Monde 5, Galloway records GB 600 524
- a typical and popular modern ensemble, beautifully exemplifying the characteristics of Sundanese music.

Bali

Among the wealth of recordings available, my suggestions are all from the Nonesuch Explorer Series:

Music from the Morning of the World H-72015
- Pandit Nehru's description of Bali makes a wonderful title for this taster miscellany of Balinese music.

Golden Rain H-72028
- More extended examples of the most famous Balinese music: the gong kebyar and the kecak chorus.

Suggestions for listening

Music for the Balinese shadow play H-72037
- pieces by the gender wayang ensemble, though not in the context of an actual wayang performance.

Gamelan Semar Pegulingan H-72046
- the ensemble of the Balinese love god, with appropriate music of ravishing beauty.

Gamelan in the New World

Gamelan in the New World. Two records by Gamelan Son of Lion (New York), Folkways Records FTS 31312 and FTS 31313
- another idea of a displaced culture, but this time to North America, and the instruments, musicians and compositions are all Western. A modern phenomenon worthy of note, even if many would claim that this is not really gamelan. Its inspiration certainly is.

Among the many recordings of Lou Harrison's music, three discs (all produced in the USA) which include his special gamelans, may be suggested:

Double Concerto for Violin and Cello with Javanese Gamelan TR Records TRC 109
La Koro Suto New Albion Records NA 015 (issued on CD)
Main Bersama-Sama, Threnody for Carlos Chavez, and Serenade Composers Recordings, Inc. CRI SD 455
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