CHAPTER 4

IN DEFENSE OF MODAL MUSIC

Since the so-called “Renaissance”, in the Western World music has suffered a dramatic transformation; in the interest of harmony, the modes have been reduced to two – major and minor – and these two have been mutilated by the elimination of quarter-tones and deformed by temperament, all in the interest of harmony. Obviously, while the above facilitates – indeed makes possible – ccomplex harmonies, it does so at the expense of melodic possibilities. In other words, since the so-called “Renaissance”, melody has been sacrificed on the altar of harmony. While many will no doubt vehemently disagree with meon this, I firmly believe the above to have been, on balance, absolutely negative and destructive.

By “modal music” we mean music which does not emply temperament, which still uses a varierty of untempered modes, still employs quarter-tones and still makes use of the tonic. In spite of the inroads of temperament, modal music has not disappeared. The music of the Near and Middle East and the Indian Subcontinent continues to be modal. Also, Celtic music and the traditional and folkloric music of Russia and Ukraine continues to be resolutely modal, as does much traditional and folkloric music in the rest of Europe.

Liturgical chant, Syrian, Byzantine, Gregorian, Ambrosian, Mozarabic, and Slavonic, also continues to be modal. Though they

employ four languages Syriac, Greek, Latin and Church Slavonic, the liturgical chants listed above all employ the same eight modes and have other characteristics in common, as we shall see later. The above system originated in the far north of Syria, and the first language it employed was Syriac, as we shall see. It is often assumed that these eight liturgical modes were borrowed from the modes used in Classical Greek music. However, except for being heptatonic, id est, employing seven tones, the Classical Greek modes and the liturgical modes have nothing in common.

Each of the eight liturgical modes has an exact equivalent among the modes used in northern Indian music since ancient times. Since the number of heptatonic modes which are theoretically possible is vast, the above cannot possibly be a coincidence. The resemblance between liturgical chant on the one hand and the Vedic Chant used to this day in Hindu religious ceremonies in north India is to this day close enough to be obvious even to the musically untutored. Also, the above-mentioned liturgical chants have certain Persian characteristics, as we shall see. The only possible conclusion is that the ultimate origin of Liturgial chant is Indian and Persian.

As we said above, liturgical chant first appears in the far north of Syria, an area near to both Armenia and Kurdistan. Persian cultural influence has always been very strong in Armenia, where Zoroastrianism existed for a very long time and which was ruled for several centuries by a dynasty – the Arsacids – of Parthian origin. The Kurds are an Iranian people, the Kurdish

language is close to Persian, and the Kurds have always been essentially Persian by culture. At the time of which we are speaking, many Kurds were Christians.

So, at base, liturgical chant is of Indian and Persian origin, and reached far northern Syria probably both directly and by way of Armenia and Kurdistan.

For reasons which will become evident, we consider it wise at this point to include a definition of the Sanskrit word ***Bharata,*** generally a proper name, but at times a noun or an adjective.

> "**BHARATA:** Masculine gender, 'to be maintained', name of *Agni,* Vedic god of fire, kept alive by the care of men, *Rig Veda, Brahmanas;* of Agni as father of Bharata and Bharati (feminine of Bharata); a priest *(=* vitrify); (Mahabharata); an actor, dancer, tumbler *(Yajnavalky Shiksha);* ... name of *Rudra* (Vedic god of winds), *Rig Veda;* name of a son of *Agni Bharata; Bharatajna,* adjective, 'knowing the science of Bharata, i.e., conversant with dramatic writings and rules; *Bharata Putra* or *Bharaata Putraka,* masculine, 'son of Bharata', i.e., an actor, mime. ... *Bharata Vakya,* noun, 'speech of Bharata', name of the last verse or verses of a play (preceded almost always by the words *tathapidaim astu bharata vakyam;* Bharata is also the name of various teachers and authors (especially of an ancient *Muni* [one who is moved by inward impulse, an inspired person, enthusiast, *Rig Veda;* a saint, sage, seer, ascetic, monk, devotee, hermit; a Brahmin of the highest (eighth) order, name of a son of Bharata], supposed author of a manual of the dramatic art called *Natya Shastra* or *Bharata Shastra. Bharata Shastra,* i.e., Bharata's manual of the dramatic art. Also name of a manual of music by *Raghu natha."* (1)

Also interesting in this connection is the Sanskrit word *bhartri,* see below:

> *Bhartri:* (masculine gender), a bearer, one who bears or carries or maintains (*Rig Veda);* a preserver, protector, maintainer, chief, lord, master, *(Rig Veda).* From *bhartri* is derived the Sanskrit *bhatta,* (masculine

> gender): a title of respect used by humble persons addressing a prince. ... Also any learned man = doctor or philosopher. ... Name of a mixed caste of hereditary panegyists, a **bard**, encomiast (panegyrist). From he Sanskrit word *bhatta* is in turn derived the Hindi-Urdu word *bhat,* meaning bard, minstrel, trobador, etc.(2)

As was noted by Alain Danielou, many Celtic scholars believe that the Celtic or Gaelic word ***bard,*** Welsh: ***bardd***, Breton: ***barzh,*** is cognate with the Sanskrit *Bharata* and *bhartri,* which would indeed seem to be very probable or plausible. It also seems very plausible that the Sanskrit name ***Bharata*** and the Sanskrit word ***Bhartri***, along with the Gaelic or Celtic word ***bard***, Welsh: ***bardd***, Breton: ***barzh,*** are all cognate with the name of the famous Sassanian Persian poet ***Barbad***, immortalized by Nizami of Ganja in his great romance Khusrau and Shirin, and of whom we shall have a great deal more to say in this chapter.

Below is a treatise by the musicologist and Indologist Alain Danielou, brother of Jean Cardinal Danielou of the College of Cardinals of the Vatican; in other words, Jean Cardinal Danielou

was a Prince of the Roman Catholic Church. Though it deals specifically with Northern Indian music, it applies *grosso modo* to the types of modal music of which we will be speaking: Indo-Aryan, Persian, Celtic, Hispano-Muslim, Liturgical and to the *cansos* of the trobadors – and will give the reader an excellent idea as to what is meant by the term “Modal music”.

> ***“Extracting the essence of the (Hindu) Scriptures,***
> ***I shall explain the origin of intelligible Sound***
> ***which is the only means of achieving the four aims of life virtue, success, pleasure and***

liberation."((Sanita-darpana, I-29)

"The man who understands the inner meaning of the sound of the harp, who knows (musical) intervals, modal Scales and rhythms, shall travel without effort on the way to liberation." (Yajna-valkya Smriti, III, 115.)

"Animals tamed or wild, and children even, delight in musical sounds. Who can depict their beauty?" (Sangita-darpana, 1-31)

There are three main layers of civilization in India, an aboriginal culture speaking Munda languages, a Dravidian culture speaking Dravidian languages and probably representing the high culture the Aryans met when they conquered North-Western India, and an Aryan culture speaking Sanskritic (i.e., Indo-European) languages.

The history of music in India has remained linked with these different cultural backgrounds which have never achieved a real unity. We meet today aboriginal music among the Munda-speaking tribes, a Dravidian music in Southern India and a Northern Sanskritic Indo-Aryan or Indo-European) musical tradition. Obviously there has been much exchange of theoretical data and considerable mutual as well as external influences, Yet the fact remains today that we find in India very distinct musical systems which correspond in the main to the linguistic and ethnic divisions of the country.

The fact that the theory of music came, even in Dravidian areas, to be in the hands of a Sanskritic (Indo-Aryan) Brahmanical class that looked to the Aryan *Veda-s* as the source of all knowledge led to considerable misconceptions as regards the origin and theory of non-Aryan music.

Yet this affected more the theory than the practice, and the music itself, whether it be art music or folklore, has maintained very definite characteristics.

There is evidence of early musical contacts between India and the Middle and Far East.

The ancient *Kinnari Vina* (Vina of the Kin-nara-s) or Kin seems to have been known in China as the Ch'in. It is a stringed instrument said to have been played by the first Emperor, Fu-His (c. 3000 BC). The mythical Kin-nara-s, a word which may mean "men of Kin", may have been originally the Chinese, The Ch'in is further mentioned in ancient Chinese chronicles, such as the *Chi Ki* (second century BC) in connection with events of the sixthe or seventh century. According to the *Li Chi,*

Confucius (551-578 BC) always had his Ch'in at his side

when at home, and carried it with him when he went for a walk or on a journey.

In Genesis (IV, 21 and XXXI, 27) a stringed instrument of a similar kind is called *Kinnor.* (King) David used to play the Kinnor as well as the *Nebel* (harp or lyre).

The antiquity of Indian theatrical art and musical theory was well known to the ancient worls. According to Strabo (Geography, X, II, 17) the Greeks considered that music from the triple point of view of melody, rhythm and instruments came to them originally from Thrace and Asia. Further, the poets, who make the whole of Asia, including India, the land or sacred territory of Dionysos, claim that the origin of music is almost entirely Asiatic. Thus, one of them, speaking of the

lyre, will say: the strings of the cithara of Asia resound.

Megasthenes (quoted by Arrian in his Indika, VII, 8, written in 150 BC) tells us that Dionysos "taught the Indians to worship the other Gods and himself by playing cymbals and drums; he also taught them the satyr dance which the Greeks call *kordax*.

> "This is because they are, of all peoples, the greatest lovers of music and have practiced dancing with great love since the days when Bacchus and his companions led their bacchanalia in the land of India." (Arrian: Anabasis of Alexander, VI, 3, 10).

Megasthenes had come to India in 302 BC. He reported that the Indians counted 153 kings and 6042 years between Dionysos and Alexander (who entered the Punjab in 329 BC). Similar information is also given by Pliny the Elder who, however, gives the number of years as 6451. By comparing these Greek dates with those of the dynasties geiven in the various *Purana-s,* several attempts have been made to identify Dionysos with some early figure of Indian history (particularly Manu or Krishna). However, from the similarity of the legends and the symbols, there can be no doubt that Dionysos is Shiva and that the dates refer to his chief incarnation, as described in the *Shaiva Purana-s,* which give approximately the same dates.

Dionysos is the Greek name of a prehistoric divinity whom the Indians call Shiva (the auspicious). Shiva, represented as a nude and lustful god wandering through the primeval forest, is said to have been the

first teacher of the oldest system of music and dancing in India. Up to a comparatively recent period this

system seems to have remained distinct from that which traces its origin to the Vedic Aryans. A number of treatises on music, some of which are still extant, refer to the Shiva school of music which seems to be derived from a pre-Aryan civilization.

A fundamental characteristic of the Shiva school od music is the conception that basic modes must, for symbolic reasons, be pentatonic (this certainly indicates a pre-Aryan, pre-Indo-European origin), hence the classification of all heptatonic forms as variants of fundamental pentatonic modes.

The Vedic Aryans brought to India another conception of music, to which were added later important Iranian and Greek (both Indo-European, and therefore kin to and permeable to the Indo-Aryan) elements. This led to the development of a musical theory distinct from the Shivaite. The contrast in the basis of their parallel systems is still felt in the music of Northern India (obviously, the Shivaite system and the Indo-Aryan system are mutually impermeable).

A general Sanskritic (ie., Indo-Aryan or Indo-European) theory of music, termed *Gandharva Veda,* was elaborated at a very early date. Fom such summaries as have survived, it seems that the *Gandharva Veda* studied every use of musical sound, not only in different musical forms and systems but also in physics, medicine and magic.

The rise of Buddhism brought about a sharp deviation in the ancient approach to the arts and sciences. During this time the Gandharva Veda, together with several of the other sacred sciences, disappeared. Fragments of some of its texts may still survive in unpublished manuscripts. A short account of the contents of the Gandharva Veda, said to have been collected from such sources, has been published in an encyclopedic work in Hindi, Hindutva, by Motilal Gaud (Benares, India, 1928).

Musical theory and the theory of language in India were considered by the Sanskrit (language) theorists as two parallel branches of one general science of sound. Both have often been codified by the same writers. The names of *Vashishtha, Yajnavalka, Narada*, *Kashyapa,* (and) *Panini*, are mentioned among the early musicologist-grammarians. Nandikehvara is famous as the author of a work on the structure and content of language in its broader sense as well as of a treatise on music. His work on linguistics is believed to be anterior to the *Mahabhashya* of Patanjali (attributed to

the second century BC) into which it is usually incorporated, though it is thought to be probably posterior to the grammarian Panini, who seems to have

lived not later than the sixth century BC.

The Four Schools (Mata-s)

In AD 1550, the late medieval author Ramamatya wrote:

"The science of music has both in theory and in practice degenerated into conflicting views." ***(Svaramela-kalanidhi,* I, 24.).**

This was not anaccurate statement. The various forms of music found on the Indian (sub)continent dfid not come from a common source and the efforts made by theorists after the tenty century to explain all the musical facts in terms of a theory which was considered to be unique and of divine origin required a great deal of intricate musical exegesis. Theearlier writers trace the origin of the musical system, which they describe, to one of four different teachers each representing a different musical tradition. Hence there are four distinct systems or *mata-s* known as expounded by Shiva (or Someshvara), Bharata, Hanumanta, and Kallinatha. These systems undoubtedly had a distinct origin and belong very probably to the different cultures that came together on the Indian (sub)continent and which have retained to our day distinct characteristics in spite of century-old attempts to relate them to one another.

There is also evidence in Bengal and Orissa of independent musical systems. In Assam, Nepal, and most Himalayan countries musical forms are found which belong to the Sino-Tibetan family.

Many of the "low castes" and primitive tribes in India, often descendants of independent peoples with a civilization of their own, have kept to our day original musical forms that bear no relation to those defined in the *Natya Shastra* or the *Sangita-rsatnakara*. The case is particularly striking for the *Ahir-s* (ancient *Abhira-s*) of Northern India. In many regions, particularly in a few valleys of the Himalayas, there remain archaic forms of music with a upper tonic and a descending scale, the study of which would be of great interest towards the understanding of some of the ancient texts.

Although the various schools of music in presnt-day India lay claim to the same ancient treatises, there remain such important differences in musical practice that the meaning of the texts has to be forced to a sometimes incredible extent, so that they may

appear to refer to musical systems completely different from those they describe. Hardly any of the modes of Southern Indian music is identical with a Nortern Indian mode, yet each one claims the same origin. Even in the

North, *raga-s* and styles differ from one province to the other.

It is a common belief in Southern India that Southern music represents the more ancient school, while Northern music has evolved under external influences. Except in minor points, this opinion, however, does not appear to correspond with the facts. Both systems are extremely ancient. Southern Indian music was subjected to systematic reforms, one of the main reformers being Venkata Makhin in the seventeenth century. Northern Indian classical music, on the other hand, though it lent itself easily to temporary fashions, did not attempt to systematize *raga-s* or styles. In many instances it seems to have remained the same in spite of temporary changes. It still conforms with the definitions in some of the most ancient books.

The stories that relate how the various styles of Northern Indian music were developed by musicians of the Muslim period seem usually unfounded. Under Muslim rule, age-old stories were retold as if they had happened at the court of (the Moghul Padishah Emperor) Akbar, so as to make them acceptable to new rulers and win the praise and honours bestowed on the creative artists of the day. Such transfer of legends is frequent everywhere. We should therefore not be surprised to find ancient musical forms and musical instruments being given Persian-sounding names and starting a new career as the innovations of the Moghul court.

The assumption that the scales and styles now used by the *Ustad-s* of Northern India pertain to, or have been influenced by Turkish, Arab or Persian melody-types is unlikely. The structure of Arab and Persian music is quite different from that of Indian music. It is difficult to see how the one could have seriously influenced the other without losing its distinct character - unless one is referring merely to the setting of certain types of poetry, or to certain mannerisms or ways of sitting or of placing the voice.

The Turkish system was also known to late medieval Hindu scholars who occaisionally mention Persian and Turkish music (the latter under the name of *Turushka).*

Amir Khusrau (AD 1253-1319), a Turkish musician and scholar at the Persian court of (the) Delhi (Sultanate), wrote that Indian jusic was so difficult and so refined that no foreigner could totally master it, even after twenty years of practice.

The Sanskrit Writers on Music

The main Sanskrit treatises on music present. At first sight, a mass of conflicting definitions. However, a careful study of the divergences and similarities

between various groups of texts shows that these belong to different schools and have been mixed without discrimination. The original works, based upon a coherent theory are easy to classify. The rest represent more or less adapted compilations of which each element has to be dealt with separately. Unfortunately, only fragments of the earlier works are now available.

The Sanskrit writers on musical theory belong to four main periods. The first concerns authors mentioned in the *Purana-s* (the 'ancient scriptures') and in the epics *Mahabhatata* and *Ramayana);* the second, those mentioned in early medieval works. The third period concerns the authors who wrote between the Hindu revival and the Muslim invasion. The last or modern period is that of Sanskrit writers under Muslim and European rule. Exact dates can usually be ascertained only for authors of the last two periods.

Among the important landmarks of musical literature must be regarded the chapters on music of some of the *Purana-s,* particularly the *Vishnu-dharmottara, Markandeya Purana* and *Vayu Purana.* The Hindus regard these texts as extremely ancient. This seems to be confirmed by the technical terms used in reference to music. Puranic texts are, however, often difficult to interpret because of the lack of critical editions and of the abundance of copyists' errors in the technical passages (see Alain Danielou, Textes des Purana-s sur la Theorie Musicale, Institut Francais d'Indologie, 1959).

Many of the available works of the early period have been re-written over and over again. This is quite natural for they were teachers' text-books and not library records. Thus, to accept the date of their latest re-editing as the earliest date of compilation, as some over-cautious scholars have a tendency to do, may give an erroneous picture of musical history.

The available early works refer either to the *Gandharva Veda* or to the Shaiva tradition as their authority. In these we find theories easier to understand. Taking into account the changes that have occurred in the scale, in the tonic, etc., the interpretation of the early works should present no difficult problem except that of restoring the corrupt portions of the text.

First Period (Puranic-Vedic-Epic)

An approximate chronology of the most important writers belonging to the early period may be established with the help of a few works that have partly survived, although any attempt to fix definite dates or periods can only be conjectural. References in Vedic, Puranic

and Epic literature permit us to place most of the legendary authors of the early period in the pre-Buddhist age.

A chronological chart can be drawn showing the relative antiquity of authors mentioned or quoted in the works available in full or in fragments. Although far from being exhaustive, this chart shows the relationship between the most important Sanskrit writers on music of the early period, which must have extended over many centuries. Most of these early works are archaic in their language.

The main works of Nandikeshvara, the main Shivaite author, on the philosophy of music are now believed to be lost, but fragments of them are incorporated in later works.

A small surviving part of an anonymous manuscript in the Bikaner Library, called the *Rudra-damarudbhava-sutra-vivarana* (published by Madhava Krishna Sarma in the *New Indian Antiquary,* June, 1943), explains the formation of musical sounds on the basis of the *Maheshvara Sutra-s,* an esoteric arrangement of syllabic sounds, which Nandikeshvara also accepts as the philosophical basis of the Sanskrit language and, in fact, of all language. This text seems to be either a fragment of Nandikeshvara's work or a study directly based upon it. The first part of the manuscript is a fragment of another work, in no way connected with the second part. This first part deals with the qualities and defects of singers in verses also found in the *Sangita-ratnakara* of Sharngadeva.

A part of Nandikeshvara's work on dancing, the *Abhinaya-darpana,* has been published (Calcutta, 1934, with English translation by Manomohan Ghosh). An earlier translation by Ananda K. Coomaraswamy appeared under the title The Mirror of Gesture (Harvard University Press, 1917).

Further fragments of Nandikeshvara's technical writings on dancing and music, the *Bharata-arnava* in particular, remain unpublished. Manuscripts are to be found in Tanjore and Madras libraries.

(1208)

The Different Narada-s

There are three separate author known by the name of Narada. One, the author of the *Naradiya Shiksha,* is probably the earliest writer on profane music, some of whose writings have survived. He is quoted by all subsequent writers of the early period, who in turn are quoted by later Narada-s, the authors of the *Sangita-*

makaranda and the *Chatvarimshach'-hata-raga-nirupanam.*

According to tradition, the *Naradiya Shiksha,* forms part of the later Vedic literature. Although some attempts have been made to date this work rather late, there is no concrete evidence to disprove the tradition. The fact that the *Naradiya Shiksha* mentions the names of only a few of the earliest authorities on music, who are also mentioned in the *Vashishta* and *Yajnavalkya Shiksha-s,* seems to confirm it as an early work. If we were to consider the *Naradiya Shiksha* as a late work, we should have to account for some other very early work of the same description forming the
link betweeb Vedic chant and profane music as mentioned by Yashtika, Narada II, Kohala, Matanga and practically all subsequent authors. There seems to be no sufficient reason to doubt the authenticity of the available Narada Shiksha.

The *Panchama Samhita* and *Narada Samhita* are probably the work of the second Narada, author of the *Sangita-makaranda.*

The *Chatvarimshach'hata-raga-nirupanam* is a much later work.

The Bharata Problem

The main available work attributed to Bharata, the *Natya Shastra,* is a compilation which has been variously dated between the second century BC and the fourth century AD. It mentions Kohala and Dattila but not Matanga, and probably contains fragments of the work of Nandikeshvara, Kohala, etc., and the earlier Bharata. It may in fact be doubted whether a sage named Bharata ever wrote the *Natya Shastra.* The Bharata Vriddha (Bharata the Elder) mentioned by Sharadatanaya, as distinct from the author of the *Natya Shastra,* is probably the author of the *Gitalamkara,* a much older treatise belonging to the Shaiva school and quoted in the Panchatantra, the book of fables, dated about 300 BC. The word *bharata* designates a dance-actor; **some Celtic scholars link the Celtic word *bard* [Gaelic: *bard;* Welsh: *bard;* Breton: *barzh*]** to the Sanskrit **bharata**. It was a common name in the title of all the treatises on stage technique. Thus we hear of Adi Bharata, Nandikeshvara Bharat, etc. *Bharata Natya*

Shastra would then simply mean 'the text-book of the dance-actor'. It is, in fact, a practical compilation of authoritative works on the subject periodically brought up to date.

The *Natya Shastra,* therefore, cannot be taken as a sure basis to determine the chronology.. We should not be surprised to find Bharata himself mentioning several later authors as his sons. They all, however, belong to an earlier period and must obviously precede the last

revision of the *Natya Shastra.*

According to tradition Bharata had four sons: Shandilya, Vatsya, Kohala and Dattila.

> 'I taught the perfect practice (of music) to my sons, Shandilya, Vatsya, Kohala and Dattila.' *(Natya Shastra,* I-26.).

> 'The family of Bharata-s will be made famous in the future by the bharata-s: Kohala, and, after him, Vatsya, Shandilya, Dattila.' *(Natya Shastra,* 36, 70-71.).

These obviously later additions only mean that these four authors are considered the direct heirs to the tradition of the earlier Bharata. Their work, therefore, has great authority.

Matanga

It appears at first difficult to ascribe Matanga, the author of the *Brihaddeshi,* to a definite period. The text mentions a number of early authors, including Yashtika and Bharata. It has also an extensive commentary which mentions further writers, including Nandikeshvara, Kohala and Dattila. Some medieval and Later authors have considered this commentary as the work of Matanga himself. But this is unlikely since it mentions Kohala, who, in a passage reproduced by Kallinatha, quotes Matanga. The name and the story of the sage Matanga are mentioned in the *Ramayana* and the *Mahabharata* and in several *Purana-s.* This places him definitely in the early period.

The Three Chatura-s

A quotation by Tumburu is found in Kallinatha's commentary on the *Sangita-ratnakara* (I, 3, 10-16). In the commentary on the 27th verse of Matanga's *Brihaddeshi,* however, the same quotation is attributed to Chatura. Chatura is a name given to Kallinatha himself and the *Brihaddeshi* commentary might be

considered late enough to quote him. Simhabhupala more than a century before Kallinatha - repeatedly quotes from the *Brihaddeshi* commentary which he seems to consider the work of Matanga himself. It would therefore appear that the title of Chatura (clever) was also given to the early writer Tumburu, the same name having been used later for Kallinatha and also for Damodara Mishra, author of the *Sangita-darpana.*

Matrigupta and Rudrata

The Matrigupta mentioned by Narada (in the *Chatvarim-shac'hata-raga-nirupanam,* and as Matragupta, in the *Sangita makaranda)* has sometimes been identified with the celebrated poet Matrigupta of the seventh century. This is not absolutely impossible, although it is unlikely.

Similarly, the Rudrata mentioned by the author of the commentary on the *Brihaddeshi* and also by Abhinava Gupta (tenth century) has been said to be either the ninth century author of the *Kavyalankara,* or Rudra Bhatta, the author of the *Shringaratilaka.*

Such attributions should not be attempted without concrete evidence. Sanskrit literature on music extends over so vast a period that similarities of name are bound to occur. The difficulty is to distinguish between numerous authors of the same name. We know at least ten Bhatta-s, authors of different works, six Soma-s or Someshvara-s, five Narayana-s, four Damodara-s, etc. Among the existent works we have two *Sangita-ratnakara-s,* three *Sangita-narayana-s,* four *Bharata Shastra-s,* four *Raga-mala-s,* and so on. Hasty identifications are sure to lead to mistakes such as have already been made in the case of the different Damodara-s.

If the commentary on the *Brihaddeshi* is really the work of Matanga, the boundary of the Epic-Puranic period in the list given below must be placed before Gandharva Raja. The relative chronology is not otherwise altered.

An attempt at relative chronology based on the mention of earlier authors in existing texts begins on the next page.

THE FIRST PERIOD

The first period extends from prehistoric ages to the *Purana-Mahabharata* period (by the *Purana-Mahabharata* period is meant the general historical period envisaged in these books and not the particular date of their final recension).

I

The teachers of the Sama Veda

SAMA VEDA
Gandharva Veda

The main teachers are in probable succession:

BRAHMANA, *Prajapati,*

Kashyapa+ (authors by whom some writings on music are available and still existing works are marked with +). Brihaspati, Vishvakarman, Angirasa+, Gautama+, Bharadvaja, Soma Sharman, Vashishtha+, Yajnavakkya+, Tumburu+, Vishvavasu.

NARADA I+, *(Shiksha)*

Agastya, Ayu, Aruvan, Ushana, Ekadhanvi, Kanva, Kusha, Kritavrana, Kratuh, Galava, Chyavana, Durvasa, Dhruva, Dhaumya, Nishthyuti, Parvata, Pulastya, Pulaha, Pratimardani, Bhavana, Manu, Medhatithi, Ramajamadagni, Raibhya, Vatsa, Vamasajamadagni, Valmiki, Vishvamitra, Sahnkulaksha, Shatananda, Sanvatts, Sthulasira, Sthulaksha, Susharma, Bhargava.

Then come: Yashtika+, Anjaneya+, Ashvattaram Kambala, Markandeya+ (Purana?), Vayu+ (Purana).

BHARATA+

All the above names are mentioned in the *Natya Shastra*+. Later come Tandu and

MATANGA+

* * * *

II

Parallel to the *Gandharva Veda* runs the Shiva tradition of which the main teachers are:

SHIVA

Shankara, Shambhu, Parameshthi, Vighnesha, Shashanka, Shashimauli, Indra.

Then: Chandi, Shanmukha, Bhringi, Kuvera, Vikrama, Gauri, Parvati, mahadeva, vallabha, Shardula I, Sada Shiva+, Svati, Ravana.

NANDIKESHVARA+

These names are mainly mentioned by Nandikeshvara and in the *Brihaddeshi's*+ commentary.

* * * *

To the third tradition, that of *Hanumana,* appear to belong: Atri, Kapila, Bhrigu.

HANUMANA

Angada, Kinnaresha, Kushika, Guna, Sarasvati, Bali, Yaksha, Daksha, Vyala, Samudra, Shashi, Bhaskara, Shauri, Gopipati, Shrinatha, Shrivatsa, Hari I, Hari II, Harishchandra.

Later come: Chitraratha, Gandharva Raja I, Arjuna, Rambha, Kshetrapala, Ugrasena.

These names are mainly mentioned in the *Sangita Makaranda+,* the commentary on the *Brihaddeshi*+ and the work of Gandharva Raja.+

* * * *

All the names so far mentioned are anterior to the *Purana-s* and the Epics *(Mahabharata, Ramayana).*

*** * * ***

The come a series of authors who seem to have lived between the Epic-Puranic age and the first century of the Christian era, such as:

Kiridhara, Acharya, Matragupta, Kshemaraja, Lohita, Bhattaka, Sumantu, kshetrapala, Ugrasena, Bhatta Tandu, Shardula II,

KOHALA+

Devendra, Durga Shakti+, Ganeshvara, Oarvatipati, Sharva, Vatsya, vasuki, Shandilya, Vishakhila+,

DATTILA+,

NARADA II+, *(Sangita Makaranda+),*
Rudrata, Chatura+

Brihaddeshi's commentary+
Maghesha, Girsuta, Gandharva II+,

NARADA III *(Chatvarimshach'hata Raganirupanam+)*
(1213)

Several names mentioned in later works may be variants of the names of earlier authors, chosen for the sake of the metre, as all the treatises are in verse form. Parvati-pati (the husband of Parvati) and Sharva (the refuge), for example, are names of Shiva; they may stand for Shiva, the first expounder of music, or for some of his later followers; Maghesha (Lord of riches) may be Indra, Kamalasyaka may be Brahma. Yet it would be incautious to make such assertions without evidence since these are names that occur frequently.

The Kshemaraja mentioned by Kohala cannot be the celebrated disciple of Abhinava Gupta, since Kohala's latest possible time is the fourth century AD, six

centuries before Abhinava Gupta.

THE SECOND (BUDDHIST) PERIOD

This period extends from the Epic-Puranic period to the early medieval Hindu revival. We may generally term it Buddhist because, according to Hindu tradition, Buddhism rose and declined in India within the limits of this millennium.

A few important works that probably belong to the beginning of this period are extant (see previous chart). These include extensive fragmants of Kohala.

The lower limit of the early first period works is set by the fact that Kohala and Dattila are mentioned in the *Natya Shastra* of which the last re-editing, as we have already seen, is variously dated between the second century BC and the fourth century AD, the first of these dates being the more likely.

Very few of the numerous musical works of this second period have so far been found, neither have they been edited nor studied. In most cases we have to content ourselves with authors' names without attempting to establish their chronological relationship. The authors who an safely be attributed to this period are those not mentioned by any writer of the pre-Puranic-Epic period but mentioned as ancient authorities by authors of the tenth, eleventh and twelfth centuries (chiefly *Abhinava Gupta, Sharnganaya, Nanya Bhupala, Parshvadeva,* and *Sharngadeva.*

This gives us a list of names, some of which may, however, belong to the first period or to the earlier part of the third period.

The main writers of this second (Buddhist) period are:

Astika, Apisali (author of a *Shiksha),* Uttara, Uvata, Umapati, katyayana, Kamadeva, Kumbhodbhava, Ghantaka, Chhatraka, Datta, Devaraja (who may be Devendra), Drauhini, Dhenuka, Priyatitha, Bindu Raja,

Brihat kashyapa, Bhatta, Bhatta Yantram Bhatta Sumanas, Bhatta Vriddhi, Bhatta Gopala, Bhatta Shubhakara (commentator on *Naradiya Shiksha),* Rahuka, Vena, Vyasa, Vachaspati, Shri harsha (different from the patron of the seventh century poet Bana), Sakali Garbha, Surya (may be Bhaskara), Sureshvara, Somesvara I (different from the two later Somesvara-s, authors respectively of *Manasollasa* and *Sangita Ratnavali).*

THE THIRD (MEDIEVAL) PERIOD

The main authors of this period can be divided into two groups:

Udbhata (late eighth century) commentary on *Natya Shastra.*
Lollata (between Udbhata and Abhinava Gupta, circa 825): commentary on *Natya Shastra.*
Shankuka (id., circa 850): commentary on *Natya Shastra.*
Utpala Deva (early tenth century; the teacher of Abhinava's teacher).
Nrisimha Gupta (Abhinava's teacher and father).
Abhinava Gupta (end of tenth century): *Abhinava-bharati,* commentary on *Natya Shastra.*
Bhoja (King) (1010-1055)
Simhana (eleventh century or early thirteenth, before Hammira).
Abhaya Deva (a Jain) (1063- ?)
Mammata (1050-1150): *Sangita-ratna-mala.*
Rudrasena (before Devendra).
Someshvara II (1131): Manasollasa or *Abhilashartha-chintamani.*
Lochana Kavi (1160): *Raga-tarangini.*
Paramardi (1165-1203 ?).
Devendra (after Bhoja): *Sangita-muktavali.*
Someshvara III (1174-1177): *Sangita-ratnavali.*
Sharadatanaya (circa 1200): *Bhava-praksha.*
Nanya Bhupala or Nanya Deva (eleventh or twelfth century, between Abhinava Gupta and Sharngadeva): *Sarasvati-hridayalamkara* or *Bharata-bhasya.*
Jaitra Simha (circa 1213? Before Hammira): *Bharata-Bhasya.*
Sharngadeva (1210-1247): *Sangita-ratnakara.*

There has been some speculation about the dates of Lochana Kavi. The *Raga-tarangini* bears the date 1082 of the Shaka (Saka or Scythian) era. This would be AD 1160. Lochana Kavi, however, mentions the names of Jayadeva and Vidyapati. He dates of Jayadeva are about

(1215)

1116, but the known Maithili poet Vidyapati is thought to have lived around the fourteenth century. Either Lochana lived after the fourteenth century, or this name refers to some other Vidyapati. It appears that there is a local Shaka (Saka or Scythian) ers in Easteern India according to which 1082 would be AD 1700. This would ascribe Lochana to a much later date. Against this supposition there is the fact that Lochana is quoted by Hridaya Naraayana (circa 1667) who in turn is quoted by Bhava Bhatta (circa 1700).

The work of Lochana has therefore been dated either AD 1160, or (the) fourteenth century (after Vidyapati), or AD 1700.

Since the last date seems impossible, it is likely that the earlier of the remaining dates is the correct

one and that, as some Bengali scholars assume, there was an earlier Vidyapati.

II

Jayasimha (before hammira).
Ganapati (circa 1253? Before Hammira).
Jayasena (circa 1253): *Nritta-ratnavali.*
Hammira (1283 or 1364): *Sangita-shringara-hara.*
Gopala Nayaka (1295-1315).
Pratap (King?): *Sangita-chudamani.*
Palkuriki Somanatha (thirteenth-fourteenth century): *Panditaradhyacharita, Basava Purana.*
Vasanta Raja (King Kumaragiri, before fourteenth century): *Vasanta-rajiya, natya Shastra.*
Digambara Suri (before Parshvadeva).
Parshvadeva (before Simha Bhupala, after Bhoja and Paramardi): *Sangita-samaya-sara.*
Sharngadhara (1300-1350): *Sharngadhara-paddhati.*
Haripala (1309-1312): *Sangita-sudhakara.*
Shri Vidya Chakravartin (early fourteenth century): *Bharata-sangraha.*
Sudhakalasa (13231349): *Sangita-upanishad.*
Simhabhupala (circa 1330; *Sudhakara,* a commentary on *Sangita-ratnakara.*
Vishveshvara (circa 1330).
Vidyaranya (1320-1380): *Sangita-sara.*
Vema Bhupala (late fourtennth-early fifteenth century; *Sangita-chintamani.*
Gopendra Tippa Bhupala (1423-1446): *Tala-dipika.*
Kumbhakarna (1423-1468): *Sangita-raja, Sangita-krama-dipika.*
Kallinatha (middle fourteenth century): *Kalanidhi,* a commentary on the *Sangita-ratnakara.*
Kamala Lochana (circa fifteenth century?): *Sangita-chintamani, Sangitamrita.*

Keshava (between 1240 and 1664): commentary on the *Sangitaratnakara.*
Ramananda Narayana Shiva Yogin (after thirteenth century: *Natya-sarvasva-dipika.*

The most extensive work of the medieval period is the *Sangita-ratnakara* of Sharngadeva (AD 1210-1247). It has several valuable commentaries, two of which - by Simhabhupala (circa 1330) and by Kallinatha (fifteenth century) - have been published. The *Raga-tarangini* of Lochana may also belong to this period.

In the first chapter of his *Sangita-ratnakara,* Sharngadeva gives the following list of his chief predecessors:

‘Sadashiva, Shiva, Brahma, **Bharata,** Kashyapa, Muni,

matanga, Yashtika, Durga-shakti, Shardula, Kohala, Visha Khila, Dantila (Dattila), Kambala, Ashvatara, Vayu, Vishvavasu, Rambha, Arjuna, narada, Tumburu, Anjaneya, Matrigupta, Ravana, Nandikeshvara, Svati, Guna, Binduraja, Kshetra-raja, Rahala, Rudrata, Nanya Bhupala, and king Bhoja, Paramardi and Somesha the world emperor; then the commentators of **Bharata:** Lollata, Udbhata, Shankuka, Bhatta, Abhinava Gupta, the famous Kirtidhara and many more in the past were experts in music.'

The Fourth (Modern) Period

With the advent of foreign invasions musical theory quickly decays, although musical practice maintains its standards. A few authors, however, attempt to re-establish the old theory and to re-shape it, so that it may agree with the new ideas. Musicians had found many points of the reconstructed medieval theory irrelevant when confronted with the practice of their day. A series of attempts was therefore made to reconcile the theory with the facts. The chief works of this kind are the *Svaramela-kalanidhi* of Raamamatya (1540), the *Raga-vibhoda* of Somanatha (1610), the *Sangita-darpana* of Damosara Mishra (1625) and especially the *Chaturdandiprakashika* of Vendata Makhin (1620), the systematizer of South Indian music. Yet these efforts merely added to the confusion, for, in their attempt to explain apparent contradictions, the later authors often forced far-fetched interpretations upon ancient technical terms and theories.

A series of more recent works span the period between ancient and modern music. In Northern India the *Sangita-parijata* of Ahobala (circa 1690) and the *Sangita-damodara* of Shukambara (seventeenth century)

are considered the most important.

The Chief Writers of the Fourth (Modern) Period

Harinayaka (circa 1500): *Sangita-sara.*
Meshakarna (before 1509): *Raga-mala.*
Madanapala Deva (circa 1528): *Ananda-sanjivana.*
Lakshmi Narayana (first quarter of the sixteenth century): *Sangita-Suryodaya.*
Lakshimidhara (sixteenth century): *Bharata Shastra-grantha.*
Raamamatya (1550): *Svaramela-kalanidhi.*
Pundarika Vittala (late sixteenth century): *Shadraga-chandrodaya, Raga-mala, Raga-manjari, Nartana-nirnaya.*
Tanappacharya (Tan-sen?) (guru of Venkata makhin, circa 1600).
Madhava Bhatta (before 1610): *Sangita-chandrika.*

Somanatha (before 1610): *Raga-vibodha.*
Govinda Dikshita (1614): *Sangita-sudha.*
Govinda (?): *Sangita-chudamani.*
Venkata Makhin (circa 1620): *Chaturdandi-prakashika.*
Domdara Mishra (1625): *Sangita-darpana.*
Hridaya narayana Deva (circa 1667): *Hridaya-kautuka, Hridaya-prakasha.*
Basava Raja (1698-1715): *Shiva-tattva-ratnakara.*
Ahobala (before Shri Nivasa and Bhava Bhatta; first half of seventeenth century or earlier): *Sangita-paarijata* (translated into Persian in 1724).
Shri Nivasa (late seventeenth century): *Raga-tattva-vibodha.*
Abhilasa (seventeenth century): *Sangita-chandra.*
Jagaddhara (fourteenth to seventeenth century): *Sangita-sarasva.*
Kamalakara (later than 1600): *Sangita-kamalakara.*
Kikaraja (seventeenth century): *Sangita-saroddhara.*
Jagajjyotirmalla (seventeenth century): *Sangita-sara-sangraha, Sangita-bhaskara.*
Raghunatha Bhupa (seventeenth century): *Sangita-sudha.*
Nanga Raja(?): *Sangita-ganga-dharana.*
Veda or Mudaveda (during the reign of Shahaji 1684-1712): *Sangiat-makaranda, Sangita-pushpanjali.*
Vangamani (seventeenth century): *Sangita-bhaskara.*
Shukambhara (before eighteenth century): *Sangita-damodara.*
Somanarya (after 1609): *Natya-chudamani.*
Bhava Bhatta (alias Anushtupa chakravarti, after Ahobala (circa 1700): *Anupa-Sangita-ankusha, Anupa-sangita-ratnakara, Anupa sangita-vilasa.*
Tulajadhipa (ruled 1729-1735): *Sangita-saramrita.*
Narayana (King) (late eighteenth century): *Sangita-narayana.*

Kavi-ratna Narayana (eighteenth century): *Sangita-sarani.*
Govinda (eighteenth century): *Sangita Shastra-sanksha. sankshepa.*
Gopinatha Kavi Bhushana (late eighteenth century): *Kavichintamani.*
Pratap Singh (1779-1804): *Sangita-sagara.*
Balarama Varma (ruled 1789-1810): *Bala-rama-Bharata.*
Shrikantha (late eighteenth century): *Rasa-kaumudi.*

The Authors of the Nineteenth and Twentieth Centuries are:

Rama varma Maharaja: *Sangita-kritayah.*
Appa Tulsu: *Abhinava-tala-manjari, Raga-chandrika- Raga-kalpa-drumankura, Sangita-sudhakara.*
Krishnananda Vyasa: *Raga-kalpa-druma* (1843).
Appalacharya: *Sangita-sangraha-chinamani.*

Sourindra Mohan Sharma (Raja Tagore): *Sangita-sara-sangraha* (1875).
Vishnu Sharma (Pandit Bhatkhande): *Abhinava-raga-manjari* (1921) *Shrimallakshya-sangitam* (1921).

The Main Authors in North Indian Languages Other Than Sanskrit Are:

Raja mana-simha Tomar (1486-1518): *Mana-kautuhala* (Hindi)
Tan-sen (circa 1549): *Raga-mala* (Hindi).
Shri Rama Malla: *Raga-vichara* (Hindi).
Harivallabha: *Sangita-darpana* (Hindi) (manuscript dated 1673).
Ganga Ram: *Setu* (commentary on *Sangita-ratnakara)* (Hindi).
Deo Kavi: *Raga-ratnakara* (1673) (Hindi).
Saiyid ‘Abd-al Wali’ Uzlat: *Raga-mala* (17590 (Urdu).
Kavi Krishna: *Raga-kutuhala* (1781) (Hindi).
Maharaja Swai Pratap Simha Deva of Jaipur (1779-1804): *Sangita-sara* (Hindi).
Muhammad Rezza: *Nagmat-e-Asaphi* (18130 (Persian).
Radha Mohan Sen: *Sangita-taranga* (1818) (Bengali).
Diwan Lacchiram: *Buddhi Prakasha darpana* (1823) (Hindi).
Krishnananda Vyasa Deva: *Raga Kalpa Druma* (1842-1849) (Hindi and Bengali).
Chhatra Nripati: *Pada-ratnavali* (1854) (Hindi).
Chunni lalji Gossain: *Nada Vinoda* (1896) (Hindi)
Bhanu Kavi (Jagannath Prasad): *Kavya-prabhakara* (1909) (Hindi).

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BASES OF MELODIC STRUCTURES

The Nature of Sound

> ‘Intelligible sound *(Nada)* is the treasure of happiness for the happy, the distraction of those who suffer, the winner of the hearts of hearers, the first messenger of the God of Love. Easy of access, it is the nimble beloved of passionate women. May it forever be honoured. It is the fifth approach to the Eternal Wisdom, the Veda.’ (*Sangita Bhasya).*

In Indian musical theory it is said that there are two kinds of sound, one a vibration of ether, the other a vibration of air. The vibration of ether, which cannot be perceived in the physical sense, is considered the principle of all manifestation, the basis of all substance. It corresponds to what neo-Pythagoreans

called ‘music of the spheres’. It forms permanent numerical patterns which are the basis of the world’s existence. This kind of vibration is not caused by a physical shock as are audible sounds. It is therefore called *anahata,* ‘unstruck’. The other kind of sound is an impermanent vibration of air, an image of the ether vibration. It is audible and always produced by a shock. It is therefore called *ahata* or ‘struck’.

Thus the *Sangita-makaranda* (I, 4-6) says:

> ‘Sound is considered to be of two kinds, unstruck and struck; of these two, the unstruck will be first described.
>
> ‘Sound produced from ether in known as ‘unstruck’. In this unstruck sound the Gods delight. The Yogis, the Great Spirits, projecting their minds by and effort of the mind into this unstruck ound, depart, attaining Liberation.’
>
> ‘Struck sound is said to give pleasure, ‘unstruck’ sound leads to Liberation.’ *(Narada Purana.)*
>
> But ‘this (unstruck sound), having no relation with human enjoyment, does not interest ordinary men.’ *(Shiva-tattva-ratnakara,* 6, 7, 12.)>

Not all audible vibrations are intellible sounds. The sounds used in music are those whose mutual relationships form an image of the basic laws of the

universe as represented by the unstruck sounds. Thus musical sounds have it in their power to reproduce the first creation of the Primordial Intellect. This creation is at the same time a rhythm and a thought. The main characteristic of musical sounds is that they convey ideas, emotions, and at the same time form simple harmonious relations. This why, according to a symbolic etymology, musical sound is called *‘Nada’,* i.e., ‘intelligible sound’, and is said to result from the union of physical breath with the fire of intellect.

> ‘The syllable *‘Na’* means breath, the syllable ‘*Da’* the fire (of intellect). Born of the union of breath and fire, intellible sound is called *Nada.’ (Sangita-makaranda,* 4, 18, reproduced in *Sangita-ratnakara,* 1, 3, 6 and *Sangita-darpana,* 1, 39).

Three main elements are considered in musical sound - intensity, interval and timbre.

Intensity is the relative strength of the sound,

whether soft or powerful.

The interval is defined by the relative pitch *(shruti).*

Timbre arises from the various possibilities of resonance which differentiate the sound of instruments and voices.

Musical sounds are classified into five main categories:

> 'Struck sounds are known to be of five kinds - produced by the nail (strings), by wind (flutes), from leather (drums), from metal (percussion instruments) or from the body (the voice).' *Sangiat-makaranda,* 1, 7).

The Tonic or Drone

All music is based upon relations between sounds. These relations can be worked out in different ways, each of which has possibilities of expression peculiar to itself.

The modal group of musical systems, to which practically all Indian music belongs, is based on the establishment of relations between a permanent sound fixed and invariable, the "tonic" or *Sa,* and successive sounds, the notes.

Modal music is not merely melody without accompaniment, neither has a song or melody, in itself, anything to do with modes.

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Indian music, like all truly modal music, is built on the independent relationship of each note to the tonic. The relationship to the tonix determines the meaning of any given sound. The tonic must therefore be constantly heard. It can either be sounded as a drone or repeated at frequent intervals, as is done on stringed instruments. It should be remembered that the drone is not merely intended to keep the singers on pitch, so that they can always attact at the correct pitch, but it is the key to all modal expression. As long as the hearer has not entirely identified himself with the tonic, butstill perceives drone and melody as separate entities, it will remain impossible for him to floow or understand the meaning of modal music.

At different periods it appears that different notes were taken as the starting point of the scale. But *Shadja* (Sa, C), the tonic of all modern music, seems to have been considered as such since medieval times.

> "*Shadja* (Sa, C) is the first of all notes and so it is the main or chief note." (Simhabhupala commentary on the *Sangita-*

ratnakara, I, 4, 6-8).

> "Dattila explains that the *Shadja* (the tonic) may be established at will at any pitch (on any shruti) and that, by relation with it, the other notes should be established at the proper intervals." (Simhabhupala commentary on the *Sangita-ratnakara,* I, 4, 15-16).

However, a common tonic is necessary so that the *raga-s* may be easily compared. In the notations of *raga-s* which form the second part of this book,the tonic is noted in every case as C, since C is usually considered the first note of the Western sale, just as *Sa* (in present-day music always the tonic) is the first note of the Indian scale.

With C as the tonic, the white keys of any keyboard instrument, such as the piano or organ, give approximately the major mode or unaltered (shuddha) scale, the scale of *Bilaval* in modern Indian music. The different modes can be visualized as modifications of this basic (*shuddha*) scale.

The fact that the tonic used by most singers is lower – often B flat – is not important. Once the real nature of each mode has been properly understood (and practice shows that this is easier if the tonic is always noted as C) the modes can be transposed so as to commence on any note that may be suitable for different

voices or instruments.

The Three Main Octaves (Saptaka-s)

Music develops mainly within three octaves. In singing, these correspond to the resonances of chest, throat and head. These three octaves are called "low" (*mandra*), "medium" (*madhya*) and "high" (*tara*).

> "In practice there are three [octaves in singing], the lower one [resounding] in the chest, the middle one in the throat and the higher one in the head. Each being the double of the other." (*Sangita-makaranda,* 4, 19, and *Sangita-ratnakara,* I, 3, 7).

> "[They are] in order: 'low octave' in the heart, 'middle octave' in the throat, 'high octave' in the head." *(Sangita-darpana,* I, 49).

And:

> "The lower octave has its place in the chest, the middle octave in the throat, the high octave in the forehead. Although they

are similar each is respectively the double of the preceding one.” *(Narada Samhita).*

The Seven Notes (Svara-s)

The note (*svara*) is not only a definite pitch of sound. The word *svara* means a sound plus an expression, so it would be more correctly rendered as “expressive note”.

Matanga says:

> “The sound that generates an expression is called *svara* (note). *(Brihaddeshi,* commentary on I, 63).
>
> “The word *svara* means ‘that which shines of itself’ – from *rajri* (to shine) with the prefix *sva* (self).” (Matanga, *Brihaddeshi,* I, 63).

Ancient Indian music recognizes seven main and two secondary *svara-s.* these notes represent definite intervals and form the basic unaltered or “pure” (*shuddha*) scale. They can be raised or lowered to form other scales. In that case they are considered “altered” (*vikrita*). The notes that form the basic scale are called pure (*shuddha*); notes lowered by half

a tone are said to be *komala* (soft-flat); notes raised by half a tone are called *tivra* (sharp).

According to the mode, the notes can be slightly sharper or flatter, thus forming certain microtonal intervals which convey particular expressions. Hence the microtonal scale, or scale of the *shruti-s,* is considered to be the fundamental basis of musical scales, the notes or *svara-s* depending for their significance on the place they occupy in the microtonal scale.

Matanga says:

> “*Shadja (C)* and the other notes *(svara-s)* are always manifested through the ‘interval they form with the tonic’, their *shruti,* just as a pitcher in the dark is made manifest by a lamp.” *(Brihaddeshi,* I, 36).

The commentary on the *Raga-vibodha* (I,14) adds:

> “What then constitutes a note, a *svara?* What is the particularity of these seven sounds? It is their intelligibility, their capacity to please the mind, to appeal to the

consciousness of the hearer. They must do this by themselves, without external aid."

"The sound is first heard as an interval, a *shruti;* but the resonance that immediately follows, conveying itself (without external aid) an expression to the mind of the hearer, is called a *svara,* a 'musical note'". *(sangita-ratnakara,* I, 3, 24-25).

And:

"The expressive sound, attractive and pleasing, which resounds immediately after the exact interval (the *shruti*) has manifested itself, is called a *svara* (note)." *(Sangita-darpana,* I, 57).

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The notes are seven in number.

"From the [twenty-two main] intervals (shruti-s) come the seven notes (svara-s) called *Shadja, Rishabha, Gandhara, Madhyama, Panchama, Dhaivata, Nishads." (chatvarim-shach'hata-raga-nirupanam,* I, 18-19; *Sangita-darpana,* I, 167; *Shiva-tattva-ratnakara,* 6, 7, 22-23).

"Others call them (for short): *Sa* (do), *Ri* (Re), *Ga* (Mi), *Ma* (Fa), *Pa* (Sol), *Dha* (La) and *Ni (*Si)." *Sangita-darpana,* I, 168).

These notes, classified according to their relative importance, form the different parts of the "personality" of the "modal scale' *(murch'hana).*

"The note *Sa* (C, the tonic) is said to be the soul, *Ri* (D) is called the head, *Ga* (E) the arms, *Ma* (F) the chest, *Pa* (G) the throat, *Dha* (A) the hips, *NI* (B) the feet. Such are the seven limbs of the modal scale." *(Narada Samhita,* 2, 53, 54).

"These notes, which are seven as a rule,

correspond, in the view of Matanga, with the seven basic elements of the physical bodym and issue from the seven centres of the subtlr body *(chakra-s)*." (Kallinatha commentary on the *Sangita-ratnakara,* 3, 23).

The *svara-s* or notes of the unaltered *(shuddha)* scale are associated with th cries of animals.

Although this association has been held to be symbolical, musicians claim that most animals have a distinct cry based on two notes. If we consider the lower note as the *Sa* (Do), the higher note may give us a second, a third, a fourth, etc.

> *"Shadja* (the octave) is sounded by the peacock, the next note *Rishabha* (the major second) is uttered by the *chataka* bird. The goat bleats *Gandhara* (the minor third), the heron *(krauncha)* cries *Madhyama* (the perfect fourth. In the season of flowers, *Panchama* (the perfect fifth) is softly sung by the cuckoo *(kokila). Dhaivata* (the natural sixth) is croaked by the frog in the season of rains. At all times, O Goddess! *Nishada* (the minor seventh) is trumpeted by the elephant."

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> (Kokala quoted in *Brihaddeshi,* commentary on 63).

The ancient Indian natural scale, compared to the Western major mode, contains an E flat and a B flat (modern *Ga komala* and *Ni komala).*

A similar list of animal cries is given in the *Narada Samhita* (2, 55-56) and a slightly different one in the *Manduki Shiksha* (I, 9) and in the *Naradiya Shiksha* (I, V, 4-5) also reproduced in the *Shiva-tattva-ratnakara* (VI, 7, 33-35).

The peacock's octave starts from the upper note.

Kalidasa says:

> "Both listened to the lovely cry of crested peacocks raising their heads at the sound of the xle of the chariot. In this cry resound two kinds of *Shadja svara."* *(Raghuvamsha,* I, 39).

The Intercalary Notes, Kakali Ni and Antara Ga

In ancient music two accessory notes were added to the seven main notes dividing the major tones *Ni Sa* (B flat C) and *Ga Ma* (E flat F) into half-tones. These two intercalary *(sadharana)* notes were called *Kakali Ni* (the pleasing Si) and *Antara Ga* (the intermediary Mi.)

"When two *shruti-s* (half a tone) from *Sa* (C) pass into *NI* (B flat) this is (called) *Kakali* (B sharp). The same from *Ma* (F) into *Ga* (E flat) is *Antaka* (E sharp)." (Quoted in Simhabhupala commentary on the *Sangita-ratnakara,* I, 3, 40, and in *Shiva-tattva-ratnakara,* VI, 7, 51).

"The note called *Kalali* is obtained by raising *Ni* (Si flat) by two *shruti-s.* the note called *Antara* is obtained from *Ga* (E flat) in the same way. They are not properly considered notes *(svara-s)* because they cannot be taken as tonic *(amsha).* So *Nishada* (B flat) and *Gandhara* (E flat) are given prominence over them." (Dattila, 16-17, also quoted by Simhabhupala commentary on the *Samhita-ratnakara,* I, 3, 56).

(1226)

The Intervals (Shruti-s)

The names and classification of the intervals, the *shruti-s,* as given in the ancient and medival books, present many problems of interpretation. There are various reasons for this:

- 1.)At different periods, different notes were taken as the tonic;
- 2.)the more ancient treatises envisaged a descending scale, more recent ones an ascending scale;
- 3.) the scale considered unaltered differed from one period to another. These difficulties will not surprise us if we remember that hundreds of years elapsed between the writing of many of these treatises.

As we have already seen, a note and its name depend upon its relationship to the tonic; it can be a fourth, a fifth (a *Ma* (F), a *Pa* (G), etc.) only through relationship to a basic sound (in modern Indian music, always the *Sa).*

Notes, therefore, depend upon intervals. The intervals from which notes are produced are called *shruti-s* (audible), since it is only through hearing

that the idea conveyed by the intervals can be grasped.

> "It is grasped by the ear, hence it is called *'shruti' (audible).'Shru',* which means 'hearing', is the root of the word. To this is added the (feminine) suffix *'ktin'* (denoting an abstract noun). In this way the term *'shruti'* is defined by linguists (to represent) the 'means of expression'. *(Brihaddeshi,* commentary on I, 26).

The number of theoretically possible intervals in relationship to a given note is obviously limitless. Yet the number of intervals used in music is comparatively small. This is due to the limitations of the mental mechanism through which we can distinguish sounds.

Intervals do not merely produce pleasing or unpleasing sensations. Like words, they convey distinct and definite expressions to the mind of the hearer.

Indian musical theory considers that the ear can perceive sixty-six distinct meaningful intervals within the compass of an octave. We find, however, that among

these intervals twenty-two are mainly used in music. These twenty-two which form well-defined ratios with the tonic are those which convey to our mind the most distinct meanings. In practice we could say that within one octave it is possible to distinguish accurately twenty-two distinct expressions, and sixty-six distinct pitches of sound; beyond this we can naturally conceive of limitless relationships of sounds, but since we cannot distinguish them they have no reality in music.

> "Some experts in the knowledge of intervals say that they number twenty-two. Other speak of sixty-six and some consider them numberless." (Kohala, quoted in *Brihaddeshi,* commentary on I, 28, and in both Simhabhupala's and Kallinatha's commentary on the *Sangita-ratnakara,* I, 3, 8-9 and 10-16).

The comlete scale of the *shruti-s* is not a musical scale which can be directly used in a melodic form. It is merely the assemblage of the different intervals used in different modes; their ordered arrangement for purposes of study and comparison.

It is not possible to sing the scale of the *shruti-s* accurately in succession (as some singers pretend to do), but they can all be sung with perfect accuracy when they are embodied in melodic figures that have a definite expression. Hence Parshvadeva says:

> "The twenty-two sounds cannot be

produced (in succession) by the throat. They should therefore be demonstrated on a stringed instrument." (Attributed to the *Sangita-samaya-sara,* though not found in the printed edition).

According to the explanations given in the *Natya Shastra* and by Matanga in his *Brihaddeshi,* the interval, or *shruti,* used as the divisional basis of the octave appears to be the comma diesis 81/80, defined as the difference between *Pa* (moder *Dha* [A]), considered as the upper fourth from *Ri* (modern *Ga* [E], This comma is called the "measuring" or "standard" interval.

"The interval produced by the raising or lowering of *Panchama,* (which can also be envisaged as a softening or (a difference in string-) length, is called the 'standard interval' *(pramana shruti)." (Natya Shastra,* 28, 22; and *Brihaddeshi,* commentary on I, 28.).

If we add the minor tone *(G A,* ancient *Ma Pa)* of 3 *shruti-s* to the perfect fourth (*D G,* ancient *Sa Ma)* of 9 *shruti-s* then to another perfect fourth (*A D,* ancient *Pa Sa)* of 9 *shruti-s* , we find the octave from *Ri* to *Ri (D* to *D)* too short: 9 *shruti-s* + 3 + 9 = 21 (ie, 4/3 X 10/9 X 4/3 = 160/81).

The difference between this and the real octave (2/1) is one *shruti* or comma (81/80). Thus: 21 + 1 = 22, or 160/81 X 81/80 = 2/1.

To obtain a perfect octave, we must then either make the fourth *Dha Ri (A D)* too large (27/20), or raise the harmonic *Dha (A* = 5/3) into *Dha*+ *(A*+ = 27/16), changing the minor tone *Pa Dha (G A* = 10/9) into a major tone *Pa Dha*+ *(E A*+ 9/8). But in this case the fourth *Ga Dha*+ *(E A*+*)* becomes too large. To correct it, we may raise the *Ga (E)* into *Ga*+ *(E*+*);* but this will destroy its consonance with *NI (B).*

In this way we always have to choose between one perfect fourth or the other, the difference involved being in every case the interval of one comma (81/80) or 5 savart-s which first appears on the *Dha (A)* (ancient *Pa).*

This comma was considered by the Greeks, the

Arabs and the Hindus as the logical unit for any practical
division of the scale.

The difference between important simple intervals can generally be expressed in terms of commas. For example, the difference between the major and minor tone 9/8 and 10/9 (*Sa Ri* and *Ri Ga)* is 9/8 X 9/10 = 81/80; the difference between the major half-tone (16/15) and the limma (256/243) is 16/15 X 243/256 = 81/80; the difference between the two minor thirds C E flat = 6/5 and C E flat = 32/27 is 6/5 X 27/32 = 81/80; the difference between the harmonic major third C E (*Sa*
Ga) = 5/4 and the Pythagorean third C E+ (*Sa Ga+)* = 81/64 is 81/64 X 4/5 = 81/80; etc.

This explains why a scale formed by adding twelve other notes, each raised by one comma, to the twelve notes of the basic scale and twelve more, each lowered by one comma, will give us practically all the intervals used in music.

The complete division of the octave is obtained by
adding or subtracting either one or two commas from

each of the twelve notes of the basic chromatic scale. This gives us a series of fifty-three intervals, which cannot all be used in modal scales though they may come into use through modulations (changes of tonic) or in certain forms of polyphony.

If we further divide the disjunctions of this scale which appear at each half-tone so as to form quarter-tones, we obtain the division of the octave *(Sa* to upper *Sa)* into sixty-five intervals - that is, counting the note that forms the octave itself, the scale of sixty-six intervals or *shruti-s s*poken of by Kohala.

It has been suggested that the sixty-six intervals of Kohala may refer to the twenty-two *shruti-s* in three octaves. But this is not usually accepted.

It should be noted that this scale makes use of only two kinds of intervals - commas of five savart-s and disjunctions of 8 savart-s. This is, in fact besides the Pythagorean division into seven notes, the only possible complete division of the octave which uses only two sorts of intervals and which respects the fundamental consonances (fourth, fifth, etc.). All other divisions of the octave are either irregular or, as is the case with all tempered scales (the major and minor scales of modern Western music), never give perfect consonances.

The cycle of intervals gives us a division of the octave into fifty-three. This corresponds exactly to the number of letters in the complete phonetic alphabet of

Sanskrit grammarians, in which the letters are arranged according to five places of articulation,, in each of which can be pronounced a vowel (short or long) and five consonants, a drawn unaspirate, a drawn aspirate, a thrown unaspirate, a drawn aspirate, and a nasal. Added to these, there are further vowels and consonants, using more than one place of articulation to form a total of fifty-two letters.

To these is added the sacred syllable (AUM) considered to be the origin andn end of all articulate sounds and corresponding to the *Sa* (C) of music which has a similar function with regard to all the *shruti-s.* AUM is made of the guttural A, the labial U and the nasal M, the three extreme points of articulation, which form a triangle that includes all other letters.

Thus, the laws that govern musical and articulate sound appear to the Hindu theorists strictly parallel and interdependent, both kinds of sound serving, though on Different levels, to manifest ideas.

(1230)

The Notation of the Shruti-s

Many of these theoretical intervals are seldom used in practice. (There are twenty-two (or twenty-five) intervals, which correspond to clearly perceptible ad distinct expressions which are used in the teaching of modal music.)

Under no circumstances can these twenty-two (or twnty-five) divisions be considered equal. They refer only to twenty-two (or twenty-five) prominent intervals chosen out of the possible fifty-three (or sixty-six). In present day music a few other intervals are used, though seldom.

They are the rare F- and B flat--.

The remaining divisions, necessary only when the tonic is changed, are not considered in modal practice.

As we have already explained, if we raise and lower by one comma each of the twelve notes of the fundamental Pythagorean chromatic scale, we get a scale of thirty-six notes which contains practically all the intervals that are used in any form of music.

Thus, in this scale each of the twelve notes has three positions - low, middle and high. This mode of division of the scale seems to have been used by the celebrated Tumburu, a celestial musician, considered to be the originator of one of the chief ancient systems of music, who wrote a treatise now lost.

Tumburu expresses the strident character of all raised notes and the mellowness of the lowered ones by connecting them to the four humors of the body whose

relative predominance is said to bring similar tendencies. He says:

> "A sound that is high is harsh (piercing). The wise know it to be born from the wind.
>
> A low sound, deep and mellow, should be known as born from the bile.
>
> The attractive (perfect) sound is born from the lymph. It is sweet and tender.
>
> That which has the qualities of all three (the sound with vibrato) is known to be born from the semen." (Attributed to Tumburu by Kallinatha, commentary on the *Sangita-ratnakara,* I, 3, 10-16, and to Chatura in *Brihaddeshi,* commentary on, 27.)

(1231)

The Expression of the Shruti-s

The division of the octave into sixty-six intervals is theoretical. Although we can clearly perceive the differences in pitch of the different intervals and rapidly train our ear to recognize them, some will not succeed in conveying a definite meaning. The types of expression attributed to some of the intervals have been carefully classified by ancient writers. Each *shruti* was given a name depicting its character. In the system of Parshvadeva, the names of the individual *shruti-s* were different in each octave. These types of expressions were futher classified into five main groups or "families" of intervals called *jati-s:* "moderate, keen, broad, tender, and compassionate".

> *"Dipta* (keen), *Ayata* (broad), *Karuna* (compassionate), *Mridu* (tender), *Madhya* (moderate), these are the five families *(jati-s)* of the *shruti-s* that are found in the notes." *(Sangita-ratnakara,* I, 3, 27-28.)

Because of the confusion that has resulted from the changes in scale and tonic the exact representation of the ancient *shruti-s* present a number of problems.

The safest way to interpret them is to start from the actual expression attributed to the intervals as found in musical practice today. The notation of these expressions given in the analysis of the *raga-s* has been worked out by careful measurement of the intervals used by musicians playing different *raga-s* and by noting the

expression each particular note conveyed to the musician and to his audience. It was found that the same shade of meaning was always attributed to the same intervals occurring in *raga-s* with quite different characters. The scale we give here is only the result of such experiments in a particular tradition and may therefore be subject to improvement.

In the following table we compare the *shruti-s* as given by Sharngadeva with the experimental ones. A few slight differences remain to be clarified.

There is some difficulty in ascertaining which of the *shruti-s* of Sharngadeva was really the tonic. This has led to divergent interpretations. The three main interpretations have the scale starting from the *shruti-s Chhandovati, Kshobhini* or even *Ramya*corresponding to *Dha* (A), which is said to have been the ancient tonic of Narada. The *Svaramela-kalanidhi* (AD 1549) takes *Chhandovati* as *Sa* (tonic) but considers that *"Prasuna",* Narada's first *Shruti,*

corresponds to *Kshobhini.* On the other hand, Govinda in his *Sangita Shastra-sankshepa* (c. eighteenth century) places the tonic *Sa* on *Kshobhini.*

The *shruti-s* given by Sharngadeva are as follows:

> *"Tivra, Kumudvali, Manda, Chhandovati*
> come within *Shadja;*
> *Dayavati, Ranjani* and *Raktika* dwell in *Rishabha,*
> *Raudri* and *Krodha* in *Gandhara,*
> While the *shruti-s Vajrika, Prasarini, Priti* and *Marjani* have their place in *Madhyama.*
> *Kshitihm Rakta, Sandipani* and *Alapini* are in *Panchama;*
> *Madanti, Rohini, Ramya* shelter in *Dhaivata;*
> Both *Ugra* and *Kshobhini* rest in *Nishada." (Sangita-ratnakara,* I, 3, 35-39).

I formerly followed the often admitted interpretation that starts the scale from *Kshobhini,* but closer study of the expressions given by Sharngadeva seems to show beyond doubt that the scale starts from *Chhandovati,* as seen in the following tables.

THE SCALE OF THE SHRUTI-S

Sharngadeva's Shruti-s
(Type of expression-Jati-s)

Note	*Actual expression*	*Ratio from C*	*(Name of Shruti)*	
SA (C)	(base)	1/1	*SA 4 Chhandovat* (measuring)	*Madya* (moderate)
Sa+ (C+)	-	81/80		
Rik-(Dflat-)	*sad, pathetic*	25/24	5 *Dayavati*	*Karuna* (compassion)

Rik (Dflat) tender, 256/243 (compassionate)
Rik+(Dflat+) loving, calm 16/15 6 Ranjani Madhya (moderate)
Rik++(Dflat++) enterprising 27/25 (charming)
Ri-(D-) Anxious, weak 10/9 -
RI(D) Strong, confident 9/8 Ri 7 Ratika Mriduh (tender) (sensuous)
Ri+(D+) fierce 256/225 8 Raudri Dipta (keen) (fierce)
Gak-(Eflat-) sad 75/64
Gak(Eflat) loving 32/27 Ga 9 Krodha Ayata (large) (passionate)
Gak+(Eflat+) passionate 6/5 10 Vajrika Dipta (keen) (thundering)

GA(E) calm, pleasing 5/4 (Antara Ga) 11 Prasadrini Ayata (large) (pervasive)

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Ga+(E+) awake, lively 81/64 12 Pritih (love) Mriduh (tender)
Ga++(E++) hard 32/25
Ma-(f-) doubt 320/243
Ma(F) moonlight, peace 4/3 Ma 13 Marjani Madhya (moderate) (purifying)
Ma+(F+) intense 27/20
MaT-(Fsharp-) grief 25/18 14 Kshitih (loss) Mriduh (tender)
MaT(Fsharp uncertain 45/32
MaT+(Fsharp+) intense 64/45 15 Rakta (red) Madhya (moderate)
MaT++(Fsharp++) acute 36/25 16 Sandipani Ayata (large) (Inflaming)
Pa-(G-) inexpressive 40/27
Pa(G) sunlight, joyful 3/2 Pa 17 Alapini Karuna (compassion) (coversing)
PA+(G+) confused 243/160
Dhak-(Aflat-) sorrow 25/16 18 Madanti Karuna (compassion) (maddening)
Dhak(Aflat) tender 128/81 19 Rohini Ayata (large) (adolescent)
Dhak+(Aflat+) loving 8/5
Dha-(A-) uncertainty 400/243
Dha(A) soft, calm 5/3 Dha 20 Ramya Madhya (moderate) (restful)
Dha+(A+) restless 27/16 21 Ugra (fearful) Dipta (keen)
Dha++(A++) hard, active 128/75
Nik-(Bflat) helpless 225/128
Nik(Bflat) beauty, love 16/9 Ni 22 Kshobhini Madhya (moderate) (excited)
Nik+(Bflat+) desire 9/5 1 Tivra (sharp) Dipta (keen)
Ni—-(B--) doubt 729/400
Ni-(B-) anguish 50/27
Ni(B) soft, voluptuous 15/8 (Kakali Ni) 2 Kumudvali Ayata (large)
Ni+(B+) strong, sensuous 243/128 3 Manda (low) Mriduh (tender)
NI++(B++) selfish, eager 48/25
Sa-(C-) -- 160/81

Sa(C) *(base)* *1/1* *Sa* *4 Chhandovali* *Madhya (moderate)* *(*measuring*)*

A Suggested Interpretation of the Families of Intervals (Shruti-Jati-s)

The five groups of sounds so obtained appear to correspond quite accurateky to what was known in ancient Indian music as the *Shruti-jati-s,* the families of intervals.
Sharngadeva gives them the following ancient names:

(1234)

Madhya (moderate): basic series ascending
Ayata (large): basic series descending
Mriduh (tender): series -
Karuna (pathetic): series -
Dipta (fiery): series +

The expression conveyed by these different classes of intervals is in no way arbitrary. It is related to psycho-physiological facts upon which all music depends. These intervals are used in all music more or less instinctively, by good singers and players of stringed instruments.

Flats and Sharps

All the notes that differ from the seven notes of the basic scale are considered altered. Since there are several intermediary sounds between two notes, the alterations are of different kinds.

> "When a note rises by one interval (*shruti),* it is called *tivra* (sharp). If it rises by a further *shruti* It becomes *tivratara* (very sharp). If the note rises by still one more *shruti,* it becomes *tivratama* (extremely sharp), and when it is raised by four *shruti-s,* the sages say that it takes the name of *atitivratama* (extra extremely sharp).
>
> "If a note is lowered, it is called *komala* (flat); when it is lowered by one *shruti* it is *komala,* but if it is lowered by two *shruti-s* it is called *purva." (Purva* is now called *ati-komala). (Sangita-parijata,* 68-71).

In most cases this means that a note raised by a minor half-tone (25/24) is said to be sharp *(tivra),* by a limma (256/243) very sharp *(tivatara);* by a major half-tone (16/15) “extremely sharp” *(tivratama).*

Similiarly, a note flattened by a half-tone equal to one *shruti* (usually the minor half-tone, 25/24), is said to be *komala* (flat) and when it is falttened by a larger half-tone (the limma, 256/243, or the major half-tone, 16/15) it is said to be *ati-komala* (extremely flat).

Since this classification, though exact, may sometimes be misleading because of the different intervals represented by the *shruti-s,* we shall use here only the more general terms *komala* (flat) and

tivra (sharp); the tuning symbol, and the notation itself, will show which sort of flat or sharp is being used.

The Scale

> “The scale *(grama)* is the assemblage of the notes” *(Sangita-makaranda* I, 49; *Sangita-ratnakara,* I, 4, I; *Sangita-darpana,* I, 95.)

A scale is not a group of sounds arbitrarily chosen. The building of any scale involves physical laws and a co-ordination of the *shruti-s* which are necessariy respected.

If we take the most consonant intervals. Those composed of simple ratios involving prime numbers not higher than 5, to fill each of the tetrachords, we obtain the basic harmonic scale of seven notes:

C	D	E	F	G	A	B	C
1	9	5	4	3	5	15	2
1	8	4	3	2	3	8	1
Sa	*Ri*	*Ga*	*Ma*	*Pa*	*Dha*	*Ni*	*Sa*

There is, however, an alternative division. This consists of substituting for E *(Ga)* 5/4 and B *(Ni)* 15/8, Eflat+ *(Ga komala)* 6/5 and Bflat+ *(Ni komala)* 9/5 respectively. This gives us the scale:

C	D	EFlat+	F	G	A	Bflat+	C
1	9	6	4	3	5	9	2
1	8	5	3	2	3	5	1
Sa	*Ri*	*GaK*	*Ma*	*Pa*	*Dha*	*NiK*	*Sa*

If both scales are taken together, we obtain the basic scale of nine notes as it was used in ancient Northern Indian music.

These divisions form the Diatonic divisions of the scale, so called because each tetrachord contains two whole tones.

The Sanskrit books do not generally define notes by string-lengths but rather by their expression, their *shruti,* which is the easiest way for trained musicians to recognize them.

The *Sangita-parijata* and the *Hridaya-kautuka* attempt to give the relative string-lengths of the different notes.

(1236)

> The unaltered scale of modern Northern Indian music is the basic harmonic scale of seven notes. It is approximately the scale of *Raga Bilaval,* and is usuallu known by this name. It corresponds approximately to the major mode of Western music. *Raga Bilaval* was first accepted as the unaltered scale in the *Sangita-sara,* compiled in Jaipur between 1779 and 1804, and in the *Nagmat-e-Asaphi* of Muhammad Rezza in 1813.

In this scale the intermediary sounds are considered modifications of the seven main ones. These modifications are always conceived within the frame of the harmonic form of the chromatic scale in which each note can be altered only in one direction-either flattened or sharpened.

It should be remembered that the altered *(vikrita)* notes, and also certain of the unaltered *(shuddha)* ones, are susceptible to slight changes of pitch according to their expression or *shruti.*

The division of the octave into twenty-two or sixty-six *shruti-s* corresponds to what the ancient Greeks called the enharmonic division. They considered this division, as the hindus also did, the fundamental division of the scale. Besides this basic division there exist in Indian music - indeed in all music - two main divisions of the octave: one (diatonic) into seven note, the other (chromatic) into twelve. Matanga says:

> “Modal scales *(murch’hana-s)* are of two kinds - the scales of seven notes and the scale of twelve. (*Brihaddeshi,* commentary on I, 95).

The Three Basic Scales (Grama-s)

> “There are two scales – that of *Shadja* © and that of *Madhyama* (F). Some also mention

the scale of *Gandhara* (E) which is not, however, to befound in this world." *(Dattilam,* 11).

Three basic scales or *grama-s* corresponding to different tunings of the harp, were used in ancient music. Each was named after its main note (which was not necessarily its tonic). A difference in the tonic was not and could not be their essential difference, for each of the notes in these scales could successively be taken as starting-point, thus forming plagal scales or *murch'hana-s* which were further used as the basis of the modes. As we have already seen,the

two main basic scales, the harmonic and the Pythagorean, are differentiated by the raising or lowering of the sixth note, the A *(Dha)* (ancient *Panchama)* by one comma. This is also the differentiation madein the *Natya Shastra* between the two main ancient basic scales, the *Shadja* and *Madhyama grama-s.* For the ancient Hindus, the main scale seems to have been the one we call Pythagorean: in Indian music it is called *Shadja grama,* or scale of C.

The second or harmonic scale was formed by lowering the A+ *(Dha+)* (ancient *Pa)* into A *(Dha).* This was known as the *Madhyama grama,* or F scale.

The third basic scale known in ancient times, but already obsolete in the time of Dattila, was called *Gandhara grama.* In the texts its nature is never explained in sufficient detail.

> The *Ga grama* (scale of E; modern scale of F, *Ma)* was said to start from *Pa* (modern A, *Dha).*
>
> The modal scale *(murch'hana)* of *Shadja grama* is *Sa, Ri, Ga, Ma, Pa, Dha, Ni.*
>
> The modal scale of *Madhyama grama* is *Ma, Pa, Dha, Ni, Sa, Ri, Ga.*
>
> The modal scale of *Gandhara grama* is *Pa, Dha, Ni, Sa, Ri, Ga, Ma." (Sangita-damodara,* 1, 40-41.)

The classification of the *grama-s* has in practice, since medieval times, been abandoned. All the scales have since become modifications of the one *Shadja grama,* particularly as the note *Shadja* itself became the universal tonic and the basic notes of the *grama-s* were taken as their tonic. Hence:

> "All worldly music *(deshi)* comes from the *Shadja grama." (Svaramela-kalanidhi,* 5, 17.)
>
> "The basic scales (*grama-s)* formed by

the different arrangements of the *svara-s* are said to be three. They are known by the names *Shadja* (C), *Madhyama* (F) and *Gandhara* (E). They are the basis of the modal scales *(murch'hana-s)* and the *Shadja grama* is the most perfect of the three. The modes obtained in the other two *grama-s* are derived from the *Shadja grama."* (Ahobala, *Sangita-parijata,* 97-98).

(1238)

"The *Gandhara* and *Madhyama grama-s* are considered to be no longer in use. Their definitions are given only so that they may not be mistakenly reinvented." *(Raga-tattva-vibodha.)*

In fact the *grama-s* correspond to the different tunings of the ancient harp. The harp was replaced in the sixth century by instruments of the lute type. The various modal scales depend on the lute on the arrangements of the frets and no longer on a basic tuning of the instrument. The classification of the *grama-s* thereforelost its purpose.

"The modal scales begin from C *(Sa)* in the middle octave." *(Shiva-tattva-ratnakara* 6, 7, 47.)

The three notes chosen as the starting-points of the three *grama-s:* C G F *(Sa Pa Ma)* are never altered by one comma in modal music, as are all the other notes of the scale. These three, therefore, are fixed points in all scales and no confusion can arise when intervals are measured in relation to them. Matanga makes the following remark concerning the two of them:

"Why is it that the basic scales *(grama-s)* are called by the names of *Shadja* (C) and *Madhyama* (F)? They are so-called because these two notes are never altered. It is because they are never altered that they are said to belong to the kin of the Gods." *(Brihaddeshi* commentary on 92; also quoted by Simhabhupala, commentary on the *Sangita-ratnakara* 1, 4, 6-8.)

Modal Scales (Murch'hana-s)

"That which spans *(murcha)* the scale of a mode is called *murch'hana." (Brihaddeshi,* 94.)

The term *murch'hana* (modal scale) was used in medieval music for the different types of scales from which the modes are derived. There are three main types of such scales, thus three kinds of *murch'hana-s.*

(1239)

1.)The first use of the word *murch'hana* refers to the classification of modes as plagal forms of the basic scale. This method of classification, which was probably of Greek origin, has in practice never completely replaced the "scale-types" or *thata-s* of the Shivaite system still used by the musicians.

> "The sequence of the seven notes in ascent or descent is called *murch'hana.* There are seven in each of the two basic scales." *(Sangita-makaranda,* 1-66, reproduced in*Chatvarim-shach'hala-raga-nirupanam, 1, 22, Sangita ratnakara, 1, 4, 9,* and *Shiva-tattva-ratnakara,* 6, 7, 32-33.)

2.)The name *murch'hana* was also, in another system, given to the chromatic scale of twelve notes.

> "The modal scale *(murch'hana)* should be known to the wise as having twelve notes from which modal types an be built and melodies in the high as well as the low octave." (Nandikeshvara quoted in *Brihaddeshi,* commentary on 118, and by Simhabhupala, commentary on the *Sangita-ratnakara,* 1, 4, 15-16.)

3.)The term *murch'hana* was further used for pentatonic, hexatonic, heptatonic and eight or nine-note scales. This division is now usually known as *jati.*

> "The *murch'hana-s* born of the seven notes are of four kinds: complete (heptatonic, *purna),* hexatonic *(shadava),* pentatonic *(audava)* and intercalary *(sadharana).* In singing, a scale of seven notes is considered the complete scale *(purna),* a scale of six notes is called *shadava,* a scale of five notes *audava,* a scale of eight or nine notes, making use of the intercalary notes *Kakali Ni* (B sharp) and

Antara Ga (E sharp) is called ‘intercalary’ *(sadharana).” (Brihaddeshi,* commentary on 1, 95.)

The word *murch’hana* is sometimes used in modern music, mostly by professional Muslim musicians, to designate melodic ornaments in the form of the mordents *tiripa* and *sphurita,* more often called *hillola* or *gitkiri.*

(1240)

The Indian scale is divided into seven regions or sections ruled by the seven notes, or *svara-s,* of the diatonic scale and named after them.

As wehave already seen, the mode is called “complete” *(sampurna)* if one or more notes be used from each division in any mode. But if one division is not represented, whatever the number of notes in the other divisions, the mode is called hexatonic *(shadava).* If two divisions are not represented the mode is called pentatonic *(audava).*

The classes obtained by grouping the modes according to the number of their notes are sometimes known as *jati-s.* This term is still in use in the Eastern part of Northern India.

> “Class *(jati),* in *raga-s,* is considered to be of three kinds – *audava* of five notes, *shadava* of six, *sampurna* (complete) of seven notes.” *(Narada Samhita* 2, 60; *Sangita-darpana* 2, 6.)

Melodies comprising less than five notes cannot be called *raga-s* (modes), but are mere “melodic figures” *tana-s).*

> “Combinations of two or three pleasing notes form melodic figures *(tana-s):* a raga must have five or more [notes].” *(hridaya-prakasha.)*

Besides the three *jati-s,* there are modes which, in addition to the main seven, make use of one or both of the two intercalary notes *Kakali Ni* and *Antara Ga.* In ancient music these eight or nine-note modes were known as the “intercalary modes” *(sadharana).*

Though Vishnu Digambar in his *Sangita Tattva Darshaka* does not use the term *jati,* he restates the ancient classification, adding the three kinds of *raga-s* mentioned by Umapati (quoted in *Raga-vibodha,* commentary on 4, 3) and also by Matanga (mentioned by Kallinatha and quoted in *Sangita-darpana,* 2, 5). These are called: *shuddha* (pure), *chhaya-laga* (shadowed) and *sankirna* (mixed).

They are defined as follows:

A *raga* is called "shadowed" *(chhaya-laga)* when it makes use of a few notes borrowed from another *raga,* provided they do not alter the mood, but, on the contrary, enhance it.

A mixture of several *raga-s* is called *sankirna.*

(1241)

> "According to Umapati, a 'pure' *raga* charms by itself, a 'shadowed' *raga* with the help of others, a 'mixed' *raga* with the help of two." *(Raga-vibodha,* 4, 3.)

"Sampurna" means "complete", *"shadava"* means "of six". The word *"audava"* has given rise to some speculation: Fox-Strangeways, for example, in his Music of Hindostan (p. 122) suggests that it may have come from the name of a province where the pentatonic scale was invented. But the *Sangita-darpana* (commentary on 2-6), clearly explains the term:

> "The derivation of the word *'audava'* is as follows: Udava is where the planets move, hence the 'sphere of space' *(vyoma).* This is the fifth (space in Indian philosophy is a quality of ether) among the elements, thus it represents the number 5. From this it is clear that the number of notes of the *audava* (the ethereal scale) is five."

A similar explanation is given in the *Shiva-tattva-ratnakara.*

There are rules for the use of *jati-s,* in accordance with the symbolism of the numbers:

> "For celebrating battle, charm and beauty, in separation, or in depicting a character, the hexatonic *(shadava)* [class of modes] is recommended.
>
> "For destroying disease or enemies, dispelling fear or sorrow, in difficulty or in suffering, in forgiveness or when planets are unfavorable, auspicious words should be sung in the pentatonic scale." *(Shiva-tattva-ratnakara,* VI, 145-147.)

The term *jati* was also used in ancient and medieval music for mode-types:

> "The intervals *(shruti-s),* The initial note (tonic, *graha)* and the other notes *(svara-s)* combine to produce the resultant modal type, therefore they are called *'jati-*

s' (results)." (*Brihaddeshi,* commentary on 1, 194.)

"Jati" in this sense has now been replaced by the term *"thata".*

(1242)

Mode-Types (Thata-s)

Indian music, like Greek, Iranian and Arab music, divides the scale into two tetrachords or groups of four notes, ruled respectively by the "sonant" *(vadi)* and the "consonant" *(samvadi):* the lower tetrachord C D E F *(Sa Ri Ga Ma)* is called *purvanga* (first limb), the higher tetrachord G A B C *(Pa Dha Ni Sa) uttaranga* (higher limb). Thisis not an artificial division but corresponds to a physical fact, for, as we have said, there is great similarity of expression between the corresponding notes of the two tetrachords. In many *raga-s* the division of the two tetrachords is identical.

Indian music envisages sux main types of tetrachords spanned by a perfect fourth, and six secondary types spanned by an augmented fourth. These are obtained in the following ways:

If we take the twelve notes of the chromatic harmonic scale and divide them into lower and upper tetrachords (leaving between them F sharp, *Ma tivra),* we see that in each case six different types of tetrachords are available.

If we combine each of the possible lower tetrachords with each of the possible higher ones, we obtain thirty-six different scales of seven notes. If we then replace F *(Ma)* by F sharp *(Ma tivra)* in each of these thirty-six scales, we obtain thirty-six further basic scales is thus seventy-two.

In North India the modal bases are represented by a small number of mode-types or *thata-s* (usually ten) which correspond to the approximate placing of the frets on the sitar.

The *Raga-vibodha* says (commentary on 1, 8):

> "The particular arrangements of the notes *(svara-s)* into common scales *(mela-s)* under which modes *(raga-s)* can be grouped, are spoken of as *'ghata-s'* (or *thata-s)."*

These *"thata-s"* or mode-types should not be mistaken for the *raga-s* or modes that bear the same names, for the latter may have more or fewer notes and an accurate tuning, whereas the tuning of the mode-types is only approximate.

The ten *thata-s* or mode-types are given as follows:

The first is *Kalyani (Kalyana) mela,* the second *Velavali (Bilaval),* the third *Khammaja,* the fourth *Bhairava,* the fifth *Bhairavi,* the sixth *Asavari (*our *Yavanapuri),* the seventh *Todi,* the eighth *Puravi (*our *Shri),* the ninth *Marava,* the tenth *Kafi.*

> "Such are the ten mode-groups *(mela-s)* from which *raga-s* arise. (quoted in *Shrimallakshya-sangitam,* II, 1, 19-21.)

The eighth *thata, Shri,* is given by Bhatkhande as *Puravi,* but since the *Puravi* in some traditions, such as the one we follow here, has an A natural *(shuddha Dha),* its name could not be given to a *thata* containing an A flat *(Dha komala).* There is no divergence of opinion about the scale of *Shri.*

Some of the main *raga-s* have, as their satellites, secondary modes with the same general characteristics and only minor differences. These are said to belong to the group of their parent *raga-s.* For example, *Prabhat, Bangala, Ramakali,* etc., belong to the *Bhairava* group.

Some books consider the chief modes as masculine in character and call them *"raga-s",* while the secondary modes, the *"ragini-s",* are said to be their wives or even their "sons" (*putra-s)* (though the word *"ragini"* in Sanskrit is feminine in its grammatical gender).

The male *raga-s,* originally all pentatonic scales, are usually considered to be six in number, though some treatises mention seven, eight, or nine.

> *"Bhairava, Malakosha, Hindola, Dipaka, Shri raga and Megha raga,* these are the male *raga-s."* *(Sangita-darpana* and *Shiva-tattva-ratnakara,* 6, 8, 44.)

The *Sangita-makaranda,* however, speaks of twenty-one male *raga-s.* (3-53, etc.)

Graha, Amsha, Nyasa

In ancient music, three notes are referred to under the names of *amsha, graha* and *Nyasa.*

> "The note with which a *raga* begins is called *'graha'.* By *'nyasa'* is understood the note that ends a song. The note most often used while playing is called *'amsha'."* *(Sangita-darpana, 163.)*

The use of the terms *graha* and *amsha* is a little confusing, for their meaning is variously interpreted by authors of different periods. Some understand the 'initial note' *(graha)* to be the first note of the mode, that is, the tonic; others consider it to be the first note of a melody, which may well be any note. But this last interpretation seems hardly justified.

Similarly the "main note" *(amsha)* is taken to mean sometimes the tonic and sometimes the predominant note, the "sonant" or *vadi.* The more ancient authors seem to have used the word in the first sense. Thus the *Natya Shastra* explains the word *graha* as being synonymous with *amsha* and meaning the tonic:

> "In all the modal scales the initial note *(graha)* is equivalent to the main note (i.e., the tonic). The whole music takes its significance from this main note *(amsha)* which is the same as the initial note *(graha). (Natya Shastra,* 28, 71; also quoted in *Brihaddeshi,* commentary on 197.)

The *Brihaddeshi* also uses the term *"amsha"* (main note in the sense of "tonic" (basic note, *Sa):*

> "The main note by relation with which a mode, a *raga,* is manifested is the *amsha* (i.e., the tonic, *Sa)." Brihaddeshi,* commentary on 1, 196.)

> "This *amsha-svara* is the vital note *(Jiva-svara,* the tonic)." *(Chaturdani-prakashika.)*

In the later music *"Sa* (C) is the initial *(graha,* i.e., the tonic) of all the *raga-s." (Raga-mala.)*

> But Sharngadeva, on the other hand, identifies the *"amsha",* the main note, with the "sonant", the *vadi:* (sonant) is called *amsha* (main note)." *(Sangita-ratnakara,* 1, 7, 34.)

This is also the view of Abhinava Gupta given in his commentary on the *Natya Shastra:*

> "The *amsha svara* is the same as the *vadi."* (Abhinava Gupta, commentary on the *Natya Shastra,* 28, 23.)

> "The (note) that is most used is also called *amsha." (Brihaddeshi,* commentary on 1, 196.)

Yet the *Natya Shastra* definitely considers the *amsha* as the tonic.

> "The structure of the mode entirely depends on the *amsha* (tonic), from which it begins, which separates the high and low octaves, and from which its expression is derived. The *amsha* is, further, the initial and final note *(graha* and *nyasa),* the phrase-final, part-final, and general-final note *(apanyasa, vinyasa, sannyasa),* the center round which the mode revolves. These are its ten characteristics." *(Natya Shastra,* also quoted by Kallinatha, *Sangita-ratnakara,* commentary on 1, 7, 29-34.)

The Predominant Note or Sonant (Vadi)

> "The sonant *(vadi)* is the king of notes." *(Sangita-makaranda,* 2 – 7).

Besides the tonic (the *Sa)* which is always fixed, each *raga* has a predominant note from which all variations begin and on which they end: it is always accentuated and bears long pauses. This main note is called *vadi* (that which speaks). The expression of the *vadi* is the predominant expression of the *raga:* its character determines the mood.

> "The chief element in which the power lies of bringing out a particular mood, a *raga,* is the sonant *(vadi)." (Sangita-darpana,* 1-68.)

> "The sonant *(vadi)* is the note most used while playing; it is the king (of the melody)." *(Raga-vibodha,* 1, 37.)

The commentary on the *Raga-vibodha* adds:

> "The sonant *(vadi),* being constantly heard, dominates the melody. Because it explains and heralds the mode, it is called *vadi,* (that which speaks)."

The "Consonant" (Samvadi)

"The 'consonant' is like a minister." *(Sangita-makaranda* 2, 7.)

Corresponding notes in the two tetrachords into which the octave is divided always have similar expressions. Another note a fourth or a fifth above the *vadi* will therefore be found that responds to it, playing in the upper tetrachord a similar, though secondary role. This note is called *"samvadi"* (consonant).

"The nature of the 'consonant' *(samvadi)* is to reinforce the 'sonant' *(vadi)* by which the expressiveness of the mode is engendered." *(Brihaddeshi,* commentary on 1, 63.)

Very rare exceptions apart, the *samvadi* is always a fifth or a fourth above the *vadi.* This corresponds to an interval of twelve or eight *shruti-s.*

"The notes that have between them an interval of twelve or eight *shruti-s* (perfect fifth and fourth) are called 'consonant' *(samvadi).* They are like ministers." *(Raga-vibodha,* 1, 37.)

The commentary adds:

"The *samvadi* sustains the impression created by the *vadi,* just as ministers carry out the orders of the king."

"The notes between which there are eight *shruti-s* (perfect fourth) or twelve *shruti-s* (perfect fifth) are said, in relation with one another, to be consonant *(samvadi).* Such are *Ni* and *Ga* (B and E) or *Ri* and *Dha* (D and A)." *(Sangita-darpana,* 1, 69-70.)

Raga-s in which the *samvadi* is a fifth above the *vadi* are called *"panchama samvadi"* (having a fifth as main consonance); those in which the *samvadi* is a fourth above the *vadi* are called *"madhyama samvadi"* (having a fourth as main consonance). *Panchama samvadi raga-s* have a clear, active, brilliant expression; *madhyama samvadi raga-s* are passive, dormant and soft.

(1247)

The Assonant (Anuvadi)

"The *'anuvadi'* is like a servant." *(Sangita*-makaranda 2 -7.)

The notes of a mode that are neither "sonant" nor "onsonant" are called "assonant" *(anuvadi):*

> "By those who see the subtle cause of things the note that is neither the sonant nor the consonant and yet is not 'dissonant' *(vivadi)* is called assonant *(anuvadi)."* *(Sangita-parijata,* 81-83.)

The Dissonant (Vivadi)

> "Dissonant *(vivadi)* notes are enemies." *(Sangita-makaranda* 2-7.)

Notes that do not belong to a *raga,* or, if they do, are used in defiance of its rules are called "dissonant" *(vivadi):* They destroy the expression.

> "That which in a given mode breaks the charm is undoubtedly 'dissonant' *(vivadi)* from the notes of that mode. This *vivadi* is like an enemy." *(Sangita-parijata,* 83-84.)

Melodic variations that would introduce a *vivadi* note should always be avoided.

MELODIC DEVELOPMENT

Melodic Movement (Varna)

…All types of melodic forms or their variations through which a scale can be developed are called "melodic ornament" *(varna).* There are three possible elements in melodic movement – ascending, descending and keeping to the same note. A mixture of these three is said to form a fourth kind of melodic movement, called "wandering" *(sanchari).*

> "The action of singing is called 'melodic movement' *(varna).* It is of four kinds, defined as: level, ascending, descending and wandering." *(Sangita-ratnakara,* 1, 6, 1; *Sangita-darpana,* 1-160.)

> "Holding the same note continuously is called *stayi* (level); the two others are as

their names indicate: ascending is called *aroha,* descending is called *avaroha;* a melodic movement combining all these features is called *sanchari* (wandering)." *(Sangita-ratnakara,* 1, 6, 2-3; *Sangita-darpana,* 1, 160-161; *Shiva-tattva-ratnakara,* 6, 7, 82.)

The "level" *(sthayi)* melodic movement is also described as follows:

"Where there are many intervals, this is called 'level' *(sthayi)* melodic movement. And when a motive begins and ends on the same note this is also 'level' *(sthayi)* melodic movement. And when a motive begins and ends on the same note this I also 'level' *(sthayi)." (Shiva-tattva-ratnakara,* 6, 7, 84-85.)

"The singing of verses on one note only is called *sthayi* (level) melodic movement." *(Dattilam,* 98.)

Tana-s (Melodic Figures)

"The 490,000,000 *tana-s* are divided into three categories." *(Narada Samhita,* 2, 64.)

Tana-s are the melodic figures formed by combining the notes.

"The weaving together of the notes forms the *tana-s* (melodic figures)." *(Naradiya Shiksha,* 1, 2, 6.)

Originally the word *tana* meant "tone" and is used in that sense in some of the earlier treatises. The meaning changed, however, before the Christian era and since then it signifies melodic figures.

Melodic figures are divided into two categories, those belonging to only one mode and those belonging to several modes, the first being known as pure *(shuddha tana-s),* the second as deceitful *(kuta tana-s).* Since a difference in any of the notes brings a change of mode, only figures that make use of all the notes of a mode can be said to really belong to it. Thus the *shuddha tana-s* are usually said to be identical with plagal forms of the scales *(murch'hana-s).*

"The *tana-s* (melodic figures) are of two kinds - pure *(shuddha)* or deceitful *(kuta).* A pure *tana* is that through which the form of one *raga* can only appear, while a deceitful

tana is one through which the forms of two or more different *raga-s* may appear because it is common to several. For some unknown reason the ancient writers have not explained the use (of the pure *tana-s)* in practical detail. But all agree that their number is eighty-four. In the opinion of some, they are developed from the *murch'hana-s* (plagal scales)." *(chatur-dandi-prakashika.)*

"The melodic figures by which a mode, a *raga,* can be developed the wise call *tana-s* (extensions). They are defined as of two kinds - pure *(shuddha)* or deceitful *(kuta).* The secret of the definition of the *shuddha tana-s* is not to be developed here, so I need not speak of them." (Quoted in *Shrimallakshya-sangitam.)*

The number of possible note-combinations that can be used to form melodic figures is theoretically very large.

"In each of the plagal scales *(murch'hana-s)* there are five thousand and forty (possible) *kuta tana-s." (Sangita-ratnakara,* 1, 4, 33.)

"In these fifty-six *murch'hana-s* are counted 282,240 complete (pure and deceitful *(kuta) tana-s." (Sangita-ratnakara,* 1, 4, 34-35.)

In present-day music the word *"tana"* is often used for ornament *(alamkara).* These ornaments form groups of notes or small melodic figures the repeatedly occur.

When similar *tana-s* follow one another in ascending sequence this is called *ahati* (rolling). The same, descending, is called *pratyahati* (rolling down).

Ascent and Descent (Aroha, Avaroha)

The determining element in a mode, its ordered succession of notes, often differs in the ascending and descending forms. For example, many modes are pentatonic *(audava)* or hexatonic *(shadava)* ascending, and heptatonic *(sampurna)* descending. Some have one or two

of their notes natural *(shuddha)* ascending, and flattened *(komala)* descending, and so on. But the true scale of a mode, that which defines its full expression, is always the descending scale. In all ancient modal systems, the scale runs downwards from the upper tonic *(sa);* to define a mode by giving its ascending scale first is a comparatively recent practice. Ascending scales always have an exploratory character, while descending scales, in any music, allow greater precision, and clearer differentiation and should therefore always be taken as the standard.

In those parts of India where archaic forms of speech and song have been preserved (as, for example, in some of the valleys of the Himalayas), songs and the playing of instruments always start from the upper tonic in a descending scale.

Alamkara (Ornaments)

> "A melody without ornament is like a night without moon, a river without water, a vine without flowers, or a woman without jewels." *(Natya Shastra,* 29, 75.)

The *alamkara-s* in the Indian systems are the melodic adornments, that is ornamental groups of notes, or *gamaka-s,* the latter being the various ways of attacking and inflecting individual notes.

> "An ornament *(alamkara)* is a combination of several 'melodic movements' *(varna-s)." (Sangita ratnakara,* 1, 6, 3: *Shiva-tattva-ratnakara,* 6, 7, 44.)

The ornaments. Now often confused with *tana-s* (melodic figures), are vocalizations or groups of notes used to adorn the melody.

Alamkara-s are divided into four types, like the *varna-s* from which they are derived. The *sthayi alamkara-s* (or level ornaments) are simple vocalisings which return to the note from which they start or to its octave; the *arohi* (ascending) ornaments lead from one note to another or higher note; the *avarohi* (descending) ornaments lead from one note to a lower

one; the *sanchari* (wandering) ornaments are elaborate Vocalisations combining the previous ones.

The *sthayi* (level) *alamkara-s* number seven:

> "The seven *sthayi alamkara-s* are *prasanna-adi* (beginning low), *prasanna-anta* (ending low), *prasanna-madhya* (low in the middle); then, *karma-rechita* (orderly

gallop), *prastara* (the expanded) and *prasada* (the serene).” *(shiva-tattva-ratnakara,* 6, 7 85-86.)

In the *Brihaddeshi* (commentary on 1, 120) these are defined as follows:

> *“Prasanna-adi* (beginning low) starts from below and ascends to the upper octave, thus:
> *Sa Ni Ga Ma Pa Dha Ni Sa”*
> Do Re Mi Fa Sol La Si Do
>
> “*Prasanna-anta* (ending low) descends from above thus:
> *Sa Ni Dha Pa Ma Ga Ri Sa*
> Do Si La Sol Fa Mi Re Do
>
> *“Prasanna-adi-anta* (beginning and ending low) is low in the beginning and the end and high in the middle, thus:
> Sa *Ri Ga Ma Pa Dha Ni Sa Ni Dha Pa Ma Ga Ri Sa”*
> Do Re Mi Fa Sol La Si Do Si La Sol Fa Mi Re Do
>
> *Prasanna-madhya* (low middle) is low in the middle or high at the beginning and low at the end, thus:
> *Sa Ni Dha Pa Ma Ga Ri Sa Ri Ga Ma Pa Dha Ni Sa*
> Do Si La Sol Fa Mi Re Do Re Mi Fa Sol La Si Do
>
> The word *prasanna* (“pleasing”) is used in music as a technical term synonymous with *mandra* (“low”): “The word *mandra* (“low”) is used for a pleasing *(prasanna)* sound.” *(Brihaddeshi,* commentary 1, 120.)

The span of the three other *alamkara-s* is either less or more than an octave, but their definitions in the *Shiva-tattva-ratnakara* are not clear.

> Further “there are twelve ascending and twelve descending melodic figures used as *alamkara-s.” (Shiva-tattva-ratnakara* 6, 7, 94.)
>
> Among them the wandering *(sanchari) alamkara-s* are the most numerous. “Seven are chiefly used by musicians. They are: *tara-mandra-prasanna* (high-low-low), *mandra-tara-*

prasanna (low-high-low), *avartaka* (whirlpool), *sampradana* (gift), *vidhuta* (waved), *upalolaka* (rolling) and *ullasita* (laughing).” *(Shiva-tattva-ratnakara* 6, 7, 96-98.)

In the *Shiva-tattva-ratnakara* (6, 7, 101) these are defined:

- *1.)Tara-mandra-prasanna (*high-low-low) is like *prasanna-adi.*
- 2.) *Mandra-tara-prasanna* (low-high-low) is like *prasanna-anta.*
- *3.) Avartaka* (whirlpool):
  Sa Sa Ri Sa Sa Ri Sa; Ri Ri Ga Ga Ri Ri Ga Ri; Ga Ga Ma Ma Ga Ga Ma Ga; etc.
  Do Do Re Re Do Do Re Do; Re Re Mi Mi Re Re Mi Re; Mi Mi Fa Fa Mi Mi Fa Mi; etc.
- 4.) *Sampradana* (gift)::
  Sa Sa Ri Ri Sa Sa; Ri Ri Ga Ga Ri Ri; Ga Ga Ma Ma Ga Ga; etc.
  Do Do Re Re Do Do; Re Re Mi Mi Re Re; Mi Mi Fa Fa Mi Mi; etc.
- 5.) *Vidhuta* (waved):
  Sa Ga Sa Ma Ri Ma; Ga Pa Ga Pa; Ma Dha Ma Dha; etc.
  Do Mi Do Mi; Re Fa Re Fa; Mi Sol Mi Sol; Fa La Fa La; etc.
- 6.) *Upaloloaka* (rolling):
  Sa Ri Sa Ri Ga Ri; Ri Ga Ri Ga Ma Ga Ma Ga; Ga Ma Ga Ma Pa Ma Pa Ma; etc.
  Do Re Do Re Mi Re Mi Re; Re Mi Fa Mi Fa Mi; Mi Fa Mi Fa Sol Fa ; etc.
- 7.) *Ullasita* (laughing):
  Sa Ga Sa Ga; Ri Ri Ma Ri Ma; Ga Ga Pa Ga Pa; Ma Ma Dha Ma Dha; etc.
  Do Do Mi Do Mi; Re Re Fa Re Fa; Mi Mi Sol Mi Sol; Fa Fa La Fa La; etc.

(1253)

Grace (Gamaka)

“Graces *(gamaka-s)* are the ornaments of the notes.” *(Sangita-darpana,* commentary 2-4.)

“When in singing, a note rises from its own pitch and moves toward another so that (something of the expression of) the second

sound passes like a shadow over it, this is called a grace *(gamaka).' (Sangita-samaya-sara,* 1, 47.)

The ways in which notes can be attacked, ornamented or resolved are known under the general name of *gamaka.*

In Indian music these graces are very elaborate and present an endless variety. They may, however, be analysed: Sharngadeva and Narada III consider that their constituent elements number fifteen. Parshvadeva reduces them to seven, Narada II extends tem to twenty-one.

> *"Gamaka-s,* also called 'roaming about' *(charana),* are said to be of twenty-one kinds." *Sangita-makaranda,* 2, 17.)

> "The grace that pleases the mind of the hearer is a *gamaka.* These are of fifteen different kinds, called *tiripa* (flurry), *sphurita* (throb), *kampita* (shake), *lina* (melting away), *andolita* (swing), *vali* (ripple), *tribhinna* (threefold), *kurula* (curl), *ahata* (struck), *ullasita* (laughing), *plavita* (overflow), *gumphita* (tied), *mudrita,* (sealed), *namita* (obeisance), *mishrita* (mixed)." *(Sangita-ratnakara,* 2, 3, 87-89.)"

"Seven of the *gamaka-s* are more particularly known. They are *sphurita, kampita, lina, tiripa, ahata, andolita* and *tribhinna." (Sangita-samaya-sara,* 1, 48.)

The Sankrit definitions of the *gamaka-s* are not always clear. They are interpreted here in a way which presents the most likely results for the formation of combined graces. Some of them may, however, have been misunderstood.

> All definitions of the *gamaka-s* in the *Sangita-ratnakara* are reproduced with a few minor variations in the *Shiva-tattva-ratnakara,* 6, 7, 100-116.)

- 1.) The Flurry *(Tiripa)* (or *Tiripu)* is now called *Hillola:*
  "A lovely quivering like a gentle stroke on the drum, lasting only a quarter of a quaver (*druta* – i.e., one-eighth of a *matra)* is known as *Tiripu." (Sangita-samaya-sara,* 1, 52.)
- 2.) Throb *(Sphurita),* is now called *"Gitkiri".* The speed of *sphurita* is exactly one-third of a quaver (i.e., one-sixth of a *matra)." (Sangita-Ratnakara,* 1, 3, 90.)

❖ *3.)* The Shake *(Kampita),* now called *"Khatka";* "The *Kampita gamaka* lasta a semi-quaver (i.e., one quarter *matra)." (sangita-ratnakara,* 2, 3, 91.) "A shake of the note at twice the speed of a quaver (i.e., one-quarter *matra)* is known as *Kampita." (Sangita-samaya-sara,* 1, 50.)

❖ 4.) Melting away *(Lina).* The speed of *Lina* is that of a quaver (*druta* = one-half *matra)." (Sangita-ratnakara,* 2, 3 91.) "When a note at the speed of a quaver softly melts into another neighboring note this is called Melting away *(Lina)." (Sangita-samaya-sara,* 1, 51.)

❖ 5.) Swing *(Andolita). "Andolita* lasts one crotchet (one *matra)." (Sangita-ratnakara,* 2, 3, 91.) "Whatever the speed of singing – fast, medium or slow – a swing lasting one crotchet *(matra)* constitutes the grace called *Andolita." (*Simhabhupala commentary of the *Sangita-ratnakara,* 2, 3, 90.) "When there is a rocking of the notes lasting one crotchet or *matra,* this grace is spokne of as a 'swing' by connoisseurs of music." *(Sangita-samaya-sara,* 1, 54.)

❖ 6.) The Overflow *(Plavita).* When the shake of the notes lasts three crotchets *(1 pluta = 3 matra-s)* this is called an Overflow." *–(Sangita-ratnakara,* 2, 3, 94.)

❖ 7.) The Ripple *(Vali)* is now called *Mida.* "Any kind of fast sliding is called a Ripple *(Vali)." (Sangita-ratnakara,* 2, 3, 92.)

❖ 8.) The Curl *(Kurula)* now called *Ghasita.* "*Kurula* is like *Vali* but performed softly with a contracted throat." *(Sangita-ratnakara,* 2, 3, 95.)

❖ 9.) The Sealed *(Mudrita).* "The *gamaka* called Sealed is produced by closing the mouth." *(Sangita-ratnakara,* 2, 3, 95.)

❖ 10.) The Tied *Gumphita).* "A deep aspirate descending into the chest is called Tied *(Gumphita)." (Sangita-ratnakara,* 2, 3, 95.)

❖ 11.) The Threefold *(Tribhinna).* "The Threefold is a compact ornament running at one stroke through three notes without any rest." *(Sangita-ratnakara,* 2, 3, 92.) "A grace that touches three distinct points and amalgamates the qualities of all three, turning round the note in a single flow, is traditionally known as Threefold *(Tribhinna)." (Sangita-samaya-sara,* 1, 55.) The *Brihaddeshi* calls this ornament *Kuharita* (Cuckoo) in the middle octave and *Rechita* (the Gallop) in the higher

octave.

- 12.) Struck *(Ahata).* “Striking a neighboring note and coming back is known as ‘Struck’ *(Ahata).” (Sangita-ratnakara,* 2, 3, 93.) Striking the next highest note, touching it slightly, and quickly coming back is called ‘Struck’ *(Ahata).”* (Simbhabhupala commentary on the *Sangita-ratnakara,* 2, 3, 93.) Matanga calls this ornament the Point *(Bindu):* “When, after remaining a long time on a note such as *Sa* (Do), one touches with the speed of fire a higher note, remains there but for a semi-quaver *(Kala* = one-quarter *matra)* and again comes down to the original *Sa,* This is the Point *(bindu).” (Brihaddeshi,* commentary on 1, 120.) A sucession of *Ahata-s* makes a sort of sobbing trill called *Gadgadita* (Sobbing), often used in Indian music.
- 13.) Laughing *(Ullasita).* “When the notes follow one another in order this is called ‘Laughing’ *(Ullasita).” (Sangita-ratnakara,* 2, 3, 94.) “In *Ullasita* the notes ascend, one following another.” (Simhabhupala commentary on the *Sangita-ratnakara,* 2, 3, 94.)
- 14.) Obeisance *(Namita).* “A bowing down of the notes the expert in music calls *Namita.” (Sangita-ratnakara,* 2, 3, 96.) *“Namita* is an ornament in which the notes come down to a lower pitch as if bowing.” (Simhabhupala commentary on the *Sangita-ratnakara,* 2, 3, 95.)
- 14a.) Liberated *(Nivritta)* is the opposite of *Namita.* “Touching another note for one semiquaver, as in *Bindu,* but stopping it without any tendency to come back is called *Nivritta* (Liberated).” *Brihaddeshi,* commentary on 1, 120.)

Elaborate elements can be built from these elements. They are called the mixed *gamaka-s.*

- 15.) Mixed *(Mishrita).* “Mixtures of these are known as the ‘Mixed’ (*gamaka-s).* They are of many kinds.” (*Sangita-ratnakara,* 2, 3, 96.). Examples of mixed *gamaka-s,* given in the *Sangita-ratnakara,* 3, 178-182):

  - 1.) Flurry-swing *(Tiripa-Andolita).*
  - *2.)* Melting away–shake *(Lina-kampita),*

- 3.) Shake-struck *(Kampita–ahata),*
- 4.) Flurry–throb *(Tiripa–sphurita).*
- 5.) Melting away-throb *(Lina-sphurita)*
- 6.) Throb-struck *(Sphurita-ahata)*
- 7.) Melting away-shake-melting away *(Lina-kampita-lina)*
- 8.) Threefold-curl-struck *(Tribhinna-kurula-ahata)*
- 9.) Overflow-laughing-ripple (*Plavita-ullasita-vali)*
- 10.) Riple-tied-sealed *(vali-gumphita-mudrita)*
- 11.) Obeisance-swing-ripple (*Namita-andolita-vali)*
- 12.) Ripple-obeisance-shake *(vali-namita-kampita)*
- 13.)Swing-overflow-much-laughing-obeisance *(Andolita-plavita-samullasita-namita)*
- 14.) Flurry-swing-ripple-threefold-curl *(Tiripa-andolita-vali-tribhinna-kurula)*
- 15.) Threefold-melting away-throb-overflow-swing *(Tribhinna-lina-sphurita-plavita-andolita)*

The modern *Bhelava,* a slow mordent at the end of a glissando, would be a *Vali*-sphurita.

(1257)

Styles of Music

There are kinds of sound-relations intended merely to give pleasure, to evoke tender emotions and pleasing ideas. Only such kinds of sound come within the scope of secular or *deshi* music.

The chief terms used in ancient books to define the different kinds of music are as follows:

GITA (Music):

> "A particular arrangement of sounds which is pleasing [to hear] is called music *(gita).* It is of two kinds-sacred or celestial (g*andharva)* and profane *(gana)." (Sangita-ratnakara,* 2, 4, 1, reproduced in *Svaramela-kalanidhi,* 2, 6.)

GANDHARVA (Sacred or celestial Music):

> "That [music] which, sung by celestial musicians or by those who know the theory of sacred music, which has come to them through the tradition, which knows no beginning, and which is the sure means of attaining Liberation, is known to the sages as Celestial *(gandharva)." (Sangita-ratnakara,* 2, 4, 2, and *Svaramela-kalanidhi,* 2, 7.)

This celestial music is also called the "path" *(marga)* and is said to be composed in accordance with the cosmic laws of which physical harmony is but a reflexion.

> "That music, source of [all] development, which, in the beginning, was seen by the Creator in his contemplation and afterwards performed by Bharata and the other seers in the resplendent presence of Shambhu (Shiva), the Giver of Peace, is called the 'path' *(marga)." (Chatvarimshach'hata-raga-nirupanam,* 1, 8-9; and *Sangita-ratnakara,* 1, 1, 22-23.)

The derivation of the word *marga* is given by Kallinatha: *"Marga* means 'to contemplate'."

The relationships between spoken and musical sounds according to the *Marga* theory are given in the *Rudra-dama-rudbhava-sutra-vivaranam.*

GANA (Profane Music):

> "That [music] which is composed according to rules by experts, which is sung in the modes of secular or worldly music *(deshi raga-s),* and which charms the people is *gana,* 'profane music'." *(Sangita-ratnakara,* 2, 4, 3 and *Svaramela-kalanidhi,* 2, 9.)

DESHI (Secular Music):

"The song, dance and playing of instruments, different from country to country and performed as people please, which charms the heart, is called *deshi* (secular)." *(Chatvarimshach'hata-raga-nirupanam,* 1, 10; and *Sangita-ratnakara,* I, 1, 23.)

Matanga believes that the word *deshi* (worldly) applies to all earthly music.

"Sound *(dhvani)* goes everywhere in every place, hence it is called *deshi."* *(Brihaddeshi,* 1, 2.)

"All the world, animate or inanimate, is subject to sound *(dhvani).* Sound is divided into two kinds – manifest and unmanifest. Manifest is the sound that comes to the lips in the form of a 'melodic movement' *(varna),* giving rise to *deshi* (secular) music". *(ibid.,* 1, 12.)

Styles of Singing or Playing

A. STYLES OF SINGING:

- *1.)ALAPA* is the sober exposition of the theme in slow tempo, with portamentos but no elaborate ornaments.

- 2.)*SVARAMALIKA or SVARA-GRAMA, or SA-RI-GA-MA* is a form of *Alapa* which is sung using the names of the notes.

- 3.)*DHRUPADA* is solemn and religious in style, usually sung in slow tempo and using only the more sober rhythms *(tala-s).* It is the noblest and also the most difficult style of singing.

Bhava Bhatta in his *Anupa Sangita-ratnakara* defines *Dhrupada* as follows:

"Dhrupada is a divine traditional style of singing that shines in the language and literature of the Middle Country. Composed of two or four
sentences expressing the emotion of love, it is sung by both men and women. It consists of a poem set to the *alapa* of a *raga* with repetition of final syllables and of groups of syllables conveying

different meanings. It has a metrical introduction in two verses, a prelude, a chorus, and a final stanza of noble style." *(Anupa Sangita-ratnakara,* 1, 65-67.)

Except for some minor developments in its style, the *Dhrupad* has remained very similar to the ancient *Dhruva pada,* and today it still represents the most austere and noble style in Indian vocal art. Vocalizations which belong to the *Khyal,* and the slight variations of the *Thumri,* are not allowed here. In the *Dhrupad* the expression of the *raga,* the significance of the mode, is conveyed at its most profound level. A long prelude, the *alapa,* introduces the mode and the poem. The verses or individual words can be repeated several times and certain verses can recur like a refrain.

- 4.) *DHAMAR* is a lighter form of *Dhrupad* sung always in the *Dhamar* rhythm. It is mainly used for singing love poems in a light vein.

- 5.) *JHORA* is an *alapa* without portamentos. (Almost all western vocal music would be considered as *Jhora.)*

- 6.) *TANJHORA* is a fast *Jhora.*

- 7.) *KHANDARVANI DHRUPADA* is a *Jhora* sung with each note repeated several times as if the voice were shaking.

- 8.) In *KHYAL* elaborate ornaments are used, particularly ascending and descending vocalizations, trills and grace notes *(gamaka-s)* and repeated groups of notes or melodic figures *(tana-s). Khyal* is charming and light, often used for love songs. It is usually sung in *madhya tala* (moderate tempo). It is one of the most appreciated forms of Indian singing. We might compare it to bel canto.

- 9.) *TAPPA* is a very elaborate style of singing in which each note of the *Dhrupada* prototype is delicately ornamented without,

however, breaking or obscuring the general melodic line. It is usually sung in *madhya tala.*

- 10.) *THUMRI* combines *Khyal* and *Tappa* in a very ornamental form *(gamaka-s),* and repeats each word or line in varied styles. It is very lively, and can be adapted to pantomime and dancing. It is usually sung in *Madhya tala.* It has only one *stayi* and one *antara.*

- 11.) *TELLANA-S* are sung rhythmically on the syllables *(bol-s)* used to represent the strokes of the drum.

- 12.) *DADRA-S* were originally folk-songs in *Dadra-tala* which developed into a lively style of classical singing.

- 13.) *GHAZAL-S* (of Persian origin) are love-lyrics sung in a form similar to light popular *Thumri-s.* They consist only of an *antara* with a simple melody.

- 14.) *BHAJANA-S* are religious popular songs with a fixed melody accompanied by rhythmic instruments. They are often sung in mixed *raga-s.*

- 15.) *KIRTANA-S* are similar to *Bhajana-s.* Usually the *Kirtana-s* form a succession of religious songs with changes of mood and *raga.* This style is especially developed in Bengal.

B.STYLES OF PLAYING (ON STRING-INSTRUMENTS)

- 1.) *VILAMPAT* is the development of the theme in slow tempo with portamentos, etc. It corresponds to *Alapa* in singing.

- 2.) *JHORA* is played on the *vina* with the first two fingers only. It is the bare melody, each note separate, with neither portamento nor ornament.

- 3.) *JHALA* is a rhythmic style in which each note of the melody is followed by a fixed number or rhythmic strokes on the tonic.

- 4.) *THONK* resembles *Jhora,* but is played loud and fast.

- 5.) *THONK-JHALA* is a mixture of *Thonk* and *Jhala.*

- 6.) In *TARPARAN* the strings are struck by rapid forward and backward strokes of the finger or a metal nail.

> "I do not dwell in heaven, nor in the heart of yogis. There only I abide, O Narada, where my lovers sing." *(Narada Samhita,* 1, 7.)

> Indian music, like Arabian and Persian (music), always centres around one particular emotion which it develops, explains and cultivates, upon which it insists, and which it exalts until an impression is created on the listener which is almost impossible to resist. The musician can then, if his skill be sufficient, lead his audience through the magic of sound to a depth and intensity of feeling undreamt of in other systems."(3)

All types of music mentioned in this book - Celtic, Persian, Hispano-Muslim, liturgical chant (Syrian, Byzantine, Gregorian, Ambrosian, Mozarabic, Slavonic), the melodies of the *cansos* of the trobadors, - have certain things in common; they are all heptatonic, that is, they use seven-tone scales, and they are all

modal, in other words, they use a great variety of seven-tone modes. Due to the infamous "evolutionist prejudice" or the "Doctrine of Progress", many people today believe that modal music is something outmoded, a subject of musical archaeology, grossly inferior to the harmonic music which uses only two tempered (not

authentic or natural) modes, the major and the minor. Therefore it would seem appropriate to show that, in fact, modal music is superior to harmonic music with its tempered scales, and that the variety of harmonies made possible by the tempered scale has come at too high a price, that in reality it represent a regression rather than "progress".

Most of the peoples of the world use **pentatonic** (five-tone) musical scales. The reason for this is obvious; there are five fingers on each hand. The notable exceptions are the Indo-European and Semitic peoples of Europe and Western Asia and some other peoples, such as the Georgians, the Circassians, the Basques, the Hungarians, the Finns, the Anatolian Turks, the Azerbaijani Turks and a few other peoples who, though not Indo-European by speech, have mixed with Indo-European peoples and have been much influenced by them.

As a matter of fact, seven is the ideal number of tones for a musical scale. Less than seven tones unnecessarily restricts the compass of the scale and its melodic and expressive possibilities, while more than seven tones causes the scale to lose the tonic, and, in effect, become unmusical, as the contempoary experiments

with twelve-tone scales show. Once the tonic is lost, the result is not music but cacophony.

However, unlike five, seven is not a number that would immediately call attention to itself when constructing a musical scale. The seven-tone scale is a triumph of the ideal over the obvious. It is therefore remarkable that at some remote period

the ancient Indo-European and/or Semitic peoples began to use **heptatonic** (seven-tone) scales. This was certainly an intellectual feat of a high order.

There are still some who say that "real" Celtic music is pentatonic, that the use of heptatonic scales and melodies is the result of non-Celtic influences, mainly Christian liturgical music and the music of Continental trobadors brought to Ireland, Wales and Scotland by the Normans. Indeed, pentatonic melodies are fairly common in Celtic music. There are obvious objections to this theory:

- 1.) All other Indo-European peoples use heptatonic scales; it would therefore be strange indeed if the Celts were an excepton:
- 2.) All known Celtic oboes and bagpipe chanters (called **punteiros** in Galicia and Asturias), whether from Ireland, Scotland, Wales, Brittany, Isle of Man, Galicia, Asturias or Old Castile all are keyed to seven-tone scales or modes: &
- 3.)One may subtract five from seven, but <u>not</u> subtract seven from five. In other words, one may find pentatonic melodies used in heptatonic musical systems, but not the reverse. In other words, pentatonic melodies may be derived from heptatonic scales, but heptatonic melodies <u>cannot</u> be derived from pentatonic scales.

Hence, Celtic music could be considered as pentatonic only if no heptatonic scales and melodies were used, which is manifestly <u>not</u> the case. As we shall see, all pentatonic melodies used in Celtic music are <u>not</u> derived from true pentatonic scales or modes, which do not exist in Celtic music, but are derived from heptatonic scales or modes by the simple means of subtracting two tones.

Francis Collinson (4) would seem to have finally disproven the idea that Celtic music is "really" pentatonic. In Celtic music what Collinson calls "gapped scales" or "gapped modes" are rather common. This means that in a given "air" or melodic line one or more tones of a heptatonic parent mode are not used. It is not usual that one or more of the three "central" tones of a mode be omitted; the "gap" usually occurs with the top two or bottom two tones. For example, 1, 2, 3, 4, 5, 7. In this example of a "gapped" scale or mode, the sixth tone is omitted or not used. The compass of the mode remains the same, but one tone is not used. Now, if one omits tone No. 7, the compass is affected, and the resulting melody will be hexatonic (six-tone), i.e., with a compass of six tones: 1, 2, 3, 4, 5, 6. If we omit tones 1 & 2, or tones 1 & 7, or tones 6 & 7, we will get, respectively, 3, 4, 5, 6, 7: **2**, **3**, **4**, **5**, **6**: & 1, 2, 3, 4, 5. In all of these cases, the resulting melody will be pentatonic, though the parent mode be heptatonic. The pentatonic melodies used in Celtic music are the result of "gapping" heptatonic scales. To people accustomed to heptatonic music, real pentatonic music, i.e., based on real pentatonic modes, very often sounds "off key", because

pentatonic and heptatonic modes are essentially different. Collinson has shown that the hexatonic and pentatonic melodies found in Celtic music are really based on heptatonic parent modes. "Gapping" also occurs among other Indo-European peoples, and is not peculiar to the Celts (5). So, the theory that Celtic music is pentatonic is an error based on a number of fallacies.

Unfortunately, no musicologist has yet written a really standard work on Celtic music, in spite of the fact that said music, particularly in its Gaelic branch, i.e., Irish and Highland Scot, has been highly esteemed and praised for more than 1,000 years, and is now coming back in vogue. Few types of music have so universal an appeal. Girardis Cambrensis, a Norman of the 12th century, said of Irish music:

> "Its melody is full and rich, and its harmony is produced by so sweet a rapidity, by so incomparable a parity of sound and by so harmonius a discord."

G.F. Haendel said that he would have preferred to be the author of the melody of the Irish Gaelic song *Eiblin a Run* (Eileen Aroon) than of all his own compositions, including The Messiah (6).

Besides a certain snobbery against anything which is neither of Germanic nor "Classical" i.e., Greco-Roman procedence, there are other reasons why Celtic music has so rarely been the subject of serious musicological studies and why Celtic music still awaits its Albeniz, Falla, Bartok. Grieg and Wagner. The fact is that Celtic music is not easy to describe in terms of modern Western classical music, and is virtually impossible to transcribe using

the system of musical notation currently used in the West. The first task of a Falla, Bartok, Grieg or Wagner of Celtic music would be to devise an adequate system of musical notation.

Anyone with a bit of musical training and a good ear for pitch will note certain things about Celtic music. Firstly, like the ethnic music of all Indo-European peoples, Celtic music uses

seven-tone scales, in technical terms it is heptatonic. Secondly, it will also be noted that said music is modal, that like medieval music it utilizes a great variety of modes. Modern Western classical music is very much impoverished in reference to modes: it has only two, the major mode and the minor mode. Each Celtic mode (Celtic modes do not always coincide with medieval modes) has a certain number of melodic lines or "airs" based on it. Although the melodic line is relatively rigid within the same composition, the tempo and rhythm are relatively free and changeable. Anyone with a good ear for pitch and/or has read manuals in order to learn to play the bagpipes, the oboe, flute or violin in Celtic style will note something else; the microtones or quarter-tones used in the ornamentation of the melody. Although in Northwestern Spain the bagpipes have changed in form over the centuries, the Celtic style of playing the bagpipes has been preserved, and therefore information on this particular point is easily accessible to those who read Spanish (7). The quarter-tones are formed by partially opening and closing the holes of the oboe, flute or chanter of the bagpipe and by varying the air pressure, in the mouth or the bag of the bagpipes as the case might be. Of

course, the manuals note that a novice should not attempt the ornamentation of the melody with quarter-tones, because they are difficult to tune. In the case of the violin, in theory at least

quarter-tones are not a problem. In summary, Celtic music has a

great variety and richness of melody. Although the melodic lines are rigid, the free and changeable tempos and rhythms, the chromaticism and the ornamentation of the melody with quarter-tones offers a braod spectrum of expressivity.

The present popularity of Celtic music is a two-edged sword. In the first place, it increases the interest in Celtic music, which is all to the good. But at the same time and for the same reason there exists a grave danger of "bastardization". Taking advantage of the fashion, musicians attempt to please the public or simply to play a type of music for which they are neither trained nor equipped nor prepared. Or they attempt to force Celtic music into the only two modes of modern Western classical music , eliminating the quarter-tones in the process, or, much worse, they mix Celtic music with elements of pop music. Facets of "modern music", such as jazz, rock, soul, pop, disco, etc. are literally at the antipodes of Celtic music in reference to the roles of melody and rhythm and to the priority conceded to each of these two key elements. Bastardizations of this type must be avoided at all costs, because they threaten to destroy the authentic Celtic music. Bastardizations between classical music and pop music or jazz are not going to destroy classical music, because it is perfectly codified and documented. For reasons

given above, the position of Celtic music is far more precarious. One hopes that someday an expert musicologist will adequately study and codify Celtic music and invent an adequate system of musical notation. Then there may indeed be real Celtic composers,

Celtic music may have its Falla, Grieg, Bartok and Wagner and thus take the position it deserves.

Analogous in many respects to Celtic music is Persian music, which also has been praised for more than 1,000 years, but also has not yet had a great musicologist to adequately study and codify it and to invent a adequate system of musical notation. Studies done in this field indicate that Persian music is basically analogous to Celtic and North Indian music. All Persian music is based on *dastgah-s* or *pardah-s*, analogous to medieval and Celtic modes and to the *thata-s* of North Indian music. From each dastgah or pardah are derived a certain number, usually four, of *gushe-s* or *usul-s*, analogous to the Celtic melodic lines or airs and to the *raga-s* of North Indian music. Proof that this is Iranian and ethnic and not a recent import from India is the fact that the music of all Persian folksongs is based on a certain *gushe* or *usul* and that certain gushe or usul are peculiar to certain Iranian regions or tribal groups (8). The most famous poet or bard of Sassanian Persia was Barbad or Pahlapat, bard of the court of the Emperor Khusrau II Parviz. Unfortunately, only three lines of the works of Barbad have survived. The great poet Nizami of Ganja (12th century) in his great romance Khusrau and Shirin said that Barbad composed songs for thirty *gushe* or *usul*,

whose names are given by Nizami (9). Nizami lived about 600 years after the time of Khusrau II Parviz, and we know almost nothing about his sources nor about their reliability.

Nevertheless, this citation by Nizami is an indication of the

great development and sophistication of the music of Sassanian Persia. Anyone with an ear for music will note that in Persian music the *gushe* or *usul* tends to be somewhat rigid and unchangeable. Although my ears may not be as well trained as they might be and the fidelity and technical level of the discs not all that one might desire, I believe that at least in the music of certain string and wind instruments of the oboe or flute type I have noted quarter-tones used in the ornamentation of the melody.

The influence of Persian music has been very wide-ranging, extending itself over a great part of the globe. Without entering into the polemic concerning the extent of the influence of Persian music in the music of the Arab world (including Muslim Spain, which the influence of the indigenous Celtic modes make something of a very special case), it is universally accepted that Persian music was very influential in the Northern or Hindustani school Of classical North Indian music. It would seem that it was the great poet and musician Amir Khusrau of Delhi who achieved a certain fusion between Hindustani and Persian music (10).

Various instruments typical of Hindustani music, such as the **sitar**, the **shahnai** and the **tambura** have Persian names. We will speak later of the sitar and the shahnai. The name "tambura" seems to be derived from the Persian **tanbur**. Although similar in

form, the Persian tanbur and the Hindustani tambura are basically different. While the Persian tanbur is simply a sort of lute, the Hindustani tambura is a fretless instrument used to create a background drone for other string instruments, in other words the

tambura holds the tonic while other string instruments carry the melody (11).

North Indian music is much more fortunate than Celtic and Persian music in the sense that for many centuries India has produced great musicologists who have studied and codified said music very well and have developed a system of musical notation which, if not very adequate to transcribe a musical work so that it might be read and interpreted, is very adequate for codification, description and theoretical instruction. Thus, particularly the music of the Northern or Hindustani school, which for obvious reasons is that which most interests us, is very well studied and codified.

Like all ethnic music of Indo-European peoples, Indo-Aryan music is heptatonic, i.e., it uses seven-tone scales. Hindustani music is based on ten principal modes or *thata-s*, from which are derived a great number of *raga-s*, analogous to the Celtic airs and the Persian *gushe-s* or *usul-s*. About 200 ragas are used in North Indian music, about fifty being popular and common. The octave itself is called *saptaka* (from the Sanskrit *sapta, seven)* full tones are called *suddha*, the semitones are called *svara*, the quarter-tones *shruti*. Although the raga is somewhat rigid, the tempo and rhythm are relatively free and changeable. This and the

chromaticism and ornamentation of the melody with quarter-tones gives an ample spectrum for variation and expressivity (12).

As we said before, during the period of Muslim rule in India, North Indian music underwent a certain influence of Persian music.

Nevertheless, thanks to musicological treatises which date from the beginning of the Christian era, such as the Bharata Natyasastra, we know that the fundamental system of "*thata*" and "*raga*" and of "*saptaka*", "*suddha*, "*swara*" and "*shruti*" antedates any Persian influence (13).

In his work Nuh Sipihr (Nine Heavens), the great poet and musician Amir Khusrau of Delhi says that the music of Northern India, the fire which consumes the heart and soul, is superior to that of any other country. Even after thirty or forty years in India, foreigners are unable to perform one single Indian raga correctly. The music of Northern India bewithces not only men, but also animals, deer having been hypnotized and trapped by music (14).

Amir Khusrau is generally considered to have been the inventor of the sitar, perhaps the Indian instrument best known outside India. The name "sitar" is Persian, and means "three strings" (*seh* = three, *tar* = string). Today the sitar has seven strings, one for each tone or *suddha* of the *saptaka* or seven-tone scale. The sitar resembles the Persian tanbur in form, the Indo-Aryan *vina* in principle. Thus in a sense the sitar is a synthesis of thhe Persian and the Indo-Aryan, a symbol of the Indo-Persian civilization of Northern India under Muslim kings. The works of

Amir Khusrau, specifically Nuh Sipihr and Qiran-us-Sa'dain (Conjunction of Two Stars of Good Omen) show that he was very familiar with the subleties of Persian music, including the twelve *dastgah* or *pardah* of Classical Persian music, analogous to the

thata of Indian music and to the Celtic and medieval modes, from each of which are derived four *gushe* or usul, analogous to the Indian ragas and Celtic airs, for a total of forty-eight. This of course refers to the Persian Classical or "art" music: Persian folk music uses *dastgah* or *pardah* and *gushe* or *usul* which vary somewhat according to region or tribal group. These same works show that Amir Khusrau was also well-trained in the complexities of Hindustani music. The work Ragdarpan of Faqirullah says that Amir Khusrau invented nineteen melodies. It seems unquestionable that Amir Khusrau invented the popular melodies *qaul* and *ghazal* of North Indian music. It is said that Amir Khusrau was able to express the sound of a gong and of a bow in musical notation (15).

Among the archetypical Celtic instruments, the harp is the bardic instrument par excellence to accompany songs and poetic recitals. The violin fits very well in Celtic music and no doubt takes the place of older bowed string instruments. With the violin, in theory at least it is easy to use the many Celtic modes and to produce the quarter-tones typical of genuine Celtic music. In the percussion field Celtic music has very little, mainly small drums, similar to those called *pandeira* in Gallego, and cymbals. In reference to wind instruments, Celtic music has various. One is a sort of oboe, very much like the *dulzaina* without keys so

popular in much of Northern Spain, although the purely Celtic instrument is generally longer, with a lower base tone. The Celtic oboe may be defined as the chanter (called *punteiro* in Gallego) of the bagpipes without the bag and without drone pipes.

In Ireland and Scotland novices who wish to learn to play the bagpipes begin with the Celtic oboe. The number of holes in the Celtic oboe may vary, but is never less than seven. If the number of holes is more than seven, the others may be stopped with wax or opened to vary the base tone. Quarter-tones are produced by partially closing holes, varying the air pressure and manipulating the reed with the tongue. One may suppose that the oboes without keys so popular in much of Spain are descendants of celtic instruments.

Another typical Celtic wind instrument is the drone pipe, which is a flute or oboe of fixed tonality. Particularly in Brittany drone pipes are at times used separately from the bagpipes in order to hold the tonic for other wind instruments. The drone pipes used separately from the bagpipes sometimes have holes which may be closed with wax or opened to change the tonality.

Perhaps even more than the harp, the bagpipes are the most universal and archetypical Celtic instrument. In effect, bagpipes are a combination of an oboe, a bag for air and a variable number of drone pipes. Perhaps the version of the bagpipes most purely Celtic are the "Gaelic bagpipes" typical of Ireland and the Scottish Highlands, which have three drone pipes. In all Celtic

bagpipes quarter-tones are formed by partially closing the holes of the chanter and by varying the pressure of the air in the bag.

Thus in spite of appearances the Celtic bagpipes are an instrument of great subtlety and expressivity.

Much in contrast to Celtic music, North Indian music is more sophisticated than classical Western music in the fields of percussion and string instruments and perhaps only slightly inferior in the field of wind instruments. Since Celtic music has nothing particular in the percussion field, this does not interest us here. Nor is there much in the field of string instruments of great relevance to our topic. The harp and the lyre are among the most universal of instruments, and there is little to say on this point. In the field of string instruments, there is at least an interesting anecdote. North Indian music has many string instruments played with a bow of the family of the violin, though of course the European violin is not native. Nevertheless, the European violin fits very well with North Indian music, and has been adopted into said music, although played in the Indian manner (16). The reader will note that this is precisely the position of the violin in Celtic music. We also wish to note here that the harp is mentioned in the Rig Veda as accompaniment to the chanting of hymns (17). Thus there is a basis for considering the harp as and "Aryan instrument".

It is in the field of wind instruments where we find more of interest from our viewpoint. North Indian music is rich in wind instruments, some of which are very interesting to us. Drone

pipes, called *shruti* are widely used in Indian music. They usually have two or three holes which may be opened or closed to change the tone Oboes are much estimed in North Indian music.

In some regions they are called by the Persian name *shahnai*

(**shah** = king, **nai** = flute or oboe), in others by the Sanskrit *nagaswaram*. Said oboes much resemble the chanter of Celtic bagpipes, the Celtic oboe and the oboe or *dulzaina* without keys so popular in much of Spain. When the shahnai or nagaswaram is played, quarter-tones are formed by partially closing the holes, varying the air pressure and manipulating the reed with the tongue. The shahnai or nagaswaram is always accompanied by a drone pipe or shruti (18).

With the combination of the shahnai or nagaswaram and the shruti, one now has the basic principle of the Celtic bagpipes. In fact this very combinaton of oboe and drone pipe is well known in Celtic music, particularly in Brittany. Besides, as we said before, the basic technique of playing the oboe is the same in North Indian and Celtic music.

Nevertheless, we still do not have the Celtic bagpipe. Besides the oboe and one or more drone pipes, the Celtic bagpipes consist of a bag for air. In effect, North Indian music possesses various instruments which consist of an oboe, one or more drone pipes and an air bag. The most common and elementary (to call it "primitive" would not be very exact) instrument of this type is one called *magudi, murli, pungi, tarpo* or *bhuyangaswaram* in different parts of India and Pakistan. It is a very ancient

instrument, consisting of an oboe, drone pipe and a dry gourd as air bag. The oboe an drone pipe are fixed in holes in the gourd with wax or tar. The sound is produced by way of the narrow end of the gourd, which serves as mouthpiece. In case of large

gourds, a wooden mouthpiece is sometimes used. The musician blows through the mouthpiece, filling the wide part of the gourd, and the air escapes by way of the oboe and drone pipe. The oboe or chanter is played like the shahnai or nagaswaram, i.e., forming quarter-tones by partially closing holes and varying the air pressure. In effect, this instrument which uses a gourd for an air bag is the earliest known example of "bagpipes". This instrument is frequently used by snake charmers. In the North the chanter or oboe is generally made to produce the **Bhairavi** mode or *thata* of North Indian music (19).

Of course, the gourd itself is rigid. Although the Gaelic bagpipes, introduced by the British Army, are now taking their place, there exist native Indian bagpipes with a flexible bag, called *mashak*. The mashak consists of a bag of goatskin or other flexible material, with an oboe or chanter with seven holes, and, usually, one drone pipe. The Gaelic bagpipes have three drone pipes, but in Brittany and Northwestern Spain the native bagpipes have only one drone pipe, though Irish and Scottish influence is today making bagpipes with two or three drone pipes more common, or, rather, bringing them back in style. Medieval paintings indicate that in the Middle Ages the bagpipes of Northern Spain had various drone pipes. In any case, the mashak

is practically identical to the majority of the variants of the Celtic bagpipes. Also, the technique of playing the mashak is the same as that of the Celtic bagpipes; quarter-tones are formed by partially opening and closing the holes of the chanter and by

varying the air pressure in the bag. The use of a flexible material for the air bag makes varying the air pressure easier and more precise, thus facilitating the use of quarter-tones (20).

Those who have seen the folm Bhowani Junction saw Indian sepoys playing Indian music on Gaelic bagpipes. Irish and Highland Scottish units posted to India brought their bagpipes and pipers with them. In India first the sepoys and later the civilians accepted the Gaelic bagpipes with great gusto, finding in them a slightly more perfected version of some of their own musical instruments, perfectly adapted to Indo-Aryan music.

To read about music is somewhat like reading about food: one does not really know what food is like until one tastes it, and similarly one does not know what music is like until one hears It. Human language is notably poor and weak for describing flavors and also for describing music and its aesthetic effect. Discs of Celtic music are readily available, though one must beware of bastardizations. But the discs of North Indian music on the market tend to feature percussion and string instruments, such as the *tabla* and the *sitar* or *sarod*, which do not resemble any instrument used in Celtic music, and thus any resemblance which said music might have to Celtic music is perceptible only to an expert musicologist. Fortunately, there are a few discs on the

market in which one may hear North Indian instruments similar to Celtic instruments. Among the most notable of these discs is one titled En el Desierto de Thar (In the Desert of Thar), a disc of traditional and folk music of Sind and Rajasthan (21). The

principal instrument of Iqbal Jogi and his group, interpreters of the music recorded on said disc, is the bagpipes with the air bag made of a dried gourd, generally called *murli* in Sind and Rajasthan. Nearly all the pieces interpreted on said disc could easily pass for Celtic music, as anyone may prove to himslef. Also interesting in this connection is the shahnai solo on the disc Music Festival from India (22).

In summary, Celtic, Persian and Indo-Aryan music all resemble one another in that they use heptatonic scales and a considerable number of modes, from which are derived a great number of airs, melodic lines, *gushe*, *usul* or *raga-s*. In reference to Persian music I have no more information. Celtic music shares other fundamental characteristics with Indian music. Both are highly chromatic, using quarter-tones as ornamentation, in both ragas and airs or melodic lines are somewhat rigid, but the tempo and rhythm are relatively free and changing. Thus, though the melody be rigid, the ornamentation with quarter-tones and the relatively free tempo and rhythm give a very ample spectrum for variation and expressivity. Specifically in Celtic music, melodic lines or airs have an almost incredible persistance and stability. Earlier we noted how Jose Caso Gonzalez has noted that many traditional Asturian songs have the same melodic line as traditional songs of

the Auvergne, and says that a common Celtic origin is the only explanation for this phenomenon. The Irish song Kitty of Colerain and the Welsh song The Ash Grove have the same melodic line, though the tempo and rhythym are quite different. Also the

Scottish song Bluebells of Scotland has the same melodic line as the Gallego bagpipe tune Alborada de Veiga, though once again the tempo and rhythm are very different. Here are examples of Celtic melodic lines unchanged over the passage of many centuries.

It should be noted that, contrary to what some people say, Celtic and Indo-Aryan music on the one hand are really poles apart from jazz on the other. In Celtic and Indo-Aryan music the melody is fundamental, tempo and rhythm being secondary and subject to variation and improvisation. In jazz the rhythm or "beat" is fundamental, the melody being secondary, often practically absent, and subject to improvisation. In other words, Celtic and Indo-Aryan music is basically melodic, while jazz is basically rhythmic. As Ravi Shankar said:

> "Indian music should not be thought of as being akin to jazz."

In the field of wind instruments, Celtic music has some which are virtually identical to Indo-Aryan instruments, particularly those of the family of the oboe, drone pipe and bagpipes. Also identical are the basic techniques of playing said instruments (save the drone pipes), i.e., forming quarter-tones by partially closing holes and varying the air pressure. Thus is given an

ample spectrum of flexibility and expressivity to instruments which might appear very limited in this respect. The principle of the combination of an oboe or chanter with one or more drone pipes, either played separately or combined in a single instrument, is very prevalent in Celtic as well as Indo-Aryan

music. To summarize, the parallels between Celtic, Persian and Indo-Aryan music would seem to be too numerous, fundamental and particular to be coincidence: as I said in another place, the credibility of coincidences is in inverse proportion to their number. The Celts, Iranians and Indo-Aryans share with other Indo-European peoples the use of seven-tone scales, or, in technical terms, heptatonic scales. Besides this, said three types of music share a long series of characteristics which they do not share with any other type of music in the world. In the field of music as in so many other fields the Celts show a close relationship with the Iranians and Indo-Aryans. It is no coincidence that so many say that the Celtic bagpipes have an "Asiatic sound". There does exist an "Aryan music" peculiar to the three peoples which form the Aryan branch of the great Indo-European family.

Modern Western classical music suffers from an acute case of provincialism, narcissism and arrogance. In reference to something so fundamental as modes it is terribly impoverished, and does not utilize quarter-tones. Certainly these facts are strange in reference to a music which so presumes of sophistication and subtlety. In search of "renovation" the "avant garde" composers

have invented the so-called "atonal music", which is nothing more than a repulsive noise and pure cacophony. In Celtic, Persian Indo-Aryan and Medieval music, modern classical western music may find new modes, quarter-tones, and in Indo-Aryan music new instruments. For what motive the so-called avant garde composers

dabble in atonal music (really a contradiction in terms) in place of seeking fresh inspiration in medieval music and in what one might call "Aryan music", i.e., Celtic, Iranian and Indo-Aryan music, is something which admits of no rational explanation. The avant garde composers are showing ignorance, arrogance, narcissism and an abyssmal provincialism of both time and place.

Unfortunately, Celtic music still awaits its Falla, Bartok, Grieg and Wagner.