

SCIENCE AND ART
OF
INDIAN MUSIC

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A LION PUBLICATION



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Publishers

LION PRESS - LAHORE

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FOREWORD

It is a happy augury for the future of Music in India that persons of high status and culture are bestowing their serious attention to its study. It is no small wonder that the author, in the midst of his heavy and responsible duties as a high State Officer, has turned his attention to the study of Music and Dance and brought out this interesting digest of the 'Science and Art of Music.'

The book, meant as it is, for reading by all, whether by the lay or the learned, Indian or non-Indian, contains information and ideas interesting enough to enforce the attention of even a casual reader to a more detailed study of the topics dealt with.

Looking at Indian Music from a utilitarian point of view the author has pointed out a fresh avenue of approach to it, applying the three test values, namely, the æsthetic, therapeutic and economic, and suggesting that the Music of India will stand successfully all these tests.

How every lover of Indian Music wishes that the old legends about the heat-producing *Dipak*, the rain-

producing *Malhar* and *Shri Rag*, credited with the miracle of bringing the dead back to life again, could be proved as historical facts; and the author is no exception. The wonders of the science laboratories have silenced the voice of the sceptic. Who can say today what shall not be possible for the Radium, the Electrons and Protons, sound and light waves when duly controlled and adjusted by human agency.

The values noted above at once place our Music on a level with any other subject of intellectual interest and reveal its proper place in the life of man. Indeed, they turn our attention to the depths below the mere entertaining play of the bubbles, rising the moment and vanishing the next on the surface.

Rajwade

Principal,

The Marris College of
Hindustani Music, Lucknow.

Camp, Bombay :
15th May, 1945.

INTRODUCTION

The movement for the revival of the Indian Music formally launched in 1916 at Baroda has steadily gathered momentum and has resulted in the coming into existence of numerous Music Schools, Colleges and a few Universities even, in addition to the recognition of the subject by almost all the Universities of General Education in India. Thousands of boys and girls of respectable and well-to-do families learn the Art privately and a large amount of money is being spent on organising Music Conferences in all parts of the country. In addition to the above, our greater cultural contact with the people of East as well as of West—particularly the latter—has brought us face to face with the problem of the extent to which we may or may not regulate from the beginning the influence of the Music Systems of the above places which these have begun to exercise on ours. Finally, there are connoisseurs—including some Indians too—who sincerely doubt if there is any merit in the Indian System of Music. For the reasons given above, it is necessary to examine the problem of the worth and value of Indian Music seriously. An

opportunity came in my way to express my views on the subject, when some time ago I was invited to initiate a talk on 'The Indian Music System' in the 'Discussion Club' at New Delhi. Some of my friends, who heard me, asked me later to have what I had said published in order to enable others similarly interested in the Art to form their own views and thus help in the solution of the problem. It is trusted that what is said in this little publication will lead to the realisation of the fact that like all true and sound Arts, our Music has an 'International' character so far as the fundamentals of the 'System' are concerned and that variations from other systems are due to environmental influences, without conforming to which it would have ceased to serve any useful purpose in the 'Physical, Emotional or Spiritual' domain of our life. It is also trusted that concerted efforts will henceforth be made by its well-wishers not only to utilise to the maximum its æsthetic value for enriching our cultural life but also to better our 'Physical and Vocational' efficiency through its 'Therapeutic and Economic' spheres of action.

Sundarnagar,
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R. L. BATRA

Science and Art of Indian Music

One could begin the subject, 'What Indian Music is?', by a narration of the wonders alleged to have been wrought by its aid in times when it was at its highest perfection. Many of us have heard that 'fire' could be kindled by *Deepak*: that the thirst of the sun-blazed earth could be quenched by torrential rains induced by *Malhar*: that mad elephants could be controlled by drumming *Gaj Paran* and even brought down upon their knees by the magnetising influence of the dance of Lord Shiva! One could add hundreds of other claims, each one more amazing than the others. The question however will still remain, 'Is Indian Music really capable of achieving all that is claimed for it?' For examining the problem from the point of view mentioned, it will be of assistance to us to recapitulate briefly our present-day knowledge about 'What Music is?', 'How it affects living beings?' and 'What results can it achieve or purposes can it be made to serve?'

2.

What Music is? Music is classed as a Fine Art. No doubt it is so, but it is the most difficult and scientific of its kind. It is the most difficult, because

it has to produce its effects through transient auditory impulses only and not as is the case with Sculpting or Painting, through visual impulses, which besides being delineable in line and colour are also available for assimilation through prolonged observation. It is the most scientific, because it is hooped in the steel frame of accurate Time and Tone sense perceptions, which form the warp and woof of all the countless patterns created by the constructive imagination of the Artistes.

How Music Produces Its Effects ? The auditory impulses of Music are received by and transmitted to the nervous system of living beings through a unique mechanism in the brain called 'Music Faculty.' It is a dual purpose contrivance, which enables it to appreciate 'Tone Sense Perceptions' as distinguished from those of mere 'Sound' and also 'Rhythmic Time Sense Perceptions' as differentiated from those of mere 'Structural Time.' The Faculty, though not possessed by all or in an equal degree, seems to have been designed by Nature to serve some really useful purposes in all the planes of existence of those who are fortunate to have it. Its chief centre of activity is located at a place in the brain which is comparatively lesser liable to injury than those of many other apparently more important 'Faculties' are. It begins to function earlier than the Faculty of 'Articulation' even. It is almost fatigue resistant and even its

temporary total loss (Amusia) is often followed by complete recovery.

Music auditory perceptions are converted by 'Music Faculty' into 'Impulses' which taking the form of 'Emotions' produce specific sensory and motor reactions in accordance with the following principles which have scientifically been verified as true.

- (a) That a body in vibration tends to 'force vibrations' similar to its own in bodies within the effective range of its waves, whether the latter body be initially at rest or already in motion.
- (b) That every living being is in a constant state of vibration throughout its life.
- (c) That sound perceptions converted into 'Impulses' take the form of 'Emotions' which result in specific sensory and motor reactions.
- (d) That *desired* sensory and motor reactions of the kind mentioned in (c) above can only be produced at will by sounds of known dimension.
- (e) That out of sounds of known dimensions only those have been selected as Music Notes in each system of Music, which have

been ascertained to produce pleasant or beneficial effects in persons who appreciate that particular system.

- (f) That the term 'Pleasant Emotions' is a relative one varying according to the stage of the cultural evolution of the 'Life continuation and preservation instincts.'

It may be stated here that the different systems of Music prevalent in different parts of the world as well as different schools of thought and styles of rendering music within each system are directly due to the difference in the stage of development referred to above.

Results which Music can Achieve or Purposes it can Serve

The possible known uses of Music are :

- (a) Aesthetic in all the spheres of our existence, namely, 'Spiritual, Mental and Physical,'
- (b) Therapeutic, and
- (c) Economic.

Indian System Compared with Western System

For examining whether the Indian System of Music is capable of fulfilling all or any of the aims mentioned above, let us compare its technique with the current Western System, which is claimed to be

scientific as well as suitable for the cultural requirements of the people who are its votaries.

Similarities :—

3. (1) In both the systems the essentials of a Music Note are its 'Pitch, Intensity and Timber.'
- (2) In both the Basic Scale of Music Notes consists of eight Notes. The first Note is called the Tonic, the next six are at suitable Music Intervals correlated to each other in accordance with the laws of consonancy and the eighth is the Tonic again but with double its original Pitch. In the Western Music this combination of Notes is called an Octave after the total number of Notes. In the Indian System it is called *Saptak* on account of the fact that in between these Notes there are seven 'Music Intervals' only, as well as because the Tonic and its double are really one Note and thus the number of different Notes is seven only.
- (3) In both 'Music Interval' between any two different Notes of the Scale is calculated as if the two were in the same *Saptak* (Octave) although from the point of view of intensity these may actually be

in different ones.

- (4) In both the Systems the normal compass of human voice for the purposes of production and manipulation of Music Notes is taken to be three *Saptaks* (Octaves) resembling each other exactly in their description as would appear from the following :

	<i>Indian System</i>	<i>Western System</i>
Lowest	<i>Mandra</i>	Chest voice
Middle	<i>Madhya</i>	Natural voice
Highest	<i>Tar</i>	Head voice

- (5) In both, when Music is rendered to the accompaniment of Rhythmic Time, the latter is measured in *Avarts* (Bars) of specific length, composed of basic Time Units—*Matra* (Pulse beats) of 'Structural Time.' The Rhythm is made prominent by *Bhari* (stresses) and *Khali* (waivies) at suitable intervals within each *Avart* (Bar).

Dissimilarities :—

- (a) The Indian Music is of the Melody Type, which means that each note has to be used without combination with any other. The Western System is of the Harmony

Type, as use of Chords of more than one but correlated Notes is allowed.

- (b) In the Indian System Diatonic Scales of Music Notes can only be used, whereas in the Western one Minor, Chromatic and Enharmonic Scales are used in addition.

It may be mentioned here that the present-day Basic Scale of Music Notes of the North India resembles the C Major Scale (Ionian of the Gregorian Scales) but with a slight difference in the 5th and 6th intervals as follows :

North Indian	4 3 3 4 4 3 2
Ionian	4 3 3 4 3 4 2

- (c) In the Indian System 'Intervals' between different Notes are unequally tempered, whereas in the Western System these are generally equally tempered.
- (d) In the Indian System *Sa* (C) and *Pa* (G) are immutable and *Ma* (F) can have a sharp modification only. In the Western System all the Notes of the Basic Scale can have modifications.
- (e) When played to 'Time', Tempo Robato (playing independently of the time beat percussions) is the rule in the Indian System rather than an exception. Besides

the *Sam* (Cresendo) is on the first beat of the *Tal* (Bar) as against the last in the case of the Western System.

- (f) In the Indian System a Musician can use a Scale suiting his own individual range of voice by selecting as a Tonic any one of the permissible Note of the System. In the Western System voice has generally to be made to conform to predetermined Keys.
- (g) Lastly, though not the least, is the recognition in the Indian System of a style of singing known as *Alap*, in which Music appears in its purity, free from the bonds of 'Rhythmic Structural Time' or raiments or 'Poesy.' All the known rules regarding the development of the *Rags* and *Ragnis* are, however, strictly observed all the same. As 'Blank verse' can reach higher flights of imagination than Rhymed the *Alap* form of Music can similarly attain æsthetic heights unknown to any other form of this Art. Its another outstanding merit is that in this form Music assumes a universal character quite above all secular or territorial limits.

From the brief summary of the salient points of 'Similarities' and 'Dissimilarities' given above, it

would be apparent that so far as the fundamental essentials of 'Tone and Time' conceptions are concerned both the systems have an identical foundation. The points of difference are only such which were necessary for the development of each system to its highest for suiting the 'Cultural' ideals of the peoples of the tracts where each prevails. //

Having satisfied about the scientific basis of the Indian System of Music, it would now be worth while to explain the manner in which it has been developed for fulfilling the purposes which a highly evolved Music System should.

Origin of Music Notes.—In the general quest of tracing the origin of everything coming to the observation of Man, that of Music Notes has also not escaped attention. Many versions are current ranging from the one of 'Divine inspiration' to that of the Notes having been adopted from the 'Calls or cries of birds or beasts', which appealed to the emotions of human beings and at the same time were so suitably correlated from the acoustic point of view, that these could be used in various combinations. It is difficult to decide regarding the accuracy of any particular theory. Some interesting facts, however, having a bearing on the development of the System emerge from many of these, one being that the Musicians seem to have appreciated the value of Music Notes used in their

pure form by some birds and beasts and taking advantage of this they have perfected the style of *Alap* which has given the Art an international value.

Basic Scales of Music Notes.—It will be a long and complicated history to trace step by step the evolution of the current two scales from the Notes used in Vedic Chants, through the various forms assumed later. At one time there is the evidence of three *Grams* being in existence, *i.e.*, there were three Basic Scales each having a Tonic of a pitch different from the other two. Then, besides seven Fundamental Notes we also had twelve modifications of the five Notes which can have changed forms, with the result that as many as nineteen Notes were employed in vocal Music. Eventually one Scale with twelve Notes only (seven original and five modified) came into use till the influence of Persian and Arabic Music brought into use in the North of India a slightly modified Basic Scale. At present there are therefore two scales in use. That in the North is the basis of the Hindustani Music and the one in the South of the Carnatic.

Method of Formation of Music Scales

(a) Music Notes Available for Scale Formation.

The experts of Indian Music have selected twenty-two 'Pitch frequencies' at unequal 'Intervals' within a *Saptak* (Octave) at

which the Notes produced are considered suitable for use in their System. These Notes are called *Shrutis*. Each of these has been assigned a separate name which is generally indicative of the 'Emotional' effect it can produce. The following is a list of the same:

Number	Name of the Shruti	Emotional Effect
0.	<i>Kshobhini</i>	... Arousing, Energising, Awakening.
1.	<i>Tivra</i>	... Keen feeling, Loud.
2.	<i>Kumdavati</i>	... Bright, Irridescent,
3.	<i>Manda</i>	... Apathetic, Dull.
4.	<i>Chandovatti</i>	... Peaceful, Tranquil, Orderly.
5.	<i>Dayavanti</i>	... Compassionate, Pitiful.
6.	<i>Ranjni</i>	... Pleasurable, Delightful.
7.	<i>Raktika</i>	... Devoted, Charming, Colourful.
8.	<i>Rudri</i>	... Serene, Composed.
9.	<i>Krodhi</i>	... Angry, Wrathful.
10.	<i>Vajrika</i>	... Immutable, Determined, Unshakable.
11.	<i>Prasarni</i>	... Argumentative, Elaborating.
12.	<i>Priti</i>	... Love, Liking.
13.	<i>Marjani</i>	... Purifying.
14.	<i>Kshiti</i>	... Egoistic.
15.	<i>Rakta</i>	... Attachment, Fondness, Partiality.
16.	<i>Sandipini</i>	... Infatuation.

Number	Name of the Shrutti	Emotional Effect
17.	<i>Alapni</i>	... Amorous.
18.	<i>Madni (Madanti)</i>	... Ardent, Passionate, Mad.
19.	<i>Rohni</i>	... Intense Pain or Pleasure.
20.	<i>Ramya</i>	... Beautiful, Attractive.
21.	<i>Ugra</i>	... Formidable, Grave, Serious.
22.	<i>Kshobhini</i>	... Same as 0.

Many, including some Physicists, doubt the practical utility of these *Shruttis* or 'Microtones' as these are called by some. We did not believe in many things about the Indian Music which we do now. Who for instance ever would believe before the invention of the Tuning Fork and other 'Tone' measuring instruments, that the Indian Music Instruments were perfect in acoustic construction principles and could produce Music Notes of the truest pitch? *Shrutti* Notes are meant to express that highest phase of Music which appeals to whatever is in us of the all-pervading spirit, power or soul by whichever name we may designate it. Without this rich choice of Notes it is impossible to make that individual appeal to rational being—Man—the want of which would take the Art out of the category of a living and useful one and render it monotonous and wooden in the extreme. The practicableness of their production can be shown by the aid of a "Savartometre." Their utility could be proved the moment an instrument for focussing or measuring the emotions of living beings is designed. Till then their usefulness could be believed on the

basis of the practical effects which these yield when produced and properly used by experts.

(b) Formation of Scales

The following are the two methods generally employed for composing Scales.

(i) Any one of the *Shrutti* Notes is taken as the Tonic and then the remaining Notes of the *Saptak* are selected from the other *Shruttis* at Diatonic Intervals of not lesser than 1 and not more than 6 *Shruttis* apart, with due regard at the same time to correlation-ship from the point of view of consonancy. Notes not used count as intervals.

(ii) The second method, which is known as *Murchhana* (Merger), is to place by turn each Note of any given Scale in the position of the Tonic and to promote the remaining ones serially to the position vacated by each on account of its promotion.

Saptaks in Current Use.—The theoretical possibilities of composition of numerous Scales in accordance with the methods described above show the flexibility of the System. In actual practice, at any rate for vocal Music, one scale consisting of seven standard and five modified Notes formed the basis of the System till, as already observed, the Scale in use in

the North of the country adopted a slight modification of the standard Notes giving it cumulatively a more lively and exhilarating colourful emotional effect than the original austere one which continues in the South of the country even now. This bifurcation did not mean any basic change in the character of the System, which continued to be of the Melody Type. The only effect was to make Music suited to the actual cultural needs of the people in the different parts of the country.

Thats (Genera Scales)

Certain set formulæ of at least seven different Music Notes (original or modified) but given in their natural order are known as *Thats* or *Melas* (Genera Scales). The number usually recognised is ten in the Hindustani and seventy-two in the Carnatic System. The *Thaths* are named after the *Rag* which all its Notes combine to make. In their capacity as *Thaths* these differ both from *Rags* as well as from mere Music Scales, *i.e.*, *Saptaks*. These are distinguishable from the former inasmuch as these must have a minimum number of seven Notes in seriatim whereas a *Rag* need not have either the number mentioned above or in the order stated. Then again in a *Thath* no Note is claimed as *Vadi* (Sonant) or *Vivadi* (Consonant) without which a *Rag* can have no existence at all. Finally these have no *Arohi* (Ascent), or *Avrohi* (descent) as

Rags must have. From mere Music Scales of the Indian System, these are distinguishable by the fact that these might include modified Notes in their standard composition which cannot be the case with the former.

From each *Thath*, several allied *Rags* and *Ragnis* are derived, though the alliance is more apparent in the Notes used rather than in the emotional effect produced by the same. The arrangement however is very handy and facilitates their classification as well as production.

Rags and Ragnis.—The Indian System followers do not expect any emotional effects of practical value either from the Music Scales or *Thats* as such. They use these for derivation of *Rags* and *Ragnis* which, when properly manipulated, are expected to yield results of emotional value and through these to produce practical consequences which Music is intended to in the various spheres of the existence of mankind. A *Rag* or *Ragni* is ordinarily defined as "A combination of Music Notes capable of producing pleasant sensations." Strictly speaking this can hardly be literally true unless we include in the term "pleasant or sweet" those 'songs too which tell of saddest thoughts' because the immediate effects of Music are not always pleasant particularly when it is employed to counteract unpleasant moods. Eventually of

course we do get pleasant results and it would therefore be more accurate to say that "A *Rag* or *Ragni* is a combination of correlated Music Notes, a proper manipulation of which can eventually produce desired pleasant and agreeable results."

The possible number of *Rags* and *Ragnis* is astoundingly very large and each one of these has its own individuality, as each has its own peculiar combination of *Vadi* and *Vivadi* notes as well as *Pakar* (Characteristic combination of Notes, expressing its true form without any possibility of doubt or confusion). This accuracy would not be obtained without observance of definite rules about their composition, the most salient of which are as follows:

- (a) That a *Rag* or *Ragni* must as a rule have not lesser than five Notes, though these need not be used in their natural order.
- (b) That each *Rag* or *Ragni* should have a specified *Arohi* (Ascent) and *Avrohi* (Descent) of Music Notes, it being however not necessary that the number or order should be the same in both.
- (c) That each *Rag* or *Ragni* should have one of the Notes entering its composition, as its *Vadi* (Sonant) with another properly correlated acoustically as its *Sam-vadi* (Consonant). The best combination for

the above purpose is a pair which is 9/13 *Shrutis* apart. The next best being those 7/15 and 6/16 *Shrutis* apart and in the order given.

- (d) That no Note which is *Vivadi* (Dissonant) to the *Vadi* or its *Sam-vadi* can find a place in the basic composition of a *Rag* or *Ragni*.
- (e) That *Sa* (G) must be included in each *Rag* or *Ragni* and out of *Pa* (G) and *Ma* (F) one only may be left out.
- (f) That when a Note or its modifications or when modifications only of a Note are in the composition of a *Rag* or *Ragni* then, for numerical count of Notes, they are taken as one Note only. Two consecutive modifications of the same Note should not however be ever used.

Classification of Rags and Ragnis.—Classification of *Rags* and *Ragnis* in the Indian System has been done for various definite purposes, the following being the principal ones:

- (a) Facility of production.
- (b) Judging of the extent of purity.
- (c) The territorial extent of the proper utilisation of each.

The manner in which the various aims mentioned above have been sought to be secured may briefly be described as under :

(a) *Facility of Production.*

For this purpose classification has aimed at showing the number of Notes in *Arohi* and *Avrohi* respectively and the *Ang* (Tetrachord) in which the *Vadi* (Sonant) Note lies. *Arohi* or *Avrohi* of five Notes is called *Aurahav* (Penta-tonic) of six, *Sharav* (Hexa-tonic) and of seven, *Sampuran* (Septa-tonic). Since a *Rag* or *Ragni* can have an *Arohi* and *Avrohi* of any length given above, it is consequently possible to have twelve different combinations, which are designated by describing the *Arohi* and *Avrohi* by its proper lengthy name.

The location of the *Vadi* (Dominant) is shown by describing those *Rags* and *Ragnis* as '*Puravang*' of which the said Note is in the first Tetrachord and as '*Uttarang*' of which it is in the second.

(b) *Judging the Extent of Purity.*

The Purity of a *Rag* or *Ragni* with reference to its basic composition is indicated by its classification as *Shudh*, when the Notes are strictly as prescribed in its *Sargam* (basic

formula of its composition) as well as used in their natural order. It is classed as *Vakra* when the Notes are those prescribed but are used by a 'twist'. Finally when Notes of different *Rags* or *Ragnis* are blended together to form any *Rag* or *Ragni*, then it is called *Sankiran* (mixed), it being also designated *Chhayalag* (shaded) if the mixing is slight only.

(c) *Territorial Extent of Utilisation.*

The territorial extent of the utilisation of *Rags* and *Ragnis* is shown by their classification as *Margi*, i.e., of countrywide application and *Desi* which are used in particular environments only. *Margi* melodies are *Rags* generally. These appeal to emotions and feelings which are common to the people of the country as a whole. On account of this important and almost national characteristic, it is not surprising that these are alleged to be of 'Divine origin'. *Desi Rags* and *Ragnis* have a limited sphere of action and are generally of local importance only, e.g., *Pahari*, in the hills of the Panjab and *Mand* in Marwar.

Contrivances for obtaining Maximum effect of Rags and Ragnis

Music does not affect alike all who possess 'Music Faculty.' In some the fullest possible effect appears after listening to it in its elementary form only, while for the same result in others it has got to be developed up to various higher stages. Then again there are some who have the 'Tone' sense more developed than the 'Time' one or the case is *vice versa*. There are yet others who are not so much influenced by Vocal Music as they are by the Instrumental, while there are also people in whom requisite sensory and motor reactions can only be switched on by the visual impulses of the rhythmic movements of Dance performed either by itself or to the accompaniment of Vocal or Instrumental or Music of both the above kinds combined. The Indian experts, recognising all these contingencies, have perfected the Art in three distinct branches, namely *Gayan* (Vocal), *Vadan* (Instrumental) and *Nattya* (Dance) with general rules for developing themes upto various requisite stages as well as for accelerating the production of desired effects. In addition to the above there is a special technique governing each branch. The term *Sangit* includes all the three branches mentioned above.

General Rules for Accelerating Effects.—For securing requisite effect of Music in the shortest possible

space of structural time, the following general contrivances have been adopted :

- (a) *Graha*. *Graha* is the Note, out of those of which a *Rag* or *Ragni* is composed, on which it should begin when being played. This Note assumes importance from the fact that the position and order in playing of the other Notes depends on this, including of the *Vadi* (Sonant) and the *Samvadi* (Consonant) which lend individuality to each Melody.
- (b) *Nayas*. *Nayas* is the Note on which a *Rag* or *Ragni* should end for leaving its final effect on the mind of the hearers for as long as possible, and at its highest emotional pitch. It may be compared to the contrivance of 'Cadence' in the Western System of Music.
- (c) *Prastar*. *Prastar* means the extent of development necessary for producing the minimum as well as the maximum effect of a *Rag* or *Ragni*. Music themes according to the Indian System can be developed up to four stages, namely, *Asthai*, *Antra*, *Sanchari* and *Abhog*. These very stages are a characteristic of the South Indian Music as well, the difference being in nomenclature only. Each stage is technically distin-

guishable from the others by means of the range of the Notes used in each, the frequency or otherwise of the occurrence of the *Vadi* (Sonant) or *Samvadi* (Consonant) in it, the degree of ornamentation which can be resorted to and the kind of *Laya* (Tempo) which can be employed. As a rule, for the development of minimum effects all *Rags* and *Ragnis* must develop the first two, namely, the *Asthai* and the *Antra*. In the case of *Rags* or *Ragnis*, capable of producing high-class emotional effects including those touching our metaphysical conception of life, or where it is desired to produce as lasting effects as possible, themes have to be developed even in all the four stages.

Shringar (Ornamentation or Embellishment)

Ornamentation or embellishment of Notes is necessary even in the case of *Music* of the Western System, in which the permissible use of compound Notes (Chords) affords greater variety than is available in the Melody Type. In the latter, both the extent as well as the kind of ornamentation is greater, as otherwise the oft-repeated unalloyed Notes would soon produce a sense of monotony and drudgery. There are however two strict limits, namely not to spoil the nature of the

Notes or the type of Music. The various principal forms of 'Ornamentation' used are the following :

- (i) *Tan, Alapan, Alankar*. These consist in the use of the Notes of a *Rag* or *Ragni* in a set order. Each one of these varieties has its own sub-divisions. To go into their detail would not be possible now. The characteristics which distinguish these from each other are that in the *Tan*, Notes are used by their *Sargam* (Solfic) names while in *Alapan* abstract Notes only are used. In *Alankar* Notes are used in different direct or reverse combinations without of course disturbing the main form of the *Rag* or *Ragni* concerned.
- (ii) *Gamak* (Graces). *Gamaks* are numerous. *Kampat* (Tremolo or Vibrato) *Meend* (Scorrendo) and *Ansh* or *Kan* (Grace Notes) are the most often employed.
- (ii) *Tal* and *Laya* (Time and Tempo).

Tal and *Laya* are used for two purposes namely measuring Rhythmic time and as an Ornamentation. The latter use has become possible since the coming into vogue of the tuning of the drumming instruments, adopted principally though for the purpose of avoiding dissonance created by

unregulated sounds. The method in vogue is to tune the surface of the drumming instrument to the Tonic of the Musician's voice or of the *Madhya Saptak* if it is Instrumental Music. If the drumming instrument has two surfaces or two instruments are used conjointly, e.g., *Pakhawaj* or *Tabla*, then the one used for marking fractions of the *Matras* (Pulse beats) or which is used more than the other, is tuned to the Tonic of the Music Scale being used and the other to a lower consonant Note. The ornamentation generally takes the form of a 'Stacto Drone' played as a 'Tempo-Robato.'

(e) Suitable Rhythmic Time and Speed.

Tal and *Laya* as a means of accelerating effect of Music are not selected at random in the Indian System but with a deliberate end in view. The general rules may be summarised as below:

Mood or Effect Desired

Devotional, Meditative Moods
or those of Deep Pathos or
lasting Feelings.

Tal and Laya Recommended

Bilampat Laya (Tempo
Adagio) with *Tal* of
fair length and compound
Matras (Pulse Beats).

Mood or Effect Desired

Normal Emotions.

Highly Emotional but
Transient Moods.

Tal and Laya Recommended

Madhya Laya (Medium
Speed) with *Tals* of
medium length.

Drut Laya (Tempo Allegro)
with *Tal* of comparatively
'Short Bars' and uncom-
pound *Matras*.

(f) Seasonal and Diurnal Periods for Obtain-
ing Quickest and Greatest Effect of *Rags*
and *Ragnis*.

In every system of Music there is some evidence of certain songs appealing best at certain times of the various seasons or periods of day or night. Serenades for example have always been considered most effective when sung or played in the evenings. In no other extant system, however, has the scheme of suitable Seasonal or Diurnal periods for securing quickest and best effects of *Rags* and *Ragnis* been worked out so assiduously and scientifically as it has been in the Indian System. In this system it is based on a close and accurate study of the prevailing mood of the mind of an average person at various times of the year as well as during different periods of the day or night.

Seasonal Moods. All of us are aware of the effect of seasons on our moods of mind generally. We

enjoy an exuberant and bouyant feeling in *Vasant* (Spring); a relaxed and exhausting feeling in *Grishma* (Summer); a damped spirit in *Hemant* (Autumn) and a chilly, blear outlook of things in *Shishar* (Winter). In India six seasons are recognised in place of the above four, the additional two being *Varsha* (Rainy) and *Sharut* (early Autumn). The prevailing mood during these two is taken to be midway between the moods of the seasons which precede and follow each respectively. The *Rags* considered best for each Season are capable of producing great emotional effects and of removing conditions of Chronic or what in India may be called "Tropical Fatigue."

Diurnal Moods. For the purpose of allocating moods during a whole day of twenty-four hours, the latter is supposed to begin from the time at which the majority of people awaken from their sleep for attending to their life vocation. As a rule this is early in the morning. Beginning from this point, the day is divided into eight *Pahars* of three hours each, to which are added two short periods called *Sandhi Prakash* (fused light), the one being the Twilight and the other Dusk. Except a momentary worry indicated immediately after awakening, due to anxiety to be sure that he is up in time for the day's work, a person is generally in the best of spirits when the day begins. As the time advances, he gets busy. He has to make mental or physical exertion or both for the

performance of his task. This consumes his energy. After some time, his output of energy becomes larger than its intake, with the result that he has to draw upon his reserve. Thenceforth a state of 'Routine Fatigue' sets in, which progressively increases as work proceeds, reaching its highest peak towards its conclusion, which generally also is the close of the day. Then follows a period of replacement of the overdrawn energy. This is done by means of relaxation of effort, recreation, refreshments (Nutrition) and rest. Whatever is still left unrecouped after all these contrivances have been tried, is made good during sleep. The whole of the cycle described above begins afresh with every morrow. The *Rags* and *Ragnis* which are considered suitable for each of the various *Pahars* of the day or night, are such that the emotional effects these produce are calculated to counteract fatigue of the degree normally expected to be met with in each. The greater the fatigue, the sharper are the Notes requisitioned to neutralise it. The result is that the *Komal* (Flat Notes) which preponderate in the *Rags* and *Ragnis* of the earlier part of the day are gradually replaced by *Shudh* (Standard) or *Tivar* (Sharp) Notes of the same kind as the day progresses. This change is augmented by the shifting of the *Vadi* (Dominant Note) from the *Uttarang* (Second Tetrachord) to the *Puravang* (First Tetrachord) which naturally makes the tunes more vigorous and potent than when the

chief Note is in the 'Second Tetrachord.' Incidentally it may be mentioned that the scheme of preponderance of Natural or Sharp Notes from midday onwards ensures proper audability which otherwise would suffer on account of fading of the 'Pitch' of Flat Notes during comparatively higher temperatures as compared with those of the mornings.

It is however very necessary to make it plain that the whole scheme is optional and not at all mandatory as wrongly considered by many Indians even. A master Musician can, by the excellence of his Art, produce the maximum possible effect of any *Rag* or *Ragni* at any time he desires. The average only require assistance of accessory methods and for them the scheme is very helpful indeed.

Special Technique of Each of the Three Branches of Music

Gayan

(VOCAL MUSIC)

Classification.—Vocal Music is the most difficult type of Music to produce. Strictly speaking it is of the *Tat-Sushir* variety, *i.e.*, a type produced by setting vocal strings in vibration by exhaled air. No frets or other possible mechanical aid being available for

regulating length of the chords for production of different Notes, the desired result is achieved by mental control. In spite of these difficulties this type of Music is the most effective, even when not clothed in words, because it is imbued with alive emotions and feelings created by the æsthetic and creative imagination of the Artiste, who can naturally manipulate his vocal chords more effectively than an expert instrumentalist can handle his Music instrument by the mechanical movements of his hands and their fingers.

Voice Compass, Classification and Culture

The normal compass of human being's voice, as already observed, lies within three *Saptaks*. There are however no definite separate registers of voice for males and females within the limit, as there are in the Western system. On the other hand voice is classified according to its effectiveness, the best being considered that which can produce all emotions, in all classes of people, at all times and on all occasions. Then follows the voice, which is distinct and clear followed by the one which can produce lighter moods only. Greatest possible stress is however laid on making a Musician perfect in *Swar-Bodhan* (recognition of Notes through Tone sense appreciation) and in *Swar Sadhan* (Accurate Note production).

Efficiency Gradation of Musicians.—Defects which adversely affect the value of vocal music have care-

fully been studied by masters of the art. As many as twenty-five have been mentioned by some and include not only voice blemishes but also unsuitable physical expressions which unless scrupulously avoided neutralise through the influence of visual impulses whatever effect the auditory impulses of Music Notes may produce. The presence of a single defect therefore knocks a person clean out of the category of a vocal Musician. Subject to the condition that there is no defect of the class mentioned above, the efficiency grading of the Musicians depends on the extent to which they can do away with the aid of accompaniments of instrumental Music for the production of their own. The one who needs no aid is classed as *Uttam* (best), the one who depends partly on such aid is classed as *Madham* (mediocre) and the one who cannot do without such aid is classed as *Adham* (the poorest).

Styles of Singing.—There are four *Mutts* (Schools of thought) which not only differ in the recognition of principal *Rags* and their subsidiary *Ragnis* but also have their own views regarding the best method of manipulating these for the production of their greatest effect. A discussion regarding the merits of the claims of each would mean an unnecessary digression. A separate narration of all the styles extant in both the North and the South of the country would also not be necessary, when a regard is had to the fact that the

main principles in various styles are basically the same and out of the distinctions, if any, the one in nomenclature is more substantial than any other. A brief description of the styles in use in the North only is therefore given here.

Main Divisions of the Styles.—Singing is divided into two main divisions mainly 'Classical and Non-classical or light.' Music which is produced strictly in accordance with the rules of the development of *Rags* and *Ragnis* is termed classical and the one in which departure is made for the sake of obtaining superficial effects or evanescent emotions appealing mainly to comparatively lower feelings is called Non-classical or Light. In the latter class, Music can never be in the abstract form but must depend a good deal on the æsthetic excellence of its 'Poetic' attire as well.

Classical Styles—

- (a) *Alap*. *Alap* is the highest form of classical Music, in which Notes are used in their abstract form only and as such it emerges free from sectarian, social, communal or environmental bonds. Its additional freedom from the garb of poesy and the fetters of structural time enable it to be developed to metaphysical heights savouring almost of the cosmic rhythmic progress

of Universe, which cannot be produced by any other form of Music. It has got to be developed in all the four stages, namely, *Asthai*, *Antra*, *Sanchari* and *Abhog*.

- (b) *Dhrupad*. Of all the styles of a singing *Dhrupad* is the most difficult and yet the most imposing as well as most effective in producing deep pathos and emotions. It is generally employed in *Bhakti Ras* and may be said to correspond to what is known as the Church Music in the Western System. The Notes have as a rule to be shorn of all ornamentation except that a restricted use of *Meend* and *Gamak* only is permissible. As in *Alap*, the melody has got to be developed in all the four parts namely *Asthai*, *Antra*, *Sanchari* and *Abhog*; the *Laya* is preponderatingly *Bilampat* (Tempo Adagio) and the *Tal* (Time Bars) are long and of compound *Matras*. Though very ancient in origin, the style was revived by Raja Man Singh and given highest ascendancy by the immortal Mian Tansen.
- (c) *Khayal*. It is of two varieties namely *Bara* (in fast *Laya*) and *Chhota* (in slow *Laya*). Both the varieties are however marked by

extremely variegated colourfulness, made possible by the use of a very large variety of ornamentation like *Gamak*, *Meend*, *Kan*, *Tan* of all kinds and *Alapan*. It is in vogue mostly in the zone under the influence of the North Indian Music and has attained its highest perfection in Bengal.

- (d) *Tappa*. *Tappa* is a style developed to classical perfection by Shori, out of a simple rural tune sung generally by camel-drivers of the Punjab. It is not as intricate as *Khayal*, but even in spite of its comparative simplicity it claims a good deal of the colourfulness of the latter.
- (e) *Thumri*. *Thumri* is generally sung in complicated but *Tals* of medium length. The themes best developed pertain to *Shringar Ras* (Erotic).
- (f) *Holi*. This style, like *Thumri*, is generally employed for the expression of *Shringar Ras* (Erotic), the songs mostly describing incidents in the romantic life of Radhika and Krishna. It is also used for *Bhakti* (Devotion). The songs in this style are very much appreciated in *Vasant* (Spring) and particularly in Brij the country where Shri Krishna lived.

- (g) *Kirtan* and *Qawwali*. These two styles used by Hindus and Mohammedans respectively are employed for religious devotional purposes only.

In addition to the styles mentioned above, there are others which are either employed for educative purposes, e.g., *Lakhshan Geets*, which describe main features of the composition of the *Rags* and *Ragnis*, or these are more for the purpose of variety exhibition of skill only, for example, *Tarana* in which some denominational menomonics like *Tu-Dani*, etc., are sung; *Sargam* in which the Solfic names of Notes appear; *Chaturang* (Multicoloured) in which *Geet*, *Tarana*, *Sargam* and *Bols* of *Tal Matras* (Drumming menomonics) are intermingled in an attractive pattern. To this category also belong *Rag-Mala* (Garland of Melodies) in which different *Rags* and *Ragnis* are sung at a time but in one *Tal*, as well as *Tal-Mala* (Garland of *Tals*) in which the process is reversed.

Light Music.—*Ghazal*. *Ghazal* is exclusively a feature of the urban areas of the North Indian Music. Its popularity is mainly due to the fact that popular sentiments can easily be expressed in it.

Film Music. *Filmi Geet* or *Filmi Gane* as these are styled are also very popular in urban areas. Like *Ghazal* again these are catered for the transient

emotions these express. Some of these assume the proportion of 'Song hits' for some time. Their one possible merit is that these have made urban masses more Music-minded than ever before.

Folk Songs. Simple in language these songs swing millions of the rural masses to ecstasy. The number of Music Notes used is generally lesser than employed in Classical Music, ornamentation is sparse and the *Tal* is rarely longer than of eight *Matras* (Pulse beats). More often than not these are sung without any instrumental accompaniment. In cases even when used, it is hardly ever more than *Dholak* for drumming time and *Ektara* or *Sehtara* for accompaniment. Love, Social and Domestic phases of conduct affecting life and even martial exploits of the by-gone days are expressed in a manner appropriate to keep up the spirits of the people in places where they have few other means of enjoyment or recreation. The songs dealing with Martial exploits are of great Historical value too. These mostly abound in Rajputana and Maharashtra.

Work Songs. Work Songs are primarily composed to assist in the performance of work or for neutralisation of 'Routine Fatigue,' but these have in some cases definite emotional value too and thus to a degree serve the purpose of Music as well.

Vadan

(Instrumental Music)

The ideal of Instrumental Music (except of the instruments for production of Drone only like *Tanpura*) is to copy vocal Music produced by human beings. Many ingenious explanations are given accordingly for explaining their construction. In the Indian System, these Instruments are classified according to the mode of the production of Music Notes from the same. Though originally designed with the aid of 'Acoustic perceptions' only the accuracy of the Notes produced from these have stood all the modern tests of Music Notes. The varieties of instruments within the same kind even is large, being the largest in the case of 'Time drumming' instruments. Some of the instruments are the creation of environmental requirements only. The one advantage of the numerical excess is that it offers a wide range of choice for the selection of 'Timber' to suit differing tastes.

A brief survey only is possible here of the Instruments of various kinds and of the most well-known in each.

- (a) Stringed with two sub-varieties namely *Tat*, of which the strings are set in vibration by means of a bow pulled across these and *Betat*, of which the wires are pulled.

- (b) Airblown (*Sushir*).
 (c) Instruments of percussion (*Avnaddha*),
 (d) Chimed or rung (*Ghana*).

Tat.—Instruments of this class are of two kinds, one of which are provided with *Purdahs* (frets) at measured distances, against which the wires when pressed and played produce specific notes. The other kind has open strings and for Note production the length of wire to be set in vibration is pressed by a mental approximation on the spur of the moment. Instruments of both of the kinds mentioned above are sometimes provided with *Tarabs* (resonance wires). *Dilruba* and *Sarangi* are the best known representatives of the fretted and non-fretted kinds respectively. In rural areas *Ektara* (Unichord) and *Sehtara* (Trichord), both belonging to the non-fretted type are much in use. Violin has been adopted recently from the West in urban areas and is gaining immense popularity.

The Music created from the *Tat* instruments is the nearest in approach to that of the voice of human beings, in so far as the continuity of the Notes and their modulation is concerned.

Betat.—From the point of view of acoustic construction *Betat* instruments have the same varieties as those of the *Tat*. The wires are however pulled either by fingers of the hand or their elongated nails

or by means of a *Mizrab* (Plectrum.) The incomparable *Tanpura* also named *Tambura* and used in the whole of the country heads the list of varieties without frets. It is followed by *Sarod*. Superb *Veenas* of the South and the colourful *Sitar* of the North are the best known of the kind with *Purdahs* (Frets.) The Notes produced by the instruments of the *Betat* class are of the 'Stacto' type. The initial sound produced by plucking is to be ignored as the true Note emerges later. In order to give the Music of this type as continuous an effect as possible, special technique (*Gamak*) like *Meend*, etc., are employed or devices like *Jhala*, etc., played in "Tempo Allegro" are used.

Sushir.—To this type belongs the romantic *Bansuri* (Flute) of Shri Krishna, the very mention of the name of which conjures up in the mind of the people, the magic wrought by him as a cowherd boy, while tending his cows in the country of Brij. Another instrument of note and perhaps best suitable for classical Music is *Shahnai*. *Been* (Snake-charmer's gourd) as distinguished from *Veena* is much liked on account of the suitability of the timber of its Notes for the production of a few special *Ragnis*. In rural areas, the place of honour is taken by *Algoza* (a pair of flutes played together). An indigenous type of Bagpipe is used in some hilly-portions of the country. From amongst the instruments of the West, Clarinet

seems to have found favour. Some instruments of the Bugle type are also used in the Orchestral accompaniment of Film songs. The use of these however is still in its infancy.

Dhawan.—To this type belong more than 300 varieties of Drums, samples of most of which are in the Calcutta Indian Museum collection. These range from the tiny *Damru*, used by Lord Shiva for Dance accompaniment, to the mighty *Tamak*, requisitioned into service for long distance sounds signalling or for arousing martial spirit in members of clans when summoning them in times of need. *Mardang* (*Pakhawaj*) is considered as the best accompaniment for classical Music, while in the North, its place is more often than not taken by *Tabla* (a pair of drums). *Nagara* finds favour with *Shahnai* type of Music. In Rural Music, *Dholak* provides the simple but loud enough time accompaniment which the type of Music demands, on account of the fewness of the Notes it is composed of and the open air audability it is generally expected to provide. The place of *Dholak* is taken by the *Dhol* in Rural Dances, and some recreations which require Music Time accompaniment.

Ghana.—Instruments of the *Ghana* type are of two varieties namely 'chimed' in which the Music Note producing body is not moved but is struck, and rung in which the former is made to strike against the striker. The chief known are *Ghungrus* (Dance-bells),

Ghantis (Bells), *Gharyals* (Gongs), *Manjiras*, *Chhainas* (Cymbals) and even an ordinary pair of *Chimta* (iron tongs).

Instruments of more than one kind are sometimes combined into one. *Khartata* and *Majiri* are of this type. The most artistic combination however is when the bow of an *Ektara* or *Sehtara* is provided with a small bunch of *Ghungrus* (Dance-bells) attached to the end held in the hand. A little vertical tilt of this end at suitable time intervals, not only produces necessary time marking sounds but with the string Music also creates a Dance Music orchestral effect.

Nattya

(Dance)

DANCE unaccompanied by Music produces emotional effects by means of visual impulses only, imparted by the rhythmic movements of the body and facial and other expressions including *Mudras* (set symbolic signs made by various positions and shape of fingers). When Music accompanies, the effect is accelerated as well as enhanced by the complimentary action of the auditory impulses of the same. The art of Dance accompanied by Music seems to have reached a high degree of perfection in India very long ago, as we find a masterly exposition of its technique in Bharat's *Nattya Shashtra*, which was compiled at least 1500 years ago. From the earliest times there

are traces also of the art of Dance, like Vocal Music having been practised in two main styles, namely the Classical and the Non-classical, the former being distinguishable from the latter by being required to conform rigorously to fixed rules of expression called '*Abhinayas*'. These are of four kinds, namely, *Angika* (Physical), *Vachika* (Articulate), *Aharya* (wake up) and *Satvik* (Mental). Depending on the kind of expressions employed, Dance is divided into three kinds, namely, *Nattya*, *Natya* and *Nritya*. The types of Dances of each kind in vogue at present are :

Classical.—These are of the *Natya* variety, the following being the best known :

- (a) *Tandav*.—This type of Dance is considered eminently suitable for expression of manly emotions and actions, as the movements are forceful and the expressions accompanying the same are also bolder than in any other type. The system is said to have first been perfected by Lord Shiva.
- (b) This type is considered suitable for the expression of emotions peculiar to 'female temperament' only and is said to have been raised to the status of a complete Art by Shiva's spouse Parvati.

So far as the employment of the particular kinds of rhythmic time is concerned,

Shiva and Parvati are alleged to have been working jointly and the term *Tal* is said to have been made by taking *Ta* from *Tandav* and 'l' from *Lasya*.

Kathak.—This type of dance is suitable for solo as well as group performance and also to a degree for 'Ballet' work too. Finally it is suitable for the expression of emotions peculiar to males as well as females. The movements are therefore naturally neither so vigorous as in *Tandav*, nor so effeminate as in *Lasya*. Emotions best expressed are those connected with *Bhakti* (Devotion) and *Shringar* (Exotic) *Ras*. Its chief characteristics are fixed symbols (*Mudras*) and very dextrous and nimble foot work. Many consider that these prevail to a greater degree than are necessary, but they overlook the fact that the real aim of *Mudras* (Gestures) is to express the fundamental immutability of the urges of 'Instincts' and by speed to represent the rapidity of the process of thinking by which emotional changes are accompanied. The Dance is said to have been brought into vogue by Rādhā and Shri Krishna. Its greatest exponents in recent times were the brothers Binda Din and Kalka Din of Lucknow who are now represented by Achhan Maharaj. Even in spite of its difficult technique, it is gaining popularity in the North of the country as a consequence of the revival movement which is now on.

Bharat-Nattya.—This style is a counterpart of *Kathak* in Tanjore side of South India.

Kathkalli.—It is the only form of Dance used for 'Ballet' work and is very popular in Malabar portion of South India. *Mudras* and clever foot work are as much a necessary part of this style as these are of the *Kathak*. This Dance has attained a good deal of popularity in recent years particularly due to the efforts of Mahakavi Vallathol.

Seraikela.—It is a 'Mask Dance' of South India, being practised at its best in a State of the name it bears.

Manipura.—It is a classical Dance of the hill people of Manipur State (Assam). It is really not so conventional as the other types already mentioned are and perhaps on this account can more easily be interpreted. As a matter of fact it was the source of inspiration leading to the type of Dance now practised at Shantiniketan.

Oriental Dance.—This type is of recent origin, having been evolved to meet the taste of people with modern westernised ideals. The Shantiniketan School type occupies one end of the system expressing the spiritual conception of life in this country, while Uday Shankar's is at the other to delineate even its industrialised aspect. Foot work in this style is neither so

complicated nor so quick, and *Mudras* in the classical sense are unessential but the place of the two foregoing is taken by more brilliant make-up, greater volume of orchestral Music and above all by expressions which can more easily be understood than those connoting metaphysical aspects of our mind.

Non-classical.—In this category may be included all the innumerable Dances practised in the country but which have not been included in the category of 'Classical Dances.' Like Folk Songs, these furnish the greatest possible satisfaction of the æsthetical requirements of the physical plane of life of the masses of the country, particularly in Rural Areas. Though the movements are unconventional, all the same these are in perfect 'Rhythmic Time.' A few of the varieties of outstanding interest are the very original and expressive Dances of the Jungle Tribes ; the graceful *Garva* (group) dance of the Gujarat ladies, the *Gagariva* (Water-pot) dance of the females of Brij—the abode of Sri Krishna, the energetic *Dharis* of the men of the South-West Punjab ; the *Devta* dance of the hill-men and the *Khatik* (War) dance of the North-Western Frontier Province of the country. All of these, as well innumerable varieties of others prevalent in India, particularly in rural areas are marked by simplicity of Rhythm and movement. Facial expressions and *Mudras* (Gestures) are generally conspicuous by their absence, so also is make-up of all sorts. The

Tals (Time measures) are of short lengths with simple *Matras*. With the exception of *Devta* dance, which has an accompaniment of really old type orchestra, the others have hardly any except the *Dhol* or *Dholak*. Vocal or any other form of Instrumental Music is almost never employed with these. The dances are generally held on happy occasions like births, marriages, in connection with religious functions or fairs. Some of these are held by way of recreation also, e.g., *Dharis* on moonlight nights. Even in spite of all their rural simplicity, these serve really useful purpose in places where no other entertainments can be had and for the people who hardly would have the means of paying for the same even if these were available.

Therapeutic Value of Music

Value of Music as a Therapeutic agent was known to the masters of the Indian Music system in times gone by. We have learnt the process by which Music produces its æsthetic effects. We can understand now the manner in which it can be made to yield results which could be of greater practical use to us, once we take into view the following additional principles:

- (a) That Sound Waves, Light Rays and Invisible Rays are nothing but matter in motion, differing only in the rate of vibration and wave-length.

- (b) That X-Rays, Ultra-Violet Rays, Infra Red Rays and Coloured Light Rays have a definite Therapeutic effect on living beings even without any conscious effort on their part and therefore it stands to reason to believe too, that sound Waves, which have already been shown to affect our emotions, should, when judiciously used, produce desired and determined Therapeutic effects.

and (c) That 'Health' is a condition of the body of living beings in a state of vibrations in 'Unison' and 'Disease' when these are in 'Discord.'

Music as a Therapeutic Agent is aimed to restore that vibrational 'Unison' which an individual should have when in a state of perfect health. The various uses which appear to have been made were as a

- (i) General Tonic.
- (ii) Stimulant.
- (iii) Sedative.
- (iv) Curative of mental derangements and of some pathological conditions, and
- (v) Physio-Therapy.

The first essential for the successful working of our aim is to have a knowledge of the individual

emotional effect of each Note as well as cumulative effect when used in combination with selected others as a part of a *Rag* or *Ragni*. The next important thing is to determine the particular *Rags* or *Ragnis* which would be effective in removing certain specified diseases or attaining certain results: the extent of their development: the frequency of the application of the remedy and the length of time for which the treatment is to be continued. All this does require a complete knowledge of the psychological phenomenon of the working of the mind of a living being as well as accurate diagnosis of the various conditions which are amenable to treatment by Music. This does mean a careful and painstaking study and considerable experience. But which system of healing is easier to acquire?

The process by which Music works out its effect is that during the state of consciousness, every living being has a pervading feeling in his mind for the time being. This may be permanent or temporary only. In either case it is called *Bhav*. When it is considered necessary to voluntarily change this *Bhav* and to replace it by another, the desired aim can be attained by superimposing on the former the desired feeling but with stronger emotion. This is called *Vibhav*. The resultant feeling is called *Rasa*. *Rasas* are generally feelings consistent with and capable of maintaining our standard of conduct and behaviour

up to the highest cultural notions of the Society to which we may belong. This cultural notion of course includes our standard of living, health and physical efficiency as well. In the manner described above we can correct our deflection from the needed normal course by using Music as a vehicle for the same. The process by which the emotions are transmuted may be stated to be that of 'Simla Simlibus Curantor', i.e., for curing 'blues' for example we would need a *Rag* or *Ragni* which would in a healthy mind tend to create 'blues'. From the point of view of Psychology, the action may be described to create emotions which neutralise adverse, obstructive, repressing and conflict-creating emotions, with the aim of liberating desirable emotions to assume ascendancy. Diagnosis as well as the results obtained can be checked, as most of the feelings, whether these be in the form of *Bhavas*, *Vibhavas* or *Rasas* are manifested by *Manu* (Mental), *Tannu* (Physical) or both of the foregoing forms of symptoms.

Complimentary Treatment.—Even at the risk of a digression, it is relevant to state that the 'Colour scheme of Light and Costumes' in Dramatic, Dance or Music performances are not really intended to produce merely an additional attraction through dazzling iridescent multicoloured effects, but are meant to be so selected as to compliment the production of the desired emotional effects through similar but visual

impulses. The Music experts of the Indian System appear to have known this, because not only has each Note of the basic Scale been assigned a colour to the emotional effects of which it has the closest 'Therapeutic' affinity' but also the cumulative effect of Notes when employed in various *Rags* and *Ragnis* have been determined and personified in the form of 'Visualised Music' where the colour of the body and garments of a *Rag* or *Ragni* symbolise its effect in visual impulses, and the pose its predominating emotional appeal. Instructions given regarding stage management in Bharat's *Natya Shastra* are full of meanings when interpreted in the sense described here.

Music as an Economic Agent

The two undeniable uses of Music as an 'Economic' agent are as a 'Work Time' and 'Work Energy' saving device.

Work Time Saving. Within the same given time, a lame man can neither walk so well, nor for such a long distance as a man can who is not so disabled. The difference in the capacity of the two is due to the capacity of the latter to do more walking than the former on account of his ability to move in a rhythmic manner. This applies to all the other forms of work which we are capable of performing. Nothing can befit us better for this type than Dance. If all our task were to be done by means of rhythmic movements of our body and limbs, the time

thus saved would be enormous indeed and could be used for the performance of more work.

Work Energy Saving. 'Work Energy' is saved by performing our work to the accompaniment of suitable 'Work Songs'. Some forms of these are met with all over the country already but their usefulness demands evolution of a good many more. The characteristics of these songs are that the *Tal* should be of the length equivalent to the time taken in one or more complete cycles of the creative effort of the task concerned. The *Bhari Talli* (Stresses) of the *Tal* (Time Measure) should coincide with the work creative strokes and the *Khali* (Waives) with movements of comparative relaxation or preparatoriness for the next creative effort stroke. With the accompaniment of a song of the above characteristics 'Work Energy' is saved, because each creative effort stroke, synchronising with the stresses of the *Tal* is more concentrated in effective force than any other is and also because waste of time and consequently 'Work Energy' is prevented by restricting relaxation or the preparatory stage to the measured duration of the unstressed portions of the *Tal*. The 'Energy' thus saved and to some extent the 'Work Time' also saved can be employed for performance of a larger amount of Work, which cumulatively for the country as a whole can mean an enormous 'Economic' gain. The Music furnished by the Notes of the tune and the emotional

effect of the words, when the accompaniment takes the form of 'Vocal Music' prevent fatigue by keeping the mind away from the monotony and drudgery of the oft-repeated uniform movements of all our tasks. Music, though not strictly of the 'Work Song' type has been tried in many War Work Factories recently and the increased output attributed directly due to the Music generated efficiency has been noticed to be quite appreciable. What an enormous economic advantage would it be if all our work were to be accompanied by suitable Work Songs!

Conclusion

From the brief survey which has been given of the basic principles of the Indian Music System and its possible uses, it would have become sufficiently clear that it is a 'Science' as well as an Art. Really it is something more, as it claims to touch even the metaphysical domain of the life of those who understand it. It would be an act of injustice however to let the matter end here, because besides ancient books and legendry fore, there are other proofs of the Art having been practised as preached. The 'Dance' poses of Lord Shiva carved on the walls and pillars of Natraja's temple in Tanjore (South India); frescoes in the caves of Ajanta; the pillars of the temple in Pompei (Bellary district, South India) which are said to be tuned to the sound of different Notes of the Carnatic Music Scale; the existence of numerous Music

Instruments invented thousands of years ago, which have not only been proved to be accurate from the point of view of acoustical principles of construction but are also suited to produce Melody Music of all forms; the continuation with undimmed brightness of the names of the beaconlights of Music like Swami Hari Dass, Mian Tan Sen, Amir Khusro in the North and Tyagraja, Dikshtar and Som Shastri in the South all go to show that the Art has been practised since long and that owing to its great value to us, steps have been taken to preserve it in the manner in which other matters of cultural importance to humanity are. Judged in the light of the facts, that life-preserving urges of 'Instincts' are common to all humanity, irrespective of bars or barriers of country, colour or culture and that all 'Arts and Crafts' which are meant to serve these urges defy artificial or conventional restrictions, because on coming into contact with corresponding systems prevalent in other places, these exchange on mutual basis whatever is useful to the followers of each, the Indian System of Music has given abundant proof of its soundness and vitality. Whereas on the one hand it has imbibed some features of the Arabian and Persian Music, which led to a change in the Basic Scale of Notes used in the North of the country, and in recent times on account of its fairly prolonged contact with the Music of the West, has adopted some Music Instruments, as well as, ex-

hibited some eagerness for the Orchestral form of Music whether Instrumental alone or as a background of Film Songs; on the other it has lent distinct colour to systems of the East (Java and Hawaii) and the West. Specific recent instances of the transmission of the influence to the latter System are Palavola's Ballets and La Marie's Oriental Dances, introduced in Europe and America. In Music proper Cyril Scot's 'Lotus Land' in a Penta-tonic Scale, almost resembling *Ragni Bhup Kalayani* of the Indian System is the latest. The yearning for reversion to unequal temperament of Music Notes in the Western System may be materialised if our system is appreciated and interpreted properly.

There are, however, limits beyond which external influences are resisted if a system is to save itself from annihilation. This seems to have been and still is the behaviour of the Indian System too. It has rejected 'Harmonium' already, as the equal tempered Scale of Notes produced by the latter were inimical to Melody. There are some who fear that it is perhaps going to succumb to the 'Harmony Orchestral type Music backed Film Song' which are getting so popular these days. Kipling's oft-quoted vision of the impossibility of the fusion of the ideals of the life of the people of the East and West, may turn out to be untenable with regard to many phases of our cultural life, but it would always hold true so far as the Music Systems of

India and the West are concerned, because there can never be any artistic mixture of Harmony and Melody. Taking advantage of our growing knowledge of the utility in the Western System of as large a number of Notes as possible for creation of the maximum possible emotional effects, we may restore the number of our Notes to the old number of 'Nineteen', or after experimentation with the attractions of the plurality of 'Music Sounds' copied to some extent from the 'Western System' in our present-day 'Orchestral or Film Song Music', we may adopt greater use of 'Polyphony (Plurality of Timber or Intensity).' We may even adopt some accessories like 'Voice Registers' for speedier 'Voice Culture' or a 'Melody Type Notation System' for an accurate record and reproduction of Music. But that is all, because so long as our 'Metaphysical' conception of life an 'Everchanging continuity within one whole,' all our spiritual, mental and physical needs of existence which Music could supply, can be done by that of a Melody Type only, where within the one whole of a *Rag* or *Ragni*, emotions peculiar to each can be expressed in a continuity of change. To crown its indispensable value to us, it is the only System which enables us, in its *Alap* Style, to realise the vision of the unstressed but rhythmic eternal Cosmic motion of the heavenly bodies within their orbits and make us feel in unison with the Universe we live in!