THE VIOLIN IN SOUTH INDIA

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A Thesis submitted to the
Faculty of Wesleyan University in
partial fulfillment of the requirements
for the Degree of Master of Arts

Middletown, Connecticut

May 12, 1971
The object of this thesis is to compile and present the information I have gathered about violin playing in India. The focus of the study is primarily south India since that is the area in which most of my work was done. Certain material about north Indian violin playing is also included.

This project started in 1967 when I first began lessons with violinist V. Thyagarajan, a concert musician of Madras who was then a Visiting Artist at Wesleyan. Previously I had played western violin for many years. I continued to study with Thyagarajan until at his suggestion I went to Madras for the school year of 1969-1970. There I became the student of Thyagarajan’s father and guru, Papa K. S. Venkataramiah. While in Madras I also undertook to meet and hear the playing of as many other violinists as possible so as to put my teachers’ family style into proper perspective.

The first half of the thesis endeavors to assemble various background materials, and to explain in general what is going on.

The second half describes Karnatic violin technique as taught to me by two teachers, father and son. First the mechanical elements of the technique are presented, with reference to the musical phrases in which they are used. Then in the sections on gamaka, common elements of karnatic music are explained, showing which of the previously defined techniques are used to execute them. By these various approaches I also hope to provide some analytic clues to what constitutes an individual performer’s style.
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Part I

Various Information
Development in South India.

Bowed string instruments have been known on the subcontinent of India since time immemorial, but the violin in the form we know it arrived there only with the advent of European traders and colonialists. The earliest of these foreign groups were the Portugese, who established their main center at Goa during the sixteenth century. Their empire was later inherited by the Dutch and British. The French and Danes also maintained trading communities in India, but it was the British who gained ultimate power and exerted the greatest foreign influence. The East India Company had major centers at Fort Saint George (Madras city) and Travancore (in Kerala) in the south, and in the two new cities which they established in the north, Bombay and Calcutta.

Knowledge of western culture and taste gradually spread from the colonies. Each European community usually had its share of musicians, and there was generally a band or orchestra to provide amusement and a taste of home. Europeans and Indians shared the same streets and musicians from both sides took part in important ceremonies.

On the news of Farruksiyar's farmen granting possession of five villages around Madras in 1717, two processions went round the town, one of all the civil authorities, a company of soldiers and 'all the English musick' which toured the port; and the other led by the Peddanaik on horseback, and consisting of Talliers and native music, a
company of British soldiers, two trumpeters, the chief Durbash (Indian secretary) mounted, a palanquin with the farman, six sergeants and the company’s merchants.¹

Not only was the foreign music heard on the streets, but in some instances, where there were not enough Europeans to fill out the colony band, Indians or half-castes were taught to play the instruments.

The maharajas of both the south and the north had always maintained musicians in their courts. Many of the royal patrons came, in addition, to develop a taste for the novel sound of foreign music. Orchestras which played western music were established and maintained in many courts, manned by native musicians whose posts were, as was the case with other court musicians, often hereditary. Small wonder then that the classical musicians of the court became familiar with the sounds of foreign music and foreign instruments, and that cross-musical experiments began to take place.

Karnatic music during the period around 1800 was undergoing a creative rebirth; much of the repertoire and style of today’s concert music dates from that time. Three major composers and many fine musicians flourished in the musical centers of Tanjore and Travancore. Classical music had been long established, but this generation of composers brought new musical forms and sound patterns into the art. Thyagaraja and Dikshitar might be considered ethnomusicologists of their day. Into quite a few of their compositions they brought the sounds of other musical traditions, including Hindusthani

music, and the sound of the western band, adapting them of course so that they sounded karnatic.

During this same period the western violin first came to be used in karnatic music, and to be accepted shortly thereafter as a native instrument. Violins had of course been kicking around the continent for several centuries, and there is no telling how many Indians from time to time tried their hand at it or attempted to play karnatic music on it. Apparently none of them created enough of a stir to merit recognition in the annals of the history of south Indian music.

Balaswamy Dikshitar (1786–1857) was the first adapter of sufficient renown to bring the instrument into the light of publicity. He belonged to a leading musical family of the time. His father, Naraswamy Dikshitar, was an eminent composer–musician, and his older brother, Muttuswamy Dikshitar, is remembered as a composer–saint.

Balaswamy received three years of instruction in western violin playing technique from the bandmaster of Fort Saint George. Sambamoorthy says he was the first to receive "systematic training" and to adapt it successfully. Perhaps success is the greater factor. His talent in singing and vina playing, as well as his novel mastery of the new instrument, earned him the position of court musician to the Raja of Ettipuran. He then became one of the most reknowned musicians of the south, and due to his influence, he was able to promote the popularity of both the violin as a karnatic instrument and the compositions of his brother.

Many eminent vidwans (musicians) in the area began to play the violin, including Vina Kuppaier, shishya of Thyagaraja, and Subbaraya Sastri, the composer son of Shyama Sastri.

Contemporary with Balaswamy Dikshitar and equally important was Vadivelu (1810–1845). He was the youngest of the four Ponnaya brothers. These four, known as the Tanjore Quartet, were dance masters, musicians and composers of the Tanjore palace. Vadivelu was a teenage prodigy whose musicianship and skill in violin playing, according to the biographical sketch of T. Sankaran, evoked the praise of Thyagaraja himself. (And this was no mean feat since the saint-composer is said to have reserved most of his praise for the Diety and wasted little of it on his fellow men.)

At the age of twenty Vadivelu changed to the patronage of Maharaja Swati Tirunal in Travancore, and he assisted that royal composer in many of his musical endeavors. Vadivelu was associated with dance and dance-compositions. On the effect of his performance Shankaran quotes,

...and Vadivelu sang during the dance performance and accompanied himself on the fiddle as only he could do. Verily it was a feast for the Gods and brought down to our dark dull earth the faint echoes of the glories of Indra Sabha where flitted past in mazy dance Rambha, Urvasi, Menaka, Thilottama, casting upon the audience the charm of woven paces and waving hands while from the dim background swells forth the witching music of the golden throated Gandharvas, Tumburus, Viswanasu and their like.

1 T. Sankaran "The Last of the Tanjore Quartet". Hindu, April 5, 1970.
2 Ibid. No source is given for the quote.
The Maharaja presented Vadivelu with a violin and bow of ivory in gratitude for his skill. I do not know if the violin was playable, but it is preserved today as a family heirloom in Tanjore.

Violinists began to spring from all quarters. Some vidwans of the time bore names such as "Fiddle Sabbarayer" and "Fiddle Rangacharlu". For some time the violin was considered a novelty and was probably used for solo more often than in conjunction with singers. Vadivelu, it seems, fiddled and sang simultaneously. A few others may have played similarly. But the general practice after a few generations was that the violinist generally took the subordinate or accompanying role. Today the role of accompaniment is firmly occupied by the violin; its position is so strong that it is considered a necessity for a vocal concert, and it also commonly accompanies flute solos, solos by other violinists, and sometimes vina solos.

Stylistic changes in violin playing occurred sometime during the latter half of the eighteen hundreds to make the violin sound more in keeping with the voice. This meant the addition of sliding techniques; "jaru" style (sliding) replaced "pidi vadyam" style (literally, "fiddle-instrument"). The violin was no longer an exotic novelty. It was common in accompaniment. There were enough skilled violinists so that only outstanding players could make their reputations as soloists.

Around the turn of the century two violinists came into such prominence that they eclipsed the reputations of their peers and of the preceding generation. They are said to have "raised" the violin into its current status as a full-fledged karnatic instrument.
The first of the two is Thirukkadikaval Krishnayyer. (1857-1913). From the instruction of his guru Fiddle Subbarayer and from his own many years of ceaseless practice, he developed new technical skills and a high degree of intricacy and perfection. He made major contributions to the jarnu-style, introducing his own sliding patterns. Among his specialties was a very fast fingering technique which reputedly enabled him to fit sixty-four swaras in a single bow— the equivalent of a three octave scale. Audiences also appreciated his use of the mandra sthāvi (G string) for expressive effect.

Krishnayyer lived in an age of vocal virtuosity, wherein many were accomplished in the art of pallavi, and ragas were often sung by famous vidwans for several consecutive days. Krishnayyer held his own among these ranks as a soloist, and was apparently such a formidable accompanist that only the top vidwans of the day, such as Maha Vaidyanathan Ayer, Patnam Subrahmania Ayer and flutist Sarabha Sastrya Sastrigal would risk doing a concert with him. Sambamoorthy tells of an incident wherein the vocalist Ramnad Srinivasa Iyengar, while trying to follow up a brilliant and lengthy exposition by Krishnayyer, sang so hard that he cracked a rib.¹ The violinist's notoriety must have been exceptional, for Sambamoorthy also says,

Singers in general are anxious to have Violinists and Mridangam players of top rank as accompanists. Such accompaniments, though result in their being dwarfed, still not only add to their prestige, but, incidentally, supply the deficiencies, if any, in their performances and make the concerts enjoyable.²

¹ P. Sambamoorthy, History of Indian Music, Madras: The Indian Music Publishing House, 195 p. 121
² P. Sambamoorthy, Great Musicians, Madras: The Indian Music Publishing House, 195 p. 85
The second of the two great violinists was Govindaswamy Pillai (1878-1931) whose career overlapped with that of Krishnayyer, reaching its peak at the turn of the century. Govindaswamy had Krishnayyer's technical precedent before him. In addition he learned technique from the western violinist John Dorasamy. He made the karnatic violin sound yet more vocal, and brought into use a style of semi-detache bowing in tanam passages and varnams which is called tana vil.¹

Like Krishnayyer, Govindaswamy was outstanding as a soloist. As for his reputation as an accompanist, accounts differ. Sambamoorthy says that "His services...were eagerly sought after by topranking musicians of his time. He was a loyal accompanist and did his best to make the music of his Principal shine well."² But his shishya, Papa Venkataramiah, tells me that Govindaswamy also terrorized his soloists by sheer greatness, or by his habit of sitting facing the audience rather than presenting the customary profile. Evidently he did not care to take any subordinate role in concert. In current times he is often cited as representing a standard of achievement. As one admiring says,

To my mind, Govindaswamy Pillai had the most aesthetic look, with the composure of a Yogi transported by the Nada he produced. He is the supreme ideal I have heard and enjoyed on the violin.³

¹ Tana vil means literally bowing for tanam. The term is used by Sambamoorthy, but I have never heard English-speaking violinists single out any name for the technique.
² P. Sambamoorthy, Dictionary... v. II, pl 207
³ C. S. Iyer, "Ideals in Violin Technique" Journal of the Music Academy, Madras. v. XXX, P. 77
Biographies on the subsequent generations of violinists are difficult to find. Most available writings in English come from the pen of Mr. Sambamoorthy, or from the yearly *Journal of the Music Academy* of Madras. Both of these sources tend to limit themselves to personalities of the past. It is apparently not customary to pass judgment or eulogise in print those musicians who are living or recently dead. Nor are composers and musicians singled out for a place in history until several generations later.

This seems in keeping with an overall trend to view the present as a poor imitation of the past. Not all musicians to whom I spoke seemed so tradition-oriented. But still many see change as the process of decay rather than as innovation which perpetuates the life of the music. Also, due to the orientation toward tradition, the old and past masters are revered as an ideal toward which the humble living can aspire, but which they can never quite reach. And so Papa Venkataramiah says of Govindaswamy Pillai, who was his guru, "He is the greatest. After him there is nobody."

However, among these nobodies arose a subsequent generation of violinists who were reknown for their performances as soloists as well as accompanists. Since there is little to be found in print about them it is guesswork as to which among them, if any, will be glorified in years to come. The four who gained the greatest popularity\(^1\) were Rajamanikam Pillai (1899-1961)

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1 These statistics and others on performance popularity are drawn from a current research project being done by Mr. Adrian L'Armand, graduate student at U. of Pa. Department of Asian Studies. Statistics are drawn from the scheduled sābha concerts in Madras city as listed in *The Hindu*, from 1930 to June 1970.
who was the student of Thirukodikaval Krishnayyer; Mysore Chowdiah (1897-1964) who incidentally played with seven strings on his violin; Dwaram Venkataswamy Naidu (1895-1963); and the still living Papa K. S. Venkataramiah (b. 1901) who is the student of Govindaswamy Pillai.

Likewise nothing is written of today's generation of performing violinists though there are many of top quality to be heard in Madras. Those who are most widely known and who appear most frequently in concerts are Lalgudi G. Jayaraman, T. N. Krishnan, and M. S. GopalaKrishnan.

In terms of popularity the violin occupies a strong place in karnatic music today. Violins are heard in solo concert as frequently as the vina, and more frequently than flute or nagaswaram on the concert stage. Also it is considered a necessity to complete the ensemble of a vocal concert.

It seems that the violin gained this strong foothold through its capacity to accompany the voice. Some Indian accounts explain that the new instrument provided a stronger and more pleasing sound than the accompaniment of either the vina or of a second and subordinate vocalist. Evidently the idea of having a strong doubling of the melody line grew into favor during the era of the great composers. But we are left to guess whether the sound of the violin was instrumental in inspiring this aesthetic change, or whether it was the change which enabled the violin to gain lasting favor. Perhaps it is both.

I believe that the violin is now being played by more persons than ever before in karnatic music. The number is, however, still very small in comparison with the number of vocalists, vina players and mridangam players. Violin is taught, along with the more popular instruments and voice, in the music colleges and schools
of Madras toady, but still it is not a large number of practitioners who become concertising professionals. Perhaps a dozen violinists perform as soloists or accompanists. Most of these must supplement their income through teaching, other musical appointments or private means. Perhaps a dozen more violinists make their livelihood through positions in colleges and in radio stations.

As it happens, all of today's main violinists are products of family training: *shishyas* of their fathers who, when performing solo concerts, are accompanied by a violin playing brother, sister, or son. Music schools may have added to the ranks of practitioners and connoisseurs, but they have not replaced the guru system in producing professionals. The time and dedication necessary to the development of a concert artist seem to be best found today in the home of the traditionally musical family.

The difficulty of the instrument itself is another factor accounting for the smallness of the ranks. Since each generation takes advantage of the technical and stylistic discoveries of the generations before, those who succeed as concert artists today are using a complex technique. Krishnayyer and Govindaswamy Pillai left behind them a reputation for musicianship and a notoriety which seems difficult for subsequent generations to match. Yet I believe that violin technique has been and still is evolving to a point beyond that of previous generations, that today's violinists are producing a complex and difficult music the standards of which are improved and maintained by the competition in the modern concert trade.
II Development in North India.

In North India the violin was accepted more slowly into the classical music, and is still not a common instrument. One might ask why it was that karnatic music adopted the instrument so readily but hindusthani music did not begin to use it until two generations ago. Various people have offered me various explanations of the matter, but for the most part these are merely conjectures. Style and popularity are always difficult to trace to a single cause, and I doubt the question has a single answer. But I shall offer a few of the conjectures for what they are worth.

Firstly, North India already abounded in indigenous and highly developed stringed instruments, many of which were bowed. These included the sarangi, the esraj and the dilruba. All of these instruments make use of sympathetic strings, which improve the projection and give the instrument a characteristic hollow and echoey sound which has its own peculiar beauty. It is quite possible that the sound of the violin was thought too plain and uninteresting by comparison.

Secondly, the violin did not come into the music as an instrument for accompanying the voice. The sarangi already filled the role. Today one may occasionally hear the violinist accompanying a vocalist, but the sarangi is far more popular. In addition, hindusthani vocalists are more likely than karnatic singers to perform without string accompaniment, using only tamboura and perhaps a keyboard harmonium.
It is more difficult to say why the violin did not catch on as a solo instrument. Obviously there was competition. Sitar and sarod were and are more popular as solo instruments. But this has not prevented the shennai from becoming a concert instrument in the hands of Bismillah Khan, or the flute from gaining popularity through the personality of Pannalal Ghosh.

I personally believe that the most important factor influencing the popularity of an instrument may be the personality of the musician who introduces it. The violin may well have been ignored in hindusthani music because no Balaswamy Dikshitar was present to patronize its cause. It was not until this century that the violin received its introduction. The example has been set and others have followed it. Still, even today its acceptance among classical instruments is not complete.

The personality credited with introducing the violin is Allaudin Khan, a musician who traces his musical ancestry to the Tansen gharana and who is the guru of his son Ali Akbar Khan, and of Ravi Shankar. Allaudin Khan was a master of many instruments and worked both in classical music and in the popular media. It is through the latter that he most likely came in contact with the violin and subsequently became interested in using it for classical purposes.

Dr. Rajam of Benaras tells me that in adapting the violin, Allaudin Khan added a fifth string which enabled him to get a wide range of notes without having to leave the low positions. His technique, she says, was based

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1 His age is unknown. Ravi Shankar reports in 1968 that he is thought to be over a hundred years old.
on his knowledge of "instrumental" music rather than "vocal". (The fretted instruments of North India have a somewhat separate tradition of style and musical forms though they do sometimes perform "vocal" music.)

Shortly thereafter three other musicians emerged as violinists: V. G. Jog, Ganajaran Rao Joshi and G. N. Goswamy. These played with only the usual four strings, but used the madhyama tuning of P S P S, which enables sufficient range in low positions with fewer complications of shifting. Both North Indians and South Indians tell me that violin technique in the north is generally less demanding and complex than in karnatic music.

However, that seems to be changing. Among the younger generation of violinists a diversity of styles is apparent as each tries his own methods of making the instrument more versatile and impressive. Two of these whom I have met are experimenting with the introduction of a greater use of sliding technique so as to make their music more in keeping with the vocal style. These "sliders" look upon the "non-sliders" as technically primitive, and they see the future of the violin lying in the direction of their endeavors. I cannot speak for the future, but I was considerably impressed by these two. For me they destroyed the myth propagated in the south that North Indian violinists are hopelessly behind.

The younger violinists today include Sisir Kana Dhar Chowdhry of Calcutta, D. K. Datar of Bombay, N. Rajam of Benares and Satya Deo Pawar of Delhi. There are others also, with whose names I am not acquainted. Quite a few have come from Benaras Hindu University in recent times. None of these, however, has yet broken
through to big time popularity though they have good musical reputations. Of the violinists in north India, V. G. Jog is still the most widely known performer, and perhaps the most successful one in terms of business.

Violinists appear occasionally in concert festivals either as solo instrumentalists or accompanists, but not very often. Radio stations in major cities employ some violinists, and universities employ others. There is, in addition, the usual private teaching practice. V. G. Jog has issued a few LP's in duet with Bismillah Khan; there is an LP of Gajananrao Joshi, and a few stray 45's of other violinists are to be found. But on the whole hindusthani violinists, like the majority of karnatic violinists, cannot be self-supporting through the concert trade alone.
III Adaptations.

The violin came as a foreign instrument to an already established and well-developed style of classical music. Over the many generations of experimentation, its "adaptation" was accomplished. In fact, experimentation has not yet ceased. Techniques are still somewhat diverse, and individual differences of playing style are, to my ear, more readily recognised among karnatic concert violinists than among the top violinists of the western classical tradition.

The violin was introduced along with its European-established tradition of playing technique. But the karnatic musician had to use the violin to make a different kind of music, and a music which had its own aesthetic demands. As a result only a part of the western technique was employed. At the same time new techniques were introduced and discovered which made the violin sound more suitable for karnatic music. For instance, karnatic technique includes a variety of intricate slides, and an ability to execute extremely rapid grace notes in ways which have no technical counterpart in western playing.

Some of the changes have to do with muscular techniques and various interpretational subtleties through which the aesthetic ideal sound is reached. Other adaptations are more overtly visible, such as physical alterations of the instrument and its equipment, and changed posture of the performer, new tuning. I will discuss these latter alterations first.
Posture.

The violinist sits on the floor, cross-legged with the right leg extended slightly outward. This is in keeping with the karnatic tradition wherein all members of the concert group sit on the ground (or a carpet or raised platform) to perform. In fact there are very few genres of music in India practiced on a concert stage which require the musicians to stand, move about and such. And these exceptions (such as Kathakali dance) do not involve violinists.

Another easily noticed peculiarity is that the violinist does not support the instrument in the western manner. He rests the scroll of the violin against his slightly extended right heel. Thus the left hand and chin are relieved of their European role of counteracting gravity. The violin's other end rests against the body at any point between breast and neck, generally just below the collarbone. But this varies from player to player depending upon their particular physical build and sitting posture. (See photos.)

In this playing posture neither chinrests nor shoulder rests are necessary. Shoulder rests are never used. Chinrests are sometimes ignored, sometimes removed. Many players do, however, put a cloth over that end of the instrument which comes in contact with the chest so as to keep the violin from coming into contact with body sweat.

The advantages of this posture become obvious to anyone who tries their hand at the music. Karnatic music contains a profusion of sliding gamaka, and it is much easier for the left hand to slide freely when it doesn't have to support the instrument. In addition, the player must sit on the floor, and it is a great physical strain to sit crosslegged and also hold the violin in the air western style for any length of time.
Tuning.

The tuning of the violin has also been altered to suit the music. All classical music in India is accompanied by a drone consisting of the tonic and one other pitch or more. In karnatic music it is always the tonic and the fifth. The main playing strings of most Indian stringed instruments are tuned to these drone notes.

The tonic is called shadjam, or sa for short. The fifth is panchama, or pa. From time to time a variety of combinations of sa and pa have been tried for tuning the violin. The combination used today almost without exception is

\[
\begin{array}{cccc}
S & P & S & P \\
\text{Or, given middle C as tonic,)}
\end{array}
\]

Thus the interval between the open strings is not a fifth, a fifth and a fifth, but instead a fifth, a fourth and a fifth. The fingering used in scales which cross between D and A string (III and II) is consequently different from that used in western tuning.

An exception to this tuning scheme occurs when the violinist is accompanying a very low voiced singer, or when the singer himself modulates the **sruti** in order to sing a piece in a lower range. The violinist then tunes the pa strings down a whole step to the fourth, called madhyama or ma. The ma strings thus become the tonic and the sa strings the fifth. This is called madhyama tuning.

\[
\begin{array}{cccc}
P & S & P & S \\
\text{(F above middle C}} \\
\text{becomes the tonic)}
\end{array}
\]
The intervals between the open strings are now a fourth, a fifth and a fourth. Open D string (III) is the tonic.

Karnatic violinists generally prefer not to use madhyama tuning since it disrupts the customary fingering scheme and limits the lower range. If it is possible they adjust to the singer's low sruti by changing the violin's strings. A viola C replaces the G; the G replaces the D, etcetera. The violin can then be tuned to a lower tonic while retaining the normal S P S P intervals.

Choice of tonic depends upon both preference and occasion. Standard pitch is not a part of the Indian conception of music; emphasis lies instead upon the relationship of intervals to the tonic and the mathematical ratio of the frequencies of the two pitches. It does not matter which note is chosen as tonic so long as, in the case of a vocalist, it falls into a comfortable range. Each singer finds his comfortable sruti and stays with it. His sruti box, a small reed harmonium, keeps a constant tonic throughout the concert.

This does not mean that Indian musicians cannot conceive of or utilize standard pitch. My teacher Thyagarajan for example had what we call perfect pitch. However he would not refer to the pitches by their keyboard names but would identify them as being the sruti of a particular vocalist or instrumentalist whom he had accompanied.

Indians have borrowed the western keyboard to give names to their srutis, or rather, numbers. Middle C is #1 sruti; C# is one and a half; D is two, etc. They do not seem to be overly concerned as to whether A, for instance, vibrates at 440 cycles per second. But once that A has been chosen as a tonic, all other swaras must be exactly in tune with it.
When the violinist accompanies, he does not have a choice of *sruti*. He must tune to the soloist. For male singers the *sruti* is more often than not C; for female singers, F sharp. The vina *sruti* is E and flutes usually E flat, G or C.

When the violinist plays solo, though, his *sruti* choice is free. Today most violinists seem to prefer a *sruti* somewhere between D and E; often E flat. It is a matter of which tension the violinist prefers. If the tuning is high (above F sharp), it will be more difficult for him to execute gamakas, and the sound of the violin will be louder, more shrill. If the tuning is too low (below C), the sound will not carry very far. These effects may of course be altered somewhat by using strings of thicker or thinner gauge.

*Tone quality. Equipment.*

There does not seem to be any set preference concerning tone quality or projection. Some violinists want the instrument to sound as loud, strong and solid as possible. Others prefer a quiet, introverted tone. Strings are chosen according to the effect desired. The metallic quality produced by steel or aluminum wound strings is found undesirable by some (and indeed they can produce a very strident sound if the violin is of a poor quality or if its soundpost is out of adjustment). There are those who prefer all gut strings, and some who prefer some combination between. My teacher Papa Venkataramiah had arrived at a most individual combination to suit his taste. He played with an aluminum wound G string, a gut D and A, and a steel E.

Taste in tone also has influence on the choice of instrument made by the musician, if indeed he has a choice.
In choosing a violin, responsiveness, clarity and projection are the qualities taken most into consideration. Mellowness and tone texture are less important. Facility takes precedent over what we, from the western point of view, call quality.

The quality of the violin's tone is somewhat altered by the low-tensioned tuning used in karnatic music. Instruments which when tuned in the western manner possess full and rich tone may produce a thick, fuzzy sound in the karnatic tuning. Instruments with a more strident and hollow sound would be considered more desirable because their sound, at a lower tension, would be more clear and penetrating. Differences between high and medium quality are somewhat blurred by the low tuning. Often, as L. Shankar points out, "Even a Stradavarius will not sound good in this tuning."

Taste in tone is also much conditioned by habit. I have seen a professional violinist set aside an expensive new violin in favor of a mail-order import the sound of which was more familiar to him from many years of playing. One prefers the sound and touch to which one is accustomed. And, of course, there is a limit to what instruments are available in India, due to income and import regulations. The overall result is that Indian violinists are rarely found playing instruments which a professional western violinist would prefer for his own music.

Alterations of the instrument.

Some minor alterations are often made on the violin. The most frequent is that of fitting or filing down the bridge so that the strings lie fairly close to the fingerboard. This makes the complex, small movements
of gamaka easier to execute with clarity. Since exact tuning is very important, fine tuners are popular. Often a violin has one for each string. Another equipment addition is coconut oil. The player usually keeps a tiny vial of oil at hand which he puts on the tips of the fingers of the left hand, or on the strings also, to act as a lubricant and make sliding easier.

Major alterations have also been tried concerning the number of strings on the violin, though today only the usual four are fashionable. Allaudin Khan used five strings and no doubt other early karnatic violinists tried different number combinations. One of these, a nineteenth century violin vidwan of Madras known as Photograph Masilamani Mudalier, added two strings to his violin in order to encompass the large range of the vocalist, Coimbatore Raghava Iyer, with whom he habitually played. The lower addition was a viola string and the other a thin steel wire for the upper register. The tuning was P S P S P S. Experiments with the number of strings continued sporadically. Early in this century, Mysore Chowdiah set a trend for the use of seven strings. This consisted of the usual four with doubles in octaves for the upper three (as in a twelve-string guitar). Whenever such strings were added, extra holes would be bored in the scroll and the tailpiece to accommodate the strings. These days no one uses extra strings (perhaps the age of experimentation is ending?) but many violins are to be found around Madras which still bear the marks of former fashion trends.

1 He was called "Photograph" because he was "the first to purchase a camera and take pictures" according to P. Sambamoorthy in his History of Indian Music, p. 124.
IV Acquisition, maintenance and practical problems.

Violinists in India must deal daily with many problems which arise from the unfortunate fact that their instrument is still, after all these years, exotic.

For a start there is the problem of getting one. Violins are not made in India. Not really. It took many generations of hereditary craftsmanship to produce the Stradivari violin. India has such skilled families who produce vinas, tamburas and other ancient indigenous instruments. But there are as yet no fine craftsmen in violin making. Additional difficulties for the craftsman are that the violin, both in structure and in materials which are required for its build, is unlike any indigenous instruments. Occasionally craftsmen do make one, but not very often. And these are not used by professionals.1

It doesn’t seem very likely that the craft will flourish in the near future either, since importation is a readily available recourse. All of the violinists whom I met in India have European made instruments: French,

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1 Ram Chakravarty, sitarist from Benares, informs me that violins are made in India today and have been since the time of the British. These were sold at the price of two or three rupees, and sailors (presumably British) would buy them when out on the town, spend the night merry making, and would then break the fiddles when they returned to their ships. Today, though, the price has gone up to sixty or sixty-five rupees for an Indian made fiddle. (U.S. $8. or $9.) They are made in Calcutta, Bombay, and possibly Delhi.
German or Italian. The majority of these were acquired through licensed dealers who in turn import them by mail order, sight unseen.

By western standards the quality of most of these dealer imports is not good. Some are definitely bad. But the rupee has a low value and the average income of the Indian musician is low on the international price scales. Consequently expensive instruments rarely find their way into India. There would be little market for them if they did.

Dealers price their violins at Rs. 300 to Rs. 700. This means under $100. U.S. currency. A "good" violin will cost up to Rs. 1500 ($200.) In estimating value one must take into account that instrument prices are lower in Europe than in the United States. But even so we come out with average quality instruments. Also, since the buyer neither hears nor sees his instrument before purchasing, there is nothing to keep the European exporter from sending mediocre violins to India. This, seemingly, is what happens.

By buying from or trading with other violinists, a musician might acquire a better than average instrument. Friends arriving or returning from abroad might also bring a good fiddle as a gift. In acquiring a decent violin, all but the wealthy are reliant upon friendship and chance.

Average violins in a dealer's ship I would value on an American price scale of $20. to $50. Most good artists are using violins worth $100. to $300. A few have violins worth $500. and a wealthy or fortunate person might have one worth $1000. Thousand dollar violins are rare indeed. I would guess that there are less than a dozen in the country.
Having acquired a violin, the Indian's next problem is keeping it in health. The enemy is the climate. It is as difficult to keep the violin immune from contact with the body's sweat while playing as it is difficult to put in an hour's practice (to say nothing of a concert) in ninety degree weather without sweating. The degree of damage resulting seems to depend upon body chemistry. Some fiddlers have no problems at all. Others have everything possible happen to their violins.

Metal windings on strings break and unwind from much sliding of the fingers. Cut strings cut grooves in the fingerboard, also due to sliding. Seams become unglued, particularly near the tailpiece and the place where the left hand rests against the side of the fiddle. The most dramatic breakdown comes when the gut piece which anchors the tailpiece of the violin gives way, flinging pieces of fiddle all over the room. And there are the usual, less spectacular wears and tears, such as the warping of bridges, the balding of bows, and the cracking of wood in areas where there is dry heat.

There is one specific type of breakdown which happens to some, but not all, Kārṇāṭiκ violins. It does not happen to violins played in the western style, but seems to be due to the peculiar combination of the degree and direction of pressure exerted by the violinist in the Kārṇāṭiκ playing posture. The process begins when sweat (unavoidable in the tropics) comes in contact with the violin and loosens glued seams. The chest then exerts pressure by leaning forwards against the foot. The bow and left hand exert downward pressure. These combined pressures serve to "bend" the violin. Symptoms: intonation varies during playing. In time the fingerboard sinks lower and lower as its inside support loosens, until it is too low for convenient playing.
Few repairmen in India have been able to successfully raise a fallen fingerboard. Proper repair means not merely putting the board higher, but opening the violin and repairing the blocks which support the neck from the inside. The best means of preventing the problem is to make sure the seams stay glued, and that the instrument has minimal contact with body sweat.

Most Indian violinists have developed a fair skill in home repair. They raise and adjust bridges and soundposts. They replace fingerboards, and glue and clamp open seams. They prevent the tailpiece gut from popping by replacing it with a metal wire. Sometimes they send the violin to a trusted repairman. (Less trustworthy ones have been known to resort to nails, airplane glue, etc.) The fallen fingerboard is the most difficult to repair. Solutions to the problem have been improvised, such as putting a block of wood between the fingerboard and belly, or between the neck and fingerboard. But these rarely restore the violin's initial balance. A violin that falls seriously ill in India rarely recovers.

Scarcity of materials plus government tariff policy create other minor harassments. Bowhair is hard to find. Quality metal for strings and good resin are rare on the
home front, so that Indian made violin equipment is not of very good quality. Violinists show a great preference for imported strings, particularly Pirastro brand. These are not to be purchased in stores, however, because the government, in order to protect home industry, has put such high tariffs on strings and resin that dealers find it uneconomical to import quality products. The Indian made strings, brand named Karuna, are readily available nevertheless, and are fairly serviceable.

Exporting instruments for repair is even more difficult than importing them, as a government policy blocks such moves to protect the interests of local craftsmen.

A specialized set of additional headaches are present for anyone wishing to learn western violin. Though western pop music has a large following in India, classical music seems to have declined in practice since Indian independence. At present only the large cities of Bombay and Calcutta have symphony orchestras. The majority of western musicians make their living through the film industry. Chamber and solo music are largely a matter of hobby and private practice. For one who wishes to learn violin in the western style the first problem is that it will be very difficult for him to find a teacher. Secondly it will be difficult for him to find sheet music, since to my knowledge none is published in India today. Musicians either acquire scores left from the days of the British, scores sent or brought by friends abroad, or home transcriptions made from LPs. As regards technique, many are self-taught. Despite the odds, these few determined "exotic" music fans persevere, and achieve a considerable amount on their own.
V Aesthetics affecting technique and usage.

If one wishes to understand why a Karnatic violinist makes use of various modes of interpretation as he does, one needs to have some familiarity with the aesthetic values underlying the music. Some interpretational devices which are most basic to Western music have no place in the Indian concept of musical beauty and therefore are ignored or underplayed. At the same time, other elements which may not be immediately noticeable to the Western listener are being stressed.

I would like to discuss these interpretational elements, starting with the ones which are most important to the Indian musician, and proceeding to those which are considered minor, optional or undesirable.

Mathematical aspects.

Perhaps the most important underlying factor in Indian music is a love of geometric and mathematical exactitude. Mathematics is among the most ancient and honored sciences in India. Closely related are two other fields, astrology and numerology. Numbers and proportions of numbers are believed to exercise influence upon the space and time environment, and upon the psychological and physiological balance of the individual man. Numbers have character and value and also power, when applied correctly. Thus many Hindu religious ceremonies specify the number of times a thing must be done in order to have beneficial effect.
Music also involves mathematics and is believed to affect both human and divine emotion when practiced accurately. Numbers are present in music through both raga and tala.

A raga is a selection of swaras in a given order. Each swara, taken without gamaka, has a specific frequency ratio to the tonic. When speaking of this ratio, the term sruti is used. The sruti, or ratio of vibrations to the tonic, gives each swara a characteristic coloring. The choice of swaras in a raga and their order and degree of stress determine the overall character of the raga. This character is an inherent quality which enables the raga to produce emotion in the listener. This emotion is called rasa, and has been a topic of study for Indian theorists since the time of the earliest available documents. Contemporary south Indian practice does not stress the application of rasa. However, concern with the mathematical aspect of melody has not disappeared and many contemporary theorists measure and define the srutis.

The performing violinist applies the ideal of mathematical accuracy through seeking perfect intonation. Faulty intonation brings discord to the listener. It goes as an assumption that any concert performer will play well in tune.

Mathematics is present even more directly through tala. Melody is considered to be half of karnatic music and rhythm the other half. Time is divided by the tala count into proportional and balanced (or purposely unbalanced) groupings, over which other groupings of beats (or swaras) are superimposed. These exact or balanced relationships of beats are aesthetically
desirable in themselves. In addition, the number of beats in a tala cycle is believed by some theorists to affect human emotion by stimulating certain areas of the body known in the system of yoga as chakras. In performance the same standard of accuracy applies to tala as does to intonation.

The violinist must be as familiar with tala as a drummer because although he is a specialist in melody he will have to perform rhythmically complex compositions and swaraskalpana. In swaraskalpana instrumentalists and vocalists improvise using many of the standard patterns of drummers. For the violinist this improvisation does not necessitate any different fingering techniques, but it still makes necessary a considerable amount of specialized training. One of the many points by which a violinist is judged is whether he can improvise in tala with both accuracy and imagination.

The vocal ideal.

All karnatic music is based on songs with text. There is no separate repertoire for instruments. As a result instruments which play melody are expected to produce a sound as similar to that of the voice as possible. This does not mean that the instrument should necessarily have a voice's range and timbre. But in its technique it should attempt to imitate as closely as possible the slides and intricate gamakas which characterise the karnatic style of singing. Violin

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1 The correspondance of numbers to physiological states is presented in some detail by Robindralal Roy's series of articles "Philosophy of Music" appearing in the Journal of the Music Academy, Madras, volumes XXXIV, XXXV, and XXXVI (1953, 1954, 1955)
technique is often selected or altered so that the sound
will be more "vocal". For instance, the karnatic singer
sustains tones and connects swaras into long phrases.
The violin in turn uses long bows or smoothly connected
strokes. The vocalist in singing rapid passages uses a
particular kind of articulation which, while not separating
swaras in continuity, still makes them clearly distinguish-
able from each other. The violinist's tana vil endeavors
to do the same. The voice does not use staccato. The
violin does not use offstring bowing.

Imitation of the voice is a guiding rule but,
like most rules in India, it has its exceptions. The
violin is allowed to do certain things which only a
violin can do, and which a voice cannot, such as rapid
clusters of grace note gamakas. But other violin sounds,
such as the pizzicato, are considered too unvocal and
can be used only in certain places and with prudence.

Choice of gamaka.

Gamaka is one of the most integral components of
karnatic music, and there are many possible ways to
produce it on the violin. In fact the greater part of
karnatic technique is directed toward the playing of
gamaka. The way in which the violinist applies gamaka
is another of the grounds of aesthetic judgment among
karnatic musicians. The violinist must apply ornaments
in accordance with the rules of propriety. His aim is
to project bhava, the spiritual beauty of the music.

It is a source of amusement to me that many of the
ornaments which are most soulful in karnatic music
are labeled "schmalz" when used by the western musician.

1 schmalz. popular American usage: oversentimentality.
Literal meaning in Yiddish: chicken fat.
And at the same time many common intricacies of western violin technique are thought to be "showy" in the south Indian listener's mind. According to our rules of taste, only, gypsy, slavic and country styles of fiddling are allowed extensive use of grace notes and slides between notes as ornaments. In fact the term "fiddling" itself implies that these styles are somewhat beyond the pale of classical music. These technical additions are considered ornaments, and hence exterior to the main content of the music. They connote sentiment. Often they serve to cloak simple tunes with no content. These are our attitudes.

What sets the Indian purist's teeth on edge, however, are instances where the violinist (inspired perhaps by Heifitz) indulges in more than a tiny bit of spiccato, double stops, harmonics, vibrato, pizzicato or long rests. These are "exotic" touches. Sometimes they may be used during the alapana, the free improvisation upon the raga wherein the performer has most leeway to apply his skill and imagination to the interpretation. But more than a small amount of such indulgences would be condemned as "tricks" aimed at impressing a gullible audience at the expense of musical purity. When accompanying the violinist should avoid such experimentation since he might upstage the soloist.

Tone quality.

One of the interpretational devices which is not given much attention is that of tone quality. It may seem to western ears that Indian music has a nasal sound. If so, this is not its intentional goal. A full and solid sound is appreciated. But Indian voices as well as instruments exhibit a great variety of timbres, yet
all perform the same music. There is no equivalent of our concept of orchestration, where special instruments or voice qualities are used for specific songs or moods. A south Indian critic offers the following criticism of vocalists and voice quality, but even that does not seem to include the specific concept of timbre.

The voice is the most essential thing and yet it is the most neglected thing. In the South we are accustomed to overlook the bad voice and look to the Rāga-bhāya, Nanodharma and Kaipana and be satisfied with the intention even in the absence of execution; a high-brow critic will even look down upon a fine voice; but really speaking, the musical delectation here cannot be said to be complete. As in musical expression, so in voice; there should be an evenness and balance.1

Some of the same criticisms might be leveled at violinists. Those whom I heard in Madras played with a variety of timbres and strengths. The instruments on which they played were chosen for facility, and only sometimes for their projective power. If timbre differences are recognised, it is only as a fine point of interpretation. For instance, my guru might select a fingering for a kriti which will cause certain phrases to be played on one string rather than to be played crossing between two strings. Or a violinist might choose to use gut strings rather than metal, or vice versa. But no standard has yet been set as to what tone quality is preferable to what other tone quality.

1 V. Raghavan, "The popular and classical in music" Madras: Journal of the Music Academy, v. XXVIII 1957, p. 103
Dynamics.

Among the interpretational devices which are most conspicuously absent in karnatic music are contrasts of speed and of volume. The tempo of a karnatic composition, once the tala has been established, never varies, except in the case of the varnam. The soloist may double or triple the speed of his swaras, but always as an exact multiple of the previous speed, and the tala remains constant.

The melody instrument or voice also retains a fairly constant level of volume. Volume variations may occur when the composition changes range, or when the speed of the swaras doubles, but this is not a planned effect. It is not written into the song. The only specific volume change a violinist must make is that when he accompanies and is playing in unison with a vocalist or another instrument, he must reduce his volume so that his line is subordinate.

Karnatic music creates a texture of continuous sound. The texture may change somewhat when the composition which the ensemble is performing moves from one section to the next, or when a line or two is given over to a mridangam interlude. But even in these cases the singer and violinist usually sustain a pitch through the space. Dramatic punctuations of attack and sound gap are few. Where they do appear, they serve as ornaments to the composition, rather than as climactic focal points.

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1 The varnam is the composition which usually opens a concert performance. The second half of this composition, which is in rondo form, is done at a slightly faster speed than the first half. But these are two distinct, constant speeds, not an accelerando.
The dimension of accompaniment.

The violin in a concert ensemble serves several specific functions in relation to the sound texture. Aside from adding volume to the melody line, it creates variety by the ways in which it breaks from unison with the melody line. There are quite a few ways in which this happens.

One of the more minute contrasts is in the rendition of a composition. Unless violinist and soloist are from the same family, it is not likely that they will render gamakas in the same way. In fact, they may even use slightly different sangatis (variations on a melodic line). It is indeed considered a feat of musical skill when gamakas coincide exactly, but on the whole the accompanist is not expected to provide complete duplication. He may use slightly different gamakas, and occasionally he may play a sangat with slightly different swaras. So long as these contrasts are not too jarring, they are considered desirable.

The violinist provides another kind of variety in alapina. The soloist renders phrases of the raga, with spaces between them. The violinist echoes the phrases. It is not an exact echo, pitch for pitch. That would be considered unmusical. But the phrase has similar contour and ending pitches. Sometimes the echoed phrase comes after the soloist has completed his phrase. Sometimes it overlaps. Usually the violinist's phrases are shorter than the soloist's, and quieter.

The violinist can provide a third kind of contrast. This is the alternation of soloist and violinist. When a soloist has finished a long alapina, he is obliged to give the violinist time to do a somewhat shorter solo alapina before the kriti is begun. After the kriti, when swaralkalpana is begun, it is customary for the vocalist
and violinist to alternate improvising lines of swaras. This alternation may continue as swara passages get longer. To end \textit{swarakalpana} the soloist may initiate a \textit{korrupu} in which phrases of decreasing length are alternated with the violinist, until the soloist brings the piece to a close with the rhythmic pattern known as \textit{korwai} or \textit{mora}. If the violinist is familiar with the particular pattern, he may play it along with the soloist. In all of the instances where the violinist alternates with the soloist, he is not obliged to repeat the soloist’s melodic patterns unless he wishes to do so. There should be some imitation, but not wholesale reiteration.

Another way in which the violinist adds variety to ensemble texture is through his use of octaves, or \textit{sthayis}. When playing alone, a violinist is obliged to perform a composition in the ranges specified by the composer. But when accompanying, he may sometimes switch down or up an octave in order to create contrast. L. Shankar tells me that the lower octave may be used in the middle of a \textit{kriti} if the violinist wants to bring out sections of the text or melody which have particularly deep meaning.

When two or more violinists are playing as a team, they use octaves in various ways according to the effect desired. When they play in unison, as do L. Vaidyanathan and Subrahmaniam, the result is an emphasis on the exactness with which their intricate renditions coincide. Papa Venkataramiah and Thyagarajan, however, always played in octaves so that the lines were purposely distinguishible. This, they said, creates a vertical dimension comparable to harmony.

\footnote{Vocalists are allowed the leeway of taking certain lines down or up an octave if they are too extreme for their range. However, this is not done very often.}
VI History of styles and techniques.

Style is a difficult, yet important concept to define. Among karnatic musicians the word is used to mean a composite of several factors. These include the types of composition chosen for performance, and the way in which they are interpreted—i.e. with emphasis on bhava, or on technical precision, or on speed, or on rhythmic facility. Style also means the technical devices by which the interpretation is accomplished: how the violinist arranges left hand fingering; how much gamaka and what kinds of gamaka he uses; what kind of tone and what special bowing effects does he use, if any. Each violinist learns a style from his guru: that is, the sum total of the above factors. He may, after many years of playing experience, develop in addition a style of his own which differs somewhat from that taught him by his guru. Whichever the case, nearly all artists are particularly aware of the individuality of their own styles, and of how their styles compare to those of their contemporaries.

While in Madras I often invited discussion of playing styles with violinists I met. My aim was to get an idea of the range of existing styles, and to find out what technical elements characterised their differences. I also wished to know how the playing style of my teachers was regarded by their peers. Was it considered representative of common practice, or was it unique, or was it perhaps historically obsolete?
The people to whom I spoke were most helpful in explaining to me their own playing styles and fingering methods, but not too reliable in describing to me the practice of others. Apparently violinists take note of each other's style, meaning interpretation, but are not particularly observant of (or interested in) the technical methods used by others. For instance some persons used the expressions "old style" versus "new style", or "two-finger" style as opposed to "three finger" or "four finger" style.\(^1\) However, it soon became apparent to me that the people who used these terms had different definitions in mind, and to others these terms were meaningless. Ultimately I decided it is best to discount them as categories. And it is also better not to rely on what one musician says of another, if at all possible.

It was even more difficult to try to trace styles of the past. Verbal accounts were at variance, and written accounts do not speak of technique at all. The earliest recordings to be found date back to around the 1930's. As to practice in the preceding century, one can only piece together evidence and speculate.

\(^1\) Though I heard these terms from Indian sources, they have also been used by western ethnomusicologists. I do not find "old" and "new" to be accurate terms because karnatic violin playing styles have not evolved in a strictly linear way. One can find old men playing in new styles, for instance. As regards the number of fingers, Harold Powers devotes a paragraph of his thesis *The Background of the South Indian Raga-System* (p. 113) to this distinction. In my experience I have never seen a violinist who played with two fingers exclusively. Different persons do, however, make greater or lesser use of the third and fourth fingers.
One possible way to reconstruct the early progress of Karnatic violin is by comparison with the recent history of Hindusthani violin technique. When an instrument is first introduced, much experimentation takes place. It is quite possible that the experimentation took place along similar lines in both instances. For instance, the first Hindusthani violinists played without a great deal of sliding, except in the slowest passages. Fingering, judging from the sound of their recordings, followed the Western model. Fast passages contained no slides at all, only rapid, separate swaras, rather like Western sixteenth notes or grace notes. To execute these passages without slides, at least three fingers, if not four, must have been used.

The pidi-vadyam style must have been rather similar. There was no sliding (jiaru), yet there must have been a lot of rapid finger work since Karnatic music necessitates gamaka. I imagine that violinists used a great deal of what I call grace note gamaka: the swara is broken up into a cluster of rapid, separate pitches which are executed by up and down motions of the fingers (as opposed to sliding motions.) Grace note gamaka survives in many of the current day violin styles. In Papa Venkataramiah’s playing the grace note clusters are interspersed with slides. If the shishya followed truly in the steps of his guru, then we may assume that Govindaswamy Pillai also employed such gamaka clusters.

Slides were introduced in the generation of Thirukodikaval Krishnayyer and his contemporaries. Yet I believe that this sliding was of a far less complex nature than that of the current generation of artists for the early 78’s show less stress on gamaka in general.
Both sliding gamaka and grace note gamaka are present in Papa Venkataramiah's style, with emphasis sometimes on one or the other in particular ragas or kritis. This combination and profusion of gamakas is used by the majority of violinists playing in Madras today. But in some cases sliding has become a far more dominant factor in a style. This is particularly so in the case of the two hindusthani violinists whom I visited. Hindusthani vocal music is profuse in meends, slow, deliberate slides between sustained pitches. These are readily reproduced on the violin. The two violinists also reproduced the vocalist's तप, which is a rapid ascending or descending swara passage with connected tone and articulated pitches. This is done on the violin by means of sliding motions and wrist action. Karnatic violinist M. S. Gopalakrishnan, who is reputed to have "hindusthani taste" imitates the sound of the meend in his alapina, interspersing unornamented swaras with slow slides.

The earliest recordings which I have heard are 78's issued on the Columbia-H.M.V. label. These discs have no date printed on them, but since the artists recorded concertised between the 1920's and 1950's, I assume the records to be from that time.

The most noticeable difference in style between the violinists on these recordings and the violinists playing today, is that the violinists on the recordings use a great deal less gamaka. Mridangam playing is also simpler on the recordings. Apparently both instruments have progressed in complexity of technique over the past generation. These violinists, who were contemporaries of Papa Venkataramiah, use both sliding
gamaka and grace note gamaka. But generally slides are restricted to alapinā and compositions in slow or medium tempo. Grace note gamakas are more characteristic of rapid passages. Only Rajamanikam Pillai's recording appears to combine the two gamaka types as do my gurus and other violinists playing today. Both Dwaram Venkatasamy Naidu and Mysore Chowdiah use relatively little ornamentation.

Srutis on these recordings are notably higher than the average today, ranging between E–F♯ and G–A. But it should be remembered that 78's are not outstandingly accurate for pitch measurement due to variations in voltage which still occur today in India. Sound levels seem to be of a consistent intensity throughout each recording.

As regards experimentation, there seems to have been a wider range of it going on in the previous generation. In Dwaram Venkataswamy Naidu's tanam playing one can hear western effects, such as a detache bowing which sounds nearly like off-string, some cross string rapid note sequences, and an occasional two-note chord thrown in. Parur Sundaramier, father of M.S. Gopalakrishnan, also has a passage of detache on a 78. Naidu uses an occasional harmonic, and he, like my two gurus, sometimes sprinkles the alapinā with occasional pluckings of the open strings with the left hand.

Mysore Chowdiah's style differed most radically from that of his contemporaries. He created the effect of accompanying himself by using seven strings on his violin. These were tuned in octave pairs as on a twelve-string guitar. The sound, which is relatively unornamented, reminds one of a reed harmonium, which
is often used in hindusthani music as an accompanying instrument. The violin so tuned sounds very impressive during rapid swara passages. Chowdiah's contemporaries condemned him as "showy" but his style enjoyed great popularity in his time. Both Chowdiah and Naidu put out many recordings. But, as fate would have it, the seven string style was not taken up by many others, and passed quickly out of fashion. Today only one man, his shishya V. Sethuramiah, continues to play with seven strings.

The technical style of Papa Venkataramiah and (if I may judge by the 78 recording) of Rajamannikam Pillai has carried over into this generation of players. There are some differences in the fingering patterns, but there is still the idea of combining sliding and grace note gamakas in various complex patterns. As for interpretational style, there is a bit of variance, but this variance does not seem to me to be so easily observable as in the playing of the last generation of violinists. Only a few, such as M. S. Gopalakrishnan, have an easily recognised interpretive style. Perhaps what has happened is that karnatic violin playing has reached an age where experimentation naturally dies down and a more uniform aesthetic of technique begins to assert itself.

There are clues to the direction of future trends, though none of these seems as yet to be a radical departure. Lalgudi Jayaraman seems to be incorporating a controlled phrasing of the bow and variations of volume in his accompanying. Ability to play at great speed is also popular, and the three brothers L. Vaidyanathan, Subrahmaniam and L. Shankar are experts at playing varnams and swarakalpana in several multiples of speed. Electronic amplification seems to
have affected all musicians, but particularly vocalists and vina players. Whether the amplified violin will become as popular as the amplified vina remains to be seen.
Playing position.
Right hand, upbow.
Left hand
Sa (first) position.
Left hand
Pá (third) position.
Left hand, in (sixth) position.
Part II

One Technique in Detail
VII The right hand.

There is not as much to be said about the right hand as about the left. Compared to western technique, the karnatic bowing is much less complex.

Hand posture.

Posture of the bow hand is generally the same as the posture preferred in the western technique. The hand is slightly turned over in a counterclockwise direction so that the fingers are at an angle to the stick rather than perpendicular. The fingers are loosely joined, and the first finger touches the bow between the first and second joints. The pinky rests on the top. The thumb touches the stick opposite the second finger. My guru held the bow with his hand at a strong angle, with the first finger sometimes touching the stick at a point between the two knuckles closest to the hand. The fourth finger was left in the air, so that control of the bow was between the thumb and first finger. This is not inconvenient in a balance system where the bow rests on and never leaves the string. There are no off-string motions for which the fourth finger would need to be touching the stick for balance.

My guru and some other violinists I have observed tend to place the hand on the bow a few inches up from the frog. Fingers often touch the hair, but since the extreme part of the frog is not much used in bowing, it
does not particularly matter to them that dirt accumulates there from touching. Generally less skilled violinists tend to hold the bow higher, and to restrict their range of bow strokes to the upper half of the bow. More skilled violinists can control the entire length of the bow. That is, they can produce smooth bow change and prevent bouncing while using full strokes of the bow.

**Bow tension and use of rosin.**

One idiosyncrasy I have noticed in the karnatic style is that bows are rarely tightened. Only enough tension is kept so that the hair is prevented from loosely touching the wood of the stick when no pressure is being applied. As a result the tone of some violinists sometimes gets a bit scratchy, but bows seem never to suffer from warping or losing their bend. When I asked my guru why this was done I received the answer "If you make the bow tight, it will bounce." Bouncing is considered a hindrance. In fact, in the western technique we tighten the bow particularly in order to facilitate "bouncing" and off-string techniques. The tightened bow also enables us to bear down and produce accents and forte tones. But neither of those are important affects in karnatic music; hence no need for the tightened bow.

As regards the use of rosin, the practice in India seems to vary with the individual, just as it does in the west. Some use a lot, some use a little, and most use a moderate amount.
Placement on strings.

Generally the bow pursues a course midway between bridge and fingerboard. Little use if any is made of the different tone variations possible through sul tasto and ponticello. The fiddler places his bow at the spot to which he is accustomed. Bowing is straight; that is, at right angles to the string.

Bow angle.

In western bowing it is customary to employ different angles of placement of the bow on the string. This is done in part to control subtleties of tone and dynamic, and also in order to keep the course of the bow straight during long strokes. The angle is perpendicular for strong tone, and turned for subtle effects. Again it is turned when the stroke reaches the frog, and gradually straightened as it moves toward the tip. For violinists this angle is to the right (away from the player) and for cellists to the left (toward the player).
As regards the practice of karnatic violinists, I haven't noticed any consistent pattern of bow angle. Whatever angle they employ, they generally keep it constant. My guru's angle was perpendicular, but I have seen performers who use a slightly turned angle, as do western violinists. The karnatic violin is held so that the line of the strings tilts downward. It may be that this affects the ease a player has in bowing without a turned angle. Accustomed as I am to maintaining the bow angle in my western playing, I found that though I continued to do so in karnatic playing, it seemed a bit more difficult and less necessary.

**Bowhand motion.**

As in western playing, all the joints of the right hand—fingertip, knuckles, wrist and elbow—are developed to move in smooth coordination with each other. Bow change is done with a combined motion of all of these joints, and can be so smooth as to be imperceptible if the artist so wishes. Most karnatic violinists I have seen have beautifully controlled and relaxed right hands.

Sustained tone is the primary object. "Never take the bow out of the string" said my guru. By "out of" he most likely meant "off of", but the effect of his idiom seemed appropriate to a music whose aesthetic is continuous melody.

**Strokes.**

The continuity of smooth bows is broken up from time to time with a particular kind of attack accent which can denote phrase beginnings. These bow accents,
like a mild fortzando, can come at the beginning of a swara, or at the end, or at a bow change. Those which are at the end of a swara indicate a break in phrase or line. These accents appear in energetic compositions and compositions with uneven rhythms, where they serve to emphasize the phrase pattern and the cross-rhythmic relation of the phrases to the tala.

Another variety of the above is a kind of semi stop-bow which Sambamourthy names tana vil (tanam bowing). It is used not only in tanam, but in varnam and other compositions where the bow is sustained through a series of rapid, even notes. The notes in these passages may or may not have gamaka. The tana vil differentiates the notes within the group by putting a slight accent on the beginning of each swara.

All the rest of the bowing is of the straight up and down variety, ranging from long, connected strokes to very rapid strokes with one swara per bow, as in swarakalpana passages. These are roughly sixteenth-note to thirty-second-note speed. The length of bow employed varies with the speed of the stroke. Long tones use the full bow, and rapid swaras only a few inches. Speeding of the bow is not used much— that is, trying to cover long strokes at a rapid speed. But the opposite technique of slowing the bow is used, in order to encompass a long run of many swaras in a single stroke.

Offstring techniques, as I have said, are undesirable, nonexistent. If offstring or pizzicato appear at all, it is as an exotic touch, an experiment, or even unorthodox showiness if carried too far.
Bow change rule.

This is the general rule governing bow change: you change the bow where the vocalist changes syllable. The composer has distributed the syllables of the text purposely so as to accentuate offbeats or to delineate phrase structure. The change of bow can thus be done with a kind of accent to emphasize phrases and, if it is a violin solo, to remind the listener where the text falls. For even in its absence, text returns via bowing to remind one that the music is first a song.

In the sections of the composition where the vocalist uses sargam, the violinist uses single bows.

It often happens, particularly in slower, more lyric kritig, that the text syllable is sustained for a very long time. In this case, my guru told me, one should still try to sustain the single bow, "even if it is a mile." (It may often seem like a mile.) One must plan ahead for a syllable change so that it won't leave one stranded without enough bow.

But, like all rules in karnatic music, it isn't really hard and fast. The bow can be changed in certain places during a sustained syllable. In regular chattursra nadai varnam (where each tala count is subdivided into four beats) bow change is generally at the four note point, following the tala count until the syllable or note structure breaks into cross-rhythmic groups of two, three, five or six swaras.

On the following page is an example of how Thyagarajan divides the swaras for bowing in the first line of the varnam in Bhairavi raga, "Viriboni".
In a **kriti**, a bow change to break up the mile may be reserved for a particular beat of the tala which, due to the structure of the composition, can be accented. For example, in the **kriti** "Giripainela" (raga *Sahanā*) all lines or **sangatis** begin one half a tala count (two **aksharas**) in from the beginning of the cycle. Where long tones are sustained, however, at the end of the line, the eighth beat of the cycle is a point where the bow can be changed, and an accent added. Bowing for a few **sangatis** of the **pallavi** can be divided as follows:

```
giripai     nehla     ko     na     ra     mu
```
[Then, several sangatis later]

\[
\begin{align*}
S-pp \quad dpM \quad mPm \quad G \quad gmR \quad \tilde{\text{grS}} \quad snS \quad \tilde{} \quad \tilde{} \quad \tilde{} \quad \tilde{} \\
gurita \quad pa \quad ga \quad kan \quad ti
\end{align*}
\]

\[
\begin{align*}
j-pp \quad dpM \quad mPm \quad G \quad gmR \quad \tilde{} \quad \tilde{} \quad \tilde{} \quad \tilde{} \quad \tilde{} \quad \tilde{} \quad \tilde{} \\
gurita \quad pa \quad ga \quad kan
\end{align*}
\]

Up and downbows.

It is a peculiarity of karnatic violin style that the downbow stroke is not considered to be stronger than the upbow stroke. In western playing the downbow stroke is stronger. Consequently bow markings in a composition are arranged so that the downbows coincide with downbeats and major accents. In sixteenth-note passages bowing is almost always arranged so that each group of four notes will be bowed down, up, down, up. Karnatic violinists do not make such a distinction and just as often will bow such a passage up, down, up, down.

I have found no single reason for this practice. It may be due to the fact that karnatic music does not employ such a great deal of emphatic, accented playing techniques. Or perhaps it is partially because of the karnatic posture of holding the violin, and the difference of angles presented to the force of gravity.

Violinists consequently do not speak of upbow or downbow. Nor do they make any noticeable effort to standardise the direction in concert. When two violinists are playing in unison and one happens to be bowing in a direction opposite to the other, no
particular notice is made of it. What seems more important to the violinist is the place in the line where bow change is made, rather than the direction of that change.

Bow in interpretation.

I may have given the wrong impression of the bow as a mechanical and unimaginative piece of sound-producing equipment. Not so. Bowing can be very expressive, particularly in kritis and alapins. In varnams, true, it tends to become subject and subordinate to the tala, wherein it must differentiate consecutive swaras, and accent the offbeat or irregular phrases in a rather mechanical way.

But in kritis it does a variety of things by way of subtle accents, longs and shorts, complete stops and such to enhance interpretation. Interpretation, or lack of it, is of course in the hands of the musician, and varies according to his imagination. But kritis leave much room for the imagination. Sound here does not remain an uneventful stream, but is broken with an articulation which often conveys the impression that the violin, like the singer, is speaking syllables. Stop bows and small rests can be heard in some compositions, although there is no way of indicating them in Indian transcriptions. The violin can take the same liberties as the singer in phrasing and expressing. In these matters the right hand and its range of subtleties plays as large a part as the left.
Horizontal motion versus vertical.

A unique feature of Indian violin technique is that the motions and pressures of the left hand operate primarily in a plane parallel to the fingerboard. This is made possible by the position of the violin, wherein the left hand is not necessary for support against gravity. Fingers do, of course, press down, but the process of proceeding from one swara to the next is one of horizontal motion. The thumb's role is not to balance, but to steady the hand in a given position. (A much less weighty job.)

The motions of a violinist's left hand consist of various combinations of horizontal and perpendicular motions in relationship to the fingerboard. Due to the nature of western music, which consists of a series of separate and fixed pitches, the perpendicular motions predominate. Every note, Raphael Bronstein told me, must have a distinct beginning and an end, and these are delineated by the putting down and raising up of the individual fingers. To make clear endings and beginnings the violinist cultivates a snap-like motion of putting down and lifting up the fingers. Articulation consists of maintaining and clarifying the borders between notes. The only horizontal motions are the vibrato, the occasional glissando, and of course the shift. But the shift is an unfortunate necessity whose horizontal sliding sound we usually do our best to disguise.
Indian music, however, is built not of notes but of swaras, which are a different conception. The swara has a fixed pitch in theory only. In actuality it is filled with motion; that is, it can consist in some cases of a single pitch, or in other cases of a continuous motion at various speeds between two pitch extremes. This changing motion is called gamaka. Gamakas serve to ornament and identify a raga. In addition they serve to connect swaras and to soften borderlines, so that the melody produced is a long, continuous line rather than a chain of consecutive but separate sound entities. My karnatic guru says of the left hand as he did of the right, "You must not take your fingers out of the string."

Although some of the gamakas do make use of vertical motion by means of grace notes, the majority of gamakas in this technique are of the sliding variety. On the fretted Indian instruments, these slides are produced primarily by deflecting the strings to the side. On the violin and other fretless instruments such as sarangi, sarod or gottyavadyam, they are produced by moving the left hand along the plane of the fingerboard.
So it happens that for the violin, in either posture, the fingers move primarily in a plane parallel to the direction of support.

Shifting.

Shifting of positions becomes much easier in the karnatic posture for two reasons. First, there is no gravity problem. Second, since the hand is generally in horizontal motion, the shifting of position is merely an extension of existing motions and sounds. In western music the shift is, as I have said, more often than not a technical necessity. Great effort must be made by the composer, the arranger and the performer to place fingerings so that the unavoidable and distinct sound of the shift will work in advantageously with the melody line. As it happens, only a few western composers such as Mozart have been so considerate to construct melodies which fit easily and naturally into the given positions of the hand. And so western violinists must develop a specialized skill in shifting so that you cannot hear the shift. And they must forever rearrange fingerings so that shifts will not stick out in the wrong places.

The difficulty here is that the shift is a horizontal motion interrupting a series of vertical motions. This horizontal sliding sound may or may not be desirable. Karnatic music, though, is full of slides. Half of the hand motions are already along the horizontal plane and various species of shifting— from finger, hand or forearm— are constantly taking place.
Positions.

One result of the horizontal motions is that "positions" do not play so distinct and important a role as in western technique. In karnatic music there are no names and no numbers for positions. The hand moves so quickly among them, and shifting is so profuse, that they remain an unverbalized and perhaps unconscious concept.

Nevertheless, in my guru's technique there is a definite scheme for fingering. It alters somewhat for different ragas, but has a basic and consistent logic. This fingering, he tells me, was devised by his guru Govindaswamy Pillai, who had had contact with a western playing violinist and was familiar with certain fingering exercises. This is not an exclusive development, however, because other violinists' families whom I came to know also have distinct fingering schemes and exercises which they pass on to their shishyas.

In my guru's scheme, and in the fingerings of most others as well, first and third positions predominate, much as they do in western technique. Partly this is due to the structure of the violin. But also it fits in with the melodic structure of karnatic music. The tonic sa, and the fifth, pa, are pitch centers from which the melody moves. When a raga ascent and descent are played entirely on one string, a third hand position is used wherein the octave, sa, is the central pitch. This, in my guru's technique, corresponds to sixth position.

---

1 The exceptions are ragas or melodies with prati ma (high fourth) and no pa (fifth). The presence of this pattern causes major fingering changes. See page 105.
An ascending scale on one string might then be fingered as follows. The hand starts in first position, which I will call sa position. Sa is the open string. Ri is first finger. For most ragas ga is also played in the same position. Ma may be in either sa position (first position) or in pa position (third position). The shift to pa position usually takes place either on the swara ma or the swara pa. Pa is played with the second finger and dha is played with the second or the third finger. The next major shift will be to the upper octave tonic, sa position. This is the same as sixth position. The swara ni, depending on the raga, may be done from pa position or sa position, and its fingering varies. In this fingering scheme both pa and sa are always played with the second finger. Ga, ma and dha are variable. Depending upon the raga, they may be executed by means of a gamaka wherein the hand starts in the pa position and moves down or up to the swara.

example: pantuvarali raga. $\underbrace{G\ M\ P\ D\ P}_{\text{pa position}}$

Dha and ni can also be reached by motions descending from the sa position.

example: kalyani raga: $\underbrace{P\ D\ N\ S}_{\text{sa position}}$
To reach the next four ascending swaras (few karnatic ragas go higher than tara sthevi pa, the octave and a fifth above tonic), the hand may move up position by position to the seventh and eighth positions by western reckoning. This does not happen often because if the swara sa is the melodic center of a passage, the violinist will usually switch over to the pa string (E string). On the sa string (A string) swaras can be played as high as ga, and avid one-string artists such as my guru prefer to do so, fitting as much of the melody as possible on the sa string.

This, for example, is the fingering my guru uses for the arohana (ascent) of kalyani raga, with simple gamaka.

On one string:

\[
\begin{align*}
S & \quad R & \quad G & \quad M & \quad P & \quad D & \quad N & \quad S & \quad R & \quad G \\
1\text{st} & \quad 3\text{rd} & \quad 6\text{th} & \quad 7\text{th} & \quad 8\text{th}
\end{align*}
\]

On two strings:

\[
\begin{align*}
S & \quad R & \quad G & \quad M & \quad P & \quad D & \quad N & \quad S & \quad R & \quad G & \quad M & \quad P \\
1\text{st} & \quad 3\text{rd} & \quad 6\text{th} & \quad 1\text{st} & \quad 3\text{rd} & \quad 6\text{th}
\end{align*}
\]

or,  \quad \begin{align*}
S & \quad R & \quad G & \quad M & \quad P & \quad D & \quad N & \quad S & \quad R & \quad Etc.
\end{align*}

When I say position, you see, it is not quite as fixed a thing as in western playing. Perhaps the term "shifting center" would be more accurate. In western playing, once the hand shifts to a position, let us say third position, it stays fixed for the most part in horizontal space while different fingers produce
different notes by moving up and down. If C were the open string, the solfege notes fa, sol and la would sound so:

But the karnatic swaras, if transcribed to staff notation, would sound otherwise:

And second finger would be used for all three swaras. For each swara the hand moves from the actual shifting center. But this center, the second finger in pa position, remains the focal point on the horizontal plane. The mind sets the arm at this point and then allows the hand to swing from the wrist up and down to adjacent pitches. The point remains as the center. Sometimes the finger and hand only will deviate from the theoretical place called third position. Sometimes both hand and arm will move; this depends upon the gamaka.

Sometimes the shift from sa position to pa position takes place between swaras, but more often it is accomplished as an integral part of a gamaka. Kalyani raga again provides a good example:
In this sample of kalyani raga, the shift in fact takes place several times. On the swara ga, the hand moves briefly up to third position but returns to first again. On ma it makes the main move to third, deflecting briefly downward toward the end of the swara to touch the F# which is theoretically the sruti (pitch) of the swara. Because the raga is kalyani, ma must be played as a slight shift down from a predominant pa. The sruti of ma (F#) thus becomes conspicuous by its eclipse. In accord with the fingering scheme, second finger in pa (third) position becomes the center point from which ma is executed.

Due to the required gamaka, neither ga nor ma in this raga stick strictly to their theoretical pitch. Nor does the hand stay fixed in a position while playing them. I refer then to ga as being in the sa position, and ma as being in the pa position, keeping in mind that these positions are focal points rather than stable centers, and they are subject to deviatory motion.

Inequality of the fingers.

The fingers of the left hand are unequal in both in length and in strength. In Western technique exercises are employed to compensate for these inequalities and to make the third and fourth fingers as strong as the first and second. While some violinists in India do use exercises for the same purpose, fingering is nevertheless applied so that the burden of work is distributed according to capacity.

In my guru's style, the second finger gets the lion's share of the work. Possibly this is because it
is in the best position in the hand for joining strength with adjacent fingers. Karnatic music is structured so that pa and sa are melodic centers. Each of these swaras is played with the second finger when the melody is all on the sa string (II). And since sa and pa are both shifting centers, the second finger often slides to the adjacent swaras and plays them as well.

The first finger is the next most frequently used, and the third finger third in importance. In Papa Venkataramiah's playing, the fourth finger gets very little exercise. Generally he uses it only to add an upward flick in a grace note gamaka, or to finger a raga with a very asymmetrical structure.

Raga purvi (fragment) \[ \text{III}_a \ \text{II}_a \ \text{I}_a \ 3 \ 3 \ 2 \ 4 \ 3 \\
\text{\text{n}} \ \text{\text{r}} \ \text{\text{g}} \ \text{m} \ \text{d} \ \text{n} \ \text{s} \ \text{n} \ \text{r} \ \text{s} \]

Raga ritigaula (fragment) \[ \text{IV}_3 \ 3 \ 3 \ 3 \\
\text{\text{m}} \ \text{\text{n}} \ \text{\text{n}} \ \text{d} \ \text{m} \]

This, however, is my guru's style. Other concert violinists in Madras may tend to make more frequent use of the third and fourth finger. Some make even less use of them.

In ragas characterised by a great many sliding gamakas, finger two is the main slider. And in ragas where positions higher than sa position (sixth) are used on strings I and II, second finger again gets most of the work. A striking example of this occurs in my guru's interpretation of the kalyani varnam in ata tala, "vanajakshi ninnekori". Due to the number of sliding gamakas, the varnam is played almost entirely with the second finger. This, incidentally, is no easy feat to do.
Kalyani raga: \[ \begin{array}{cccccccc}
1 & 2 & 3 & 2 & 3 & 2 & 2 & 3 \\
& s & r & g & m & p & d & n & s
\end{array} \]

\[ \begin{array}{cccccccc}
2 & 3 & 2 & 3 & 2 & 2 & 2 & 3 \\
& s & n & d & p & m & g & r & s
\end{array} \]

gives rise to phrases such as

\[ \begin{array}{cccccccc}
2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\
& d & n & d & m & g & R & m & g & n & d
\end{array} \]

and, in higher positions,

\[ \begin{array}{cccccccc}
2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\
& s & d & g & R & s & n & d & r & s & d & p & m & g & g & n & g
\end{array} \]

In such passages it is very difficult to produce accurate intonation and articulation. And there is much wear and tear on the second finger even if it has been well oiled before starting. Vocalists, needless to say, haven't half this trouble with the varnam.

I have seen a similar technique used by north Indian violinists in executing tāns—rapid ascending and descending raga passages which are part of the khayal vocal style. The tān is usually performed with a single finger on a single string. One encounters the same difficulties in achieving clear articulation and intonation. The arm and wrist both supply motion from pitch to pitch, as in a connected chain of karnatic swaras with gamaka.

\[ \begin{array}{cccccccc}
2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\
& s & n & d & m & d & m & g & m & d & n & s
\end{array} \]

The arm has unusual freedom in the tān passages. It uses no position anchor; each swara becomes a temporary anchor point. The thumb may not be touching the neck of the fiddle at all in these passages, and only the
artist's muscular sense memory guides him in locating proper pitch positions.

The main difference between these passages and the one-finger sliding passages in karnatic style is that the karnatic technique remains more oriented to the pa and sa positions. These positions play a far less prominent part in hindusthani violin playing. It is my guess that this happens because of the difference in melodic structure between the two musics. Karnatic music emphasises sa and pa as the consonant points and also as centers from which pitches move. Hindusthani ragas, however, very often tend to emphasise swaras other than sa and pa. These swaras which are the focal pitches of the raga sometimes turn out to be dissonances (ninth, seconds, etc.) and their distance from the drone pitch provides a particular kind of aesthetic beauty. If the vadi, or focal pitch, is other than sa, it may seem almost as an anticlimax when the melody line resolves to sa. A violinist playing hindusthani ragas will consequently be making somewhat less use of sa and pa, and so his fingering will be less likely to fall into the shifting centers used by the karnatic violinist.

**One string aesthetic.**

Another prominent characteristic of my guru's style was a preference for playing as much of a melody as possible on a single string, even though in many cases it would be simpler to switch strings. This, he said, was done so that the violin would sound more like a voice. The voice should have an even timbre, and so the violin should likewise avoid timbre changes by
avoiding changing between strings. It is a mark of skill to be able to navigate the high ranges and keep the melody, or phrases of melody, to a single string. It is a triumph of aesthetics over convenience.

On the sa string alone, a skilled violinist can manage passages ranging from sa to ga. Passages which go higher than ga are generally played on the pa (I) string. But the shift over should occur between phrases. The same is true of shifts down to the lower pa (III) string. But shifts to the lower pa string are easier to disguise through the common note sa, which is played on both strings. A favorite switch-over figure used by my guru is

\[
\begin{array}{c}
\llbracket \llbracket \\
\frac{1}{3} \cdot \frac{3}{s} \cdot S
\end{array}
\text{or}
\begin{array}{c}
\llbracket \llbracket \\
\frac{1}{3} \cdot \frac{3}{s} \cdot S
\end{array}
\]

This can be done smoothly without changing positions. The particular gamaka masks the sound of string change.

Kalyani varnam represents something of an extreme case of the one-string preference. But again and again in my guru's playing instances would arise where two strings were obviously more practical, but he would find one alone to be preferable. And the one string would prevail.

Current concert violinists do not seem to be so fanatical about this one aesthetic point and are more likely to make switches rather than use the high positions so extensively. This may have to do with the fact that current taste favors execution of passages at high speed, and the high positions make speed difficult. Papa Venkataramiah, however, never cared for this modern practice. He preferred to play a varnam at only one speed, and that a moderate tempo. This, he said, is sufficient.
Defining gamaka.

Gamaka is the melodic motion which takes place around the theoretical pitch center (sruti) of a swara. It is this motion which makes a swara different from a note. Gamaka is ornament, but essential ornament rather than extraneous. Theoreticians may measure and define the sruti of each swara in a raga, but when the practicing musician thinks of a swara, he thinks at the same time of its gamaka. Gamakas are an inseparable part of the raga. It is their presence or absence, distribution and profusion among the swaras which makes the raga recognizable and gives it its characteristic individuality.

In ornate passages gamakas tend to group themselves into shapes and clusters which will recur over and over in the same raga. Sometimes the gamaka is motion centering on a single swara, but sometimes it is motion which groups several swaras together. In karnatic music gamakas can be so elaborate and profuse that an unskilled listener cannot tell for sure where one swara ends and the next begins. As a violin student I found myself so frequently a victim of this confusion that I was most relieved to find out that karnatic musicians themselves are not always clear about the naming of the swaras in a very elaborate passage. This is often the case in alapina, and also kritis and javalis, all forms containing a great deal of gamaka.
Transcribers also disagree over the breakdown of elaborate passages, and as a consequence there is often a lot of variation between transcriptions of a kriti. The reason behind this difficulty is that karnatic music is not meant to be taught by means of analysis. One learns by listening, repeating, and getting the sound of the raga into one's head. The musician becomes familiar with all the possible ways the sound groups of a raga can be combined. Swaras may be considered as units, and gamakas may be considered as units. But the clusters of combined swaras and gamakas can also be considered units. Ultimately all borders are flexible.

Incidentally, the word gamaka in prior times had a broader usage. It referred to the ups and downs of the sound line, but was also used to refer to particular techniques of sound production, such as a type of plucking used for the vina, or a method of placing vowels used by the vocalist. The violin too has both mechanical technique and sound line to consider, but for simplicity's sake I use the term gamaka to refer only to the sound line, and not its means of production.

Because of their flexible nature, there has never been an established and standard way of notating or even naming gamakas in south Indian theory. This may seem surprising since the passion of Indian theorists since time immemorial has been to list and define phenomena. Actually various theorists of different centuries have tried their hand in typing gamakas, or alankaras as they were called in early treatises. None of these sets of definitions has survived, and it is my guess that few of them had much impact upon the practice of musicians. They could not have had much
actual affect since they were for the most part definitions by imagery. They left the musician with the freedom to translate the poetic image into a sound form as he wished. Also none of these definitions lasted because practice was and still is in constant change. The nets of verbiage fall harmlessly; the gamakas are not taken alive.

Nor should they be. They constitute an important aspect of the performer's creative freedom. Like improvised passages, they are recreated at each playing. They can be pre-fixed and memorized and repeated with machinelike exactness, but to do so dampens the musical element of life. Gamakas comply perfectly with Ravi Shankar's cryptic comment, "Nothing is fixed, but there are certain things which are fixed." The raga establishes rules or boundaries: certain swaras have gamakas and certain swaras do not. (See next page.) But the way in which the gamaka is realised can vary. Two performers playing a composition will have certain variations in their gamakas. Even a single performer will make slight variations in his gamakas from day to day.

Gamakas must also, in accord with unstated aesthetic rules, vary with the tempo. In a slow passage they are made more profuse, elaborate, and deliberate. More swaras are ornamented. In fast tempo ornaments are simplified and edited out so that some swaras previously ornamented are plain. The result is that slow and fast tempos have a different underlying pulse, but due to changes in use of gamaka, there is not such a radical change in the overall texture of the sound line.
Rules for gamaka; example, bhairavi raga.

<table>
<thead>
<tr>
<th>swara name</th>
<th>sruti</th>
<th>gamaka specification</th>
<th>pitch range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shadja</td>
<td>C</td>
<td>Usually none. But when the swara is sustained, it may be reached by a long slide, or have a U-slide ornament.</td>
<td>C</td>
</tr>
<tr>
<td>Chattussrutti Rishaba</td>
<td>D</td>
<td>Usually none. When sustained, sometimes a U-slide to sa.</td>
<td>D</td>
</tr>
<tr>
<td>Sadharana Gandhara</td>
<td>Eb</td>
<td>Ascending: broad gamaka to swaras above and below. Descending: with gamaka, landing briefly on the ga sruti. This swara is rarely unornamented.</td>
<td>D-F</td>
</tr>
<tr>
<td>Suddha Madhyama</td>
<td>F</td>
<td>None.</td>
<td>F</td>
</tr>
<tr>
<td>Panchama</td>
<td>G</td>
<td>Usually none. Sometimes with a slide or U-slide. Sometimes with a touch of low dha.</td>
<td>G</td>
</tr>
<tr>
<td>Suddha</td>
<td>Ab</td>
<td>gamaka from pa, or no gamaka.</td>
<td>G-Ab</td>
</tr>
<tr>
<td>Dhaivata (descent only)</td>
<td>A</td>
<td>Usually no gamaka.</td>
<td>A</td>
</tr>
<tr>
<td>Chatussruti Dhaivata (ascent only)</td>
<td>A</td>
<td>Broad gamaka. The sruti itself is rarely heard. In ascent the gamaka may start from dha.</td>
<td>A-C</td>
</tr>
<tr>
<td>Kaisiki Nishada</td>
<td>Bb</td>
<td></td>
<td>A-Bb</td>
</tr>
</tbody>
</table>

Certain pitches must never be touched: C#, F#, B.
Key swaras ga and ni must have gamaka. Others variable.
Analyzing clusters of swaras and gamakas.

Instead of using neume signs, transcribers using Indian notation often make use of anuswaras to shed light on a complex passage. The anuswaras show the swaras broken down into their major components, though they still do not indicate every pitch one can hear in the cluster. For example:

\[
\text{Swaras:} \quad \text{\#g\#m\#p \, m\#p\#d \, p\text{g} \, M} \\
\text{(raga mayamalavagula)}
\]

\[
\text{Anuswaras:} \quad \text{\#g,\#b\#m \, m,\#n\#p\#d} \quad \text{\#p\#m\#g \, M}
\]

However, different persons might easily conceive of breaking down a passage into anuswaras in different ways. For instance, given the following passage (also raga mayamalavagula):

\[
\text{My guru dictated this notation:} \\
\]

\[
; \quad \text{d} \quad \text{p} \quad \text{m-\#g\#m\#m:} \quad \text{m\#r}, \quad \text{r\#s} \quad \text{\#r\#m\#g} \quad \text{M}
\]

If a more complete sound analysis were to be shown by using anuswaras, the passage would look like this:

\[
; \quad \text{d} \quad \text{p} \quad \text{m-\#g\#m\#m:} \quad \text{m\#s\#r\#s\#r}, \quad \text{r\#s} \quad \text{\#r\#m\#g} \quad \text{M}
\]

Sometimes, if a student is having difficulty hearing a passage played by the guru and repeating it, the guru will sing the passage in sargam with anuswaras to try to make it clearer.
Examples of gamaka:

Variation between two violinists performing the same composition. Two lines from the anumallavi of Sri raga varnam "Sami ninnekeri" as played by V. Thyagarajan and L. Shankar.

V. T.
(swaras) \( N; ; ; S N \backslash P M; R G R S R \)
(anuswaras) \( P n d n d n d n d n \in m M r \m M q M R \in M \)

L. S.
(swaras) \( N; ; ; S N \backslash P M; R G R S R \)
(anuswaras) \( P \in d \in d \in d \in d \in d \in d \in d \in \in p m m m m M M M R \)

Variation when the same violinist plays the same composition at faster speed. The same passage as above performed by Thyagarajan at double speed.

\( N; ; \in p m, r g r s r \in S ; ; m r \in p m m M M m p \)
(p, nd ndn \( r M M \in s r ; \in s m r p m p m p p m p n m M M \))

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Motion sources.

All the joints of the left hand, singly or in combination, are used in producing the various kinds of gamaka. There is a huge variety of hand motions. Fingers alone may move, or finger and hand from the wrist, or finger, hand and forearm together from the elbow.

1. Wrist motions.

a. Joined fingers.

A distinction of the karnatic technique is that the fingers move not individually, but together in joint action. The four fingers which touch the strings also touch each other, and are in contact nearly to the tips.

This technique is aimed at preserving the continuity of the sound line. Fingers may alternate during a passage, but their tips are kept close together so that the transition from one fingertip to the next can be made without audible trace. As a result, the entire hand must move with every finger motion.

In western fingering technique, the fingers act in isolation from each other and from the hand. The wrist moves only when the interval which two consecutive fingers must cover is larger than the distance which they can comfortably stretch. The karnatic technique, however, tends to eliminate note boundaries. The fingers act jointly with each other and with the hand. Fingers and hand become a single motion source rather than separate, alternating
forces. The power of the motion comes from the wrist more than from the fingers. The fingers, joined, become a flexible extension of the hand.
b. One finger slides.

When a change of swara or a sliding gamaka involves only a single finger, the other fingers still stay joined to it. This gives the single finger the weight and muscular support of the fingers beside it. The wrist acts as motor and the fingers as its wheel.

c. Two finger slides.

For any interval which involves a changing between two adjacent fingers, the entire hand is involved in the move, and the motion comes from the wrist. This is true for whole step intervals and for half step intervals, as well as larger intervals.

If the interval is a whole step, the whole hand moves slightly to cover that small interval. It is as though a small shift has been made though the shifting center is still the same and the arm has not moved. If these two swaras are connected by a gamaka, they should blend into a continuous sound. Finger one slides up to cover most of the interval between its former position and the place where finger two will be. But finger two cannot come down sharply. It must take over smoothly from finger one. The fingers are touching sides and their tips are adjacent. The smooth transition between the two fingers is accomplished by a rolling motion of the wrist. It is the same motion by which, in the western technique, hand vibrato is made. Only here the motions are much slower and more deliberate.

This rolling of the hand from the wrist is the main source of motion. It is present in all sliding gamakas, and particularly those which involve a change
of fingers. In my guru's technique there is a rich variety of such gamakas which involve the first, second and third fingers.

Sometimes there is a finger change between two swaras which are only a half-step in interval, yet this interval must be bridged smoothly. This too is done with the same rolling motion of the hand, only the fingers do not slide. They remain as close to each other as possible and the rolling of the wrist creates the sound effect of a slide taking place.

Half step and whole step slides in which two fingers are used do not involve a change of shifting center. Below are some samples of this kind of slide.

\[
\begin{align*}
& \text{G} \quad \text{R} \quad \text{or} \\
& \text{R} \quad \text{G} \quad \text{R} \quad \text{or} \\
& \text{G} \quad \text{R} \quad \text{G}
\end{align*}
\]

d. Three finger slides.

When the same sliding gamaka takes place over a broader span of pitch (between a large major second and a minor third) the interval involves the use of fingers one and three. Here we encounter something of the same difficulty we have in executing a slide between two swaras which are only a half step away from each other. There is really no room for the fingers to literally slide, particularly if the violinist has broad fingertips. In addition there is the obstacle of finger two being there in the middle between one and three.

To make a slide across this interval, the same rolling motion is used. The three fingers are kept tightly together. The pitches fall under the fingertips so that the only problem is to make a smooth
transition from finger one to two to three. Ideally the gamaka should sound as though it were being done by a single sliding finger. If the breadth of the gamaka is large, or if the violinist’s fingertips are small, a bit of sliding motion must be combined with the wrist’s rolling motion in order to bridge the gap smoothly. An example of this kind of slide is the interval of ni to sa in Sri raga. The ni is slightly lower than a major second, and the gamaka often moves down to a pitch even below that.

\[ \begin{array}{ccc}
3 & 3^1 & 3 \\
S & N & S \\
or, with gamaka, & 3^1 & 3^1 \\
N & S \\
\end{array} \]

2. Arm motions.

a. Tiny gamakas.

The forearm provides a second major source of motion. For certain gamakas the arm moves while the wrist and fingers remain stiff. These are mostly very tiny gamakas, abrupt and quick although the interval they cover is small. Somehow doing them from the forearm gives them a precision and solidity that would not be quite as crisp if done with wrist motion. A single finger is used. The gamaka moves to the pitch a half step below and then back to the original pitch. The sound is like that of a very brief grace note. The primary place in which this type of motion is used is on swaras fingered with the first finger in the pa position (third). For example, in raga mayamalavagaula:
Swaras: P G M ; or D N S

Anuswaras: P m\text{~}\overline{g} M ; D d\text{~}\overline{s}h S

There are instances when this same motion is combined with a tiny bit of wrist motion to make the same sounding gamaka. This happens when high ni or low ri are played in the high position of the sa string (II). Both swaras start at the pitch sa, played with second finger, which then makes tiny motions up or down to one or the other. The ri and ni may appear as ornamental figures to the swara sa.

\[ \overline{\text{S}} ; ; ; \text{becomes} \overline{\text{,}r \, s, f \, s, f \, e \, t \, s} \]

b. Slower slides.

Arm motion is also used for some slow slides in sa or pa positions (first or third) if these slides are to be done with one finger. If it were a slide involving two fingers, wrist motion would predominate.\footnote{This is not true in the technique of all karnatic violinists. Lalgudi Jayaraman, for instance, executes some of these slides with a motion generating from the finger itself.}

Example: from kriti "Giripainela" in raga Sahana.

\[ \overline{\text{z}} ; \text{p m p} ; \text{r g m p} ; \text{r g m p} \]

When slow gamakas on one finger take place in the upper positions, arm motion is not used because the arm

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already leans against the neck of the fiddle. The wrist then takes over the motions with the forearm acting as anchor.

Motions of the forearm are, of course, involved in all shifts of position and all slides larger than a major third.

3. Finger motions.

a. During shifts and sliding gamakas.

In all of these rolling and shifting gamakas so far discussed, the fingers themselves have a limited action. They stay closed, poised close over the string, except for the first finger which sometimes lifts when not in use. The amount of up and down motion they must do is minimal. They do not generate the power which causes them to slide. They remain passive extensions of the hand.

b. Grace notes.

But the fingers do get their chance at specialized action from time to time. Certain ragas or compositions involve a large amount of grace note ornamentation. Sometimes these passages consist entirely of runs of separated notes as in western music. Other times it is a combination of grace notes and slide-ornamented notes. In executing grace notes the fingers function vertically just as they do in rapid passages of western music. They move crisply up and down. The ornaments and clusters of gamakas and swaras may be rapid even though the tempo of the composition may be slow.

Unfortunately for analysts, gamakas do not do us the favor of falling conveniently into one of these motion categories or another. The majority involve a combination of motions. This is even so in the case of grace note gamakas. These are often done with a mixture of finger and wrist motion. The wrist motion aids rapidity and enables the grace notes to connect more easily with subsequent swaras and gamakas.

Example: sangati from "Giripainela"—Raga Sahana.

[ I offer staff notation in this example since the grace notes bear a similarity to passages in western music. Red brackets indicate gamaka clusters executed with a combination of finger and wrist motion.]
X Kinds of gamaka and their application.

In the following pages I have described many gamaka types which recur frequently in karnatic violin playing. They are by no means the only gamahas one hears. Possible forms of gamaka are innumerable. The ones I present might be regarded as points of reference: commonly used patterns which combine and vary to form a spectrum.

Notation.

As a device for my own learning I have come to use a set of neumes to designate various recurring kinds of gamaka. These are shape symbols which follow the contour of the ornament and show the direction in which the sound line deviates from the sruti. I find neumes particularly suitable to karnatic music because they are indicative but not precise, thereby leaving room for the natural variability which occurs between one rendition of a raga and the next.

In this system of neumes, the horizontal line is used in three ways. First, it is often used in the neume for a sliding gamaka to indicate where along the curve of changing pitch the sruti lies. For example, in the arohana of Aboghi raga there is a broad gamaka on the swara ga. This is usually rendered as a slide: ri-ma-ri. This gamaka would be notated:
The horizontal line is also used to clarify the direction of the slide—whether it is to or from the sruti of the swara. For example, in this passage of Hamsadvani raga

\[ \text{s s sr} \]

the middle three swaras all sound alike when played with gamaka: pa-ga, pa-ga, pa-ga. The horizontal line shows that the slides are: to ga from the swara above, and down from pa to the swara below, and again to pa from the swara above. The line is not used on the ri slide because it is a less confusing case. The slide is there simply from the swara above.

A third use of the horizontal line is to show where the gamaka occurs in relation to the swara's length. For instance, the gamaka may appear at the beginning of the swara, but the rest of the swara is sustained in the sruti written. Or in another instance the sruti of the swara may be sustained with the gamaka appearing at the end.

\[ \text{P} \]

\[ \text{P} \]

Sometimes the horizontal line appears in several capacities at once:
Analysis of particular gamakas and where they are used.


A grace note to the swara (of the raga) below. I name it so after the janta-svara exercises which every beginner learns. These exercises consist of ascending and descending scales in a given raga with double notes. Between each the two notes are one or two grace notes, depending upon the speed:

Slow speed: \( s^r s \quad r^r g^g \)
Fast speed: \( s^v s \quad r^r g^g \)

Example:

\[
\begin{align*}
\text{\( \vee \)} & \quad m^v_m \\
\text{\( \checkmark \)} & \quad m^v_m
\end{align*}
\]

Sometimes the gamaka extends downward to the sa or pa below on the open string. It is then written:

\[
\begin{align*}
\text{\( \checkmark \)} & \quad m^v_m \\
\text{\( \checkmark \)} & \quad m^v_m
\end{align*}
\]

In certain ragas this same gamaka is used in reverse: that is, to the swara above. This is not very common, but happens for instance in raga

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Mayamalavagaula:

Janta-swara gamakas are very rapid. They are a common ornament, and are often used as in the sample above to break up a lengthy swara such as sa or pa. Where there are sustained notes and a slow tempo, broader janta-swara gamaka may be used. These broader gamakas extend beyond the swara immediately below or above. The actual pitch they touch may not necessarily be that of one of the {\textit{grutis}} of the raga. For example, this gamaka is found in raga Anandabhairavi, where it touches the pitch of the major third, which is otherwise scarcely to be heard in this raga.

More commonly, though, janta-swaras of the first kind are found. In any rhythmic passage where a swara occurs twice in succession, the janta-swara gamaka will be used to articulate between the two.

Example: raga Ritigaula. \( n p n' n s n' n s \)

The janta-swara gamaka can be produced two ways. The first is by a single motion which combines raising (or lowering) the finger and making a slight rolling motion of the hand. One
might imagine this motion as a cross between a trill and a vibrato, carefully controlled and limited to a few rapid pitch changes. This method is used when the gamaka is executed with more than one finger.

If the janta-svara extends down to the open string below, then wrist motion is not involved.

A second way of producing this gamaka is by using only a single finger and making the quick shift away and back with the arm, as described on pages 75 and 76. My guru used this method only for particular swaras, such as second finger sa (string II), first finger sa or sa (strings III or I), first finger ma (string II) or second finger pa (string II). Only first or second fingers are used for producing the gamaka in this way.

2. Double and triple notes.

These are two other of the grace note variety of gamakas. The double note: a swara is broken up into two unornamented pitches, not necessarily of equal length. Sometimes the second of the two is sustained for a longer time. The double note gamaka is more deliberate than the janta-svara gamaka. Sometimes the double note represents the rapid version of what, in a slower tempo, would be a slide. For example, in the arohana of Bhairavi raga, the two notes with gamaka are slides in slow
tempo, but in fast tempo as shown below, are double notes.

\[ \text{\textasciitilde s} \text{\textasciitilde r} \text{\textasciitilde g} \text{\textasciitilde m} \text{\textasciitilde p} \text{\textasciitilde d} \text{\textasciitilde n} \text{\textasciitilde s} \]

When the double note gamaka is used at slower speeds, the first of the two notes is usually the pitch of the swara preceding. Example: Anandabhairavi:

\[ \text{\textasciitilde n} \text{\textasciitilde p} \text{\textasciitilde m} \text{\textasciitilde g} \text{\textasciitilde r} \text{\textasciitilde s} \]

Often a swara is subdivided into three pitches of which the first and third are the same. This occurs at slow and fast speeds. Just as the double note appears on swaras which might otherwise have a sliding gamaka, the triple note is used on the same swaras which might also be ornamented with a U (sliding) gamaka. Examples:

\[ \text{\textasciitilde n} \text{\textasciitilde p} \text{\textasciitilde m} \text{\textasciitilde g} \text{\textasciitilde m} \]

\[ \text{\textasciitilde n} \text{\textasciitilde s} \text{\textasciitilde f} \text{\textasciitilde f} \]

\[ \text{\textasciitilde n} \text{\textasciitilde D} \text{\textasciitilde P} \text{\textasciitilde P} \text{\textasciitilde M} \]

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Double and triple note gamakas are done with simple vertical motion of the fingers. The fingers are not joined. The pitches are more deliberately played than in grace notes.

3. Turns.

Another common gamaka pattern is a group of three or four pitches much akin to the turn in Baroque music. I have borrowed that symbol for the neume. Example: raga Pantuvarali

\[
\begin{align*}
\text{(swara)} & : P \\
\text{(anuswara)} & : pdpmp \\
\text{(swara)} & : \hat{P} \\
\text{(anuswara)} & : dpmp
\end{align*}
\]

Turns can be seen as examples of a double note or a triple note plus the downward janta-svara run together at fast speed.

\[
\begin{align*}
\text{M} & : mpmpM \quad \text{or} \quad mpmpM \\
\text{S} & : \text{srans} \quad \text{or} \quad \text{srans}
\end{align*}
\]

This becomes more evident in the instances where the janta-svara component extends down to the open string below.
The middle note of the three can also skip a swara higher than the adjacent swara. Sometimes it touches a *sruti* which is not ordinarily heard in the raga.

\[
\begin{align*}
M &= \text{mmmsm} \\
S &= \text{sgspS}
\end{align*}
\]

Turns, like the double and triple note gamakas, are executed by vertical finger motion.

Sometimes the janta-swara component of the turn is delayed a fraction of a second. When this happens the janta-swara is sometimes done on a single finger with arm motion.

\[
\begin{align*}
\text{M} &= \text{pM sm} \quad \text{or} \quad \text{pM gm} \\
\text{S} &= \text{erS ns}
\end{align*}
\]

4. Flick-up.

This is a grace note to a pitch above. It occurs at the very end of a swara. The pitch above which it touches may not necessarily be a *sruti* otherwise heard in the raga.

In rapid or medium-speed sections:

Example: raga Sahana
In slower passages the flick-up comes at the end of a sustained swara, often a swara that contains another ornament.

In slow passage:
Example, raga Bhairavi

This gamaka imitates a characteristic of karnatic vocal music. Sometimes the vocalist breaks off a sustained pitch with a slight upswing to emphasize the end of the swara or to help articulate it from following swaras. The violin does not produce an exact equivalent because it accomplishes the flick-up not by sliding, but by adding a grace note with another finger. This is usually the fourth or third finger. It is a downswatting motion of the finger aided perhaps by a slight rapid motion of the wrist.

5. Cut-off.

This is another ornament for the end of the swara. It is the equivalent of the vocalist's touch when the singer cuts off the tone and slides abruptly down to nowhere. It is used in jazz singing, for instance, and in karnatic singing when the vocalist does not want to end the phrase on a smooth, sustained note. The sound is one of finality, and so it usually appears at the end of the last swara of a section. Sometimes violinists
use it in the middle of a slow passage to separate phrases of text.

Example: raga Anandabhairavi
from kriti "Thyagaraja yoga vaibhavam"

\[ \text{\textit{vi di ta pa dam}} \quad \text{\textit{yu ga path bo}} \]

The cut-off gamaka provides a distinct stylistic touch to karnatic music. For the most part karnatic music is lyric, connected. But certain artists use gamakas such as this and various wide slides to break up the lyricism and lend energy and emphasis and something of an earthy touch. This eliminates any tendency toward the precious which might exist in the music.

But the cut-off is an interpretive gamaka rather than an essential one. Some artists never use it, preferring smooth and subtle endings to long swaras. It is a matter of choice.

The violinist creates the sound by making a very rapid slide downward at the end of the swara. The slide is de-emphasized, occurring as the bow runs out. It ends nowhere in particular. It is like a final accent which fell off the line.
6. Vibrato and related gamakas.

The muscular motions which produce the western hand vibrato are of basic importance to the karnatic left hand technique, as explained in pages 71-74. But the vibrato itself appears but rarely as a gamaka. Instead the entire range of gamakas replaces the vibrato in the function it serves in western music. In karnatic music the vibrato is only one among many gamakas, and not a particularly prevalent one. On old recordings I heard no trace of it.

My guru uses the vibrato gamaka only in certain passages of kriti which require great expressive effect. In some instances the vibrato highlights a particular swara.

Example: raga Mayamalavagula; kriti "Nehrusama"

\[
\begin{array}{c}
\text{\texttt{\textbackslash d\textbackslash m\textbackslash r\textbackslash g\textbackslash r\textbackslash g\textbackslash r\textbackslash g\textbackslash s}} \\
\text{\texttt{\textbackslash v\textbackslash b}} \\
\end{array}
\]

Other times he uses vibrato to control and dramatize a sustained swara so that it leans toward the coming phrase.

Example: same kriti as above.

\[
\begin{array}{c}
\text{\texttt{\textbackslash d\textbackslash m\textbackslash r\textbackslash g\textbackslash r\textbackslash g\textbackslash p}} \\
\end{array}
\]
Although vibrato is rare, there are a great many gamakas which seem like variations on the idea of vibrato, and which appear more frequently.

One of these is a slow pulse—a bit too slow and deliberate to sound like a vibrato. It seems to sound like a beginning student of western violin who is learning to make his vibrato go by slowly wiggling his fingers. This pulse, like the janta-swara, is used to break up particular sustained swaras in accordance with the underlying tala pulse. But in sound it is slower and more deliberate than the janta-swara gamaka. It can be done on one finger only, or on two fingers.

Example: raga Purnachandrika
from kriti "Telisi rama"

; R R ; G M P P (swaras)

, f r f r f R G pm P P (anuswaras)

If this same passage is done faster, the vibrato-pulses merge into janta-swara gamakas. If it is done slower, the vibrato-pulses broaden out into short slides. With small variations of timing one gamaka-type merges into another. There are no set boundaries between them.

7. Short slides.

Perhaps the most prevalent of all gamakas are short slides. They cover an interval from a minor second to a minor third, and can be done
on one finger, or two or three. Usually no change of position is involved. The means of producing these slides are described on pages 73-75. Depending upon the gamaka requirements for the raga, the slide can move down to the śruti of the swara from above (_installed_magnifying_glass), or down from the śruti to a point below (___), or it can start above and end below, passing through the śruti without pause (___). Sometimes the same kind of short slide moves upward, either to (___) or from (___) the śruti. On any of these slides the beginning pitch of the slide may be more emphasized than the end pitch (___). But this is only true of some short slides.

When the swara is of short duration, the slide will occur only once. But if it is longer, the slide may be repeated several times so that pitch is in constant motion throughout the length of the swara. This often occurs when the raga specifies that a certain swara must have constant gamaka, never settling on its śruti. Raga Bhairavi calls for such gamaka on the swaras ga and ni (see p. 68). It is also a distinctive characteristic of raga Todi:

\[\text{आआआ} \quad \hat{\text{व}} \quad \text{m g ; g r r s}\]

8. Long slides.

Deliberately emphasized long slides often ornament the beginning of a swara. They serve to bridge large intervals which may occur between phrases in either slow or rapid passages. They connect; they also give emphasis. If the purpose is emphasis a long slide may appear on the first swara of a phrase even though the last swara of the previous phrase was only a short interval away.
Long slides can move either up or down, but always to the swara they are ornamenting. Often they appear on sa and pa when those swaras are sustained. But they can appear on other swaras as well.

In a slow passage. Example: raga Ananda-bhairavi, kriti "Thyagaraja yoga vaibhavam"

\[
\begin{array}{c}
S \; P \; P \; S \; M \; M \\
\end{array}
\]

As well as bridging large interval gaps, the long slides in the above example also cover up the changing of strings which occurs.

In a rapid passage. Example: raga Bhairavi, varnam "Viriboni"

\[
\begin{array}{c}
sr \; mgs \; rnsr \; rG-m \; pdmp \; dns \\
\end{array}
\]

Since the hand must shift position over the distance, the motion is a combination of forearm and wrist. Although a changing of fingers may be involved between the swara slid to and the previous swara, the sliding is still done primarily on only one finger.
9. **U-slides.**

These common gamakas can be considered the smooth form of the triple-note, or a smooth variation on the repeated short slides (\[\text{\textbackslash n}\_\text{\textbackslash n}\_\text{\textbackslash n}\]). The U-slide goes up (\[\text{\textbackslash n}\_\text{\textbackslash n}\]) or down (\[\text{\textbackslash n}\_\text{\textbackslash n}\]) to the adjacent swara, covering an interval from a minor second to a major third. Like the short slide, it can pass through the gruti without resting on it if that is what the raga requires. (\[\text{\textbackslash n}\_\text{\textbackslash n}\_\text{\textbackslash n}\] and \[\text{\textbackslash n}\_\text{\textbackslash n}\_\text{\textbackslash n}\]) Generally it is used in medium or slow speed. It is one of the few kinds of gamaka which can be used on the swaras sa and pa. For an example, see transcription p. 88.

This gamaka can be done with one finger, in which case the forearm provides the motion, or sometimes the wrist. Or else the gamaka can be done with two or three fingers as described in pages 74–75. The fingers stay joined and the rolling motion is provided by hand and wrist. When the U-slide takes place in the sa (first) position, the fingers used are usually 3-1-3 or 1-3-1. When it is in pa (third) position, fingers 1 or 2 are used; and when in sa (sixth) position, finger 2.

10. **More complex slides: ascending.**

A variety of slide patterns which combine motions and directions are used to bridge ascending and descending intervals. In any given raga certain of these gamakas will appear consistently between the same swaras. In alapina, where gamaka
is as much a medium as are the swaras, these connecting gamakas appear so frequently that they become integral structures through which the raga is presented. I have no names for most of these gamakas, but indicate them by specific neumes.

This ascending gamaka has three intervalic extremes. Its starting place is the proceeding swara (that is, a swara below). Its ending place is the gruti of the swara as written. The peak point in the middle is a swara or two above the gruti written. Usually the peak point is the next pitch higher in the raga. For instance, in Sri raga, whose arohana is sa, ri₂, ma₁, pa, ni₁ sa (C D F G B♭ C), the ascent between ma and pa can be bridged by this gamaka producing the pitch sequence:

The slide does not rest at the high point, but passes through it smoothly so that greater emphasis falls on the final pitch. The upper pitch is a passing tone. As such, it may be a pitch which is not otherwise heard in the raga.

Staff notation is inaccurate for reproducing these gamakas because it cannot indicate the slide. However it can give some idea of time ratio between the extreme pitch points of the slide. This ratio varies. If the gamaka moves quickly, the first two pitch points may become grace notes.
P can be

Passage from the starting point to the ending point is smooth. Motion is from the wrist, with additional motion from the forearm when a shift is involved.

Example: Sri raga

Starting at the pitch of the previous swara (the swara below), this gamaka descends one swara further down, then rises to the named swara, which is higher. Emphasis is on the downward part of the slide. This gamaka usually comes after a short slide descending gamaka on the previous swara. In this way the downward part of the J slide may duplicate the sound of the preceding gamaka. If there is a large interval (a fourth or more) between this swara and the preceding swara, the J gamaka bridges the gap:

Example: Bhairavi raga

In time ratio, the downward part of the slide takes longer than the sliding up. The shruti of the swara itself is somewhat de-emphasized.

N can be

95
Both hand and forearm provide the motion for the gamaka.

Although this gamaka seems distinctly different to my ear, it is a bit difficult to draw a strict borderline between it and the J gamaka just described. It is a variation of the J in which the time emphasis on the curve has shifted so that the lowest pitch in the curve is dominant and the final pitch is reduced to a grace note. This final pitch is in fact the sruti of the swara named. A swara having this gamaka is always followed by a lower swara.

Example: raga Yedukulakambhoji from kriti "Hecharikarakara"

This gamaka does not cover so large a range of pitch as does the J gamaka. Also it is not very common, occurring only in certain ragas and in certain shifts up and down in the melody line.

This is another variation of the J gamaka sounding somewhat like the gamaka above, but smoother. It is a reverse-turn, and occurs very commonly. It starts on the sruti of the swara or else a pitch below; it descends still further; it then rises past the sruti, then descends to land on the sruti. Between the lowest and highest points of the curve there may be an interval as great as a fourth.
Example: Sri raga

\[ R \hat{M} P \quad (M = \text{mrpm}) \]

Example: raga Anandabhairavi

\[ \hat{g} \ \hat{r} \ n \ \hat{s} \quad (\hat{g} \hat{r} = \text{sdgr}) \]

A combination of arm motion and hand motion is used in this gamaka. The sound should be smooth throughout. Timing varies:

\[ \hat{S} \]

\( S \) can be

or


This slide is not too prevalent, but crops up from time to time in my guru's style. It begins on the previous swara (one above). From there it moves up to touch a higher swara, then descends to the sruti of the swara named. The gamaka is usually done with one finger, using hand or forearm motion as is convenient. It does not cover a very large interval.

Example: raga Anandabhairvari

\[ M \hat{G} \quad G = \text{mrmr} \]

\[ R \hat{S} \quad S = \text{rgS} \]

This gamaka can be used to indicate ornament over one swara or two anuswaras:

\[ R \quad \text{or} \quad \hat{r} \]
Time ratio on the pitch extremes is approximately: $S = \frac{2}{3}$

A common gamaka for descending swaras. It starts on the preceding swara (one above) then slides down to the named swara, then flicks up again to the preceding swara.

Emphasis is on the downward part of the slide, and strongest upon the gruti of the named swara. The flick up is not totally disconnected, but it is brief and usually done with a different finger.

Example: Bhairavi raga $S \cap D P \cap M G R$

Time ratio of the pitch extremes:

$G \cap R$ can be $\frac{2}{3}$ or $\frac{1}{2}$

There is no clear borderline between this gamaka and the previous one. But a different effect occurs when the time proportion is shifted. The emphasis on the upswing is not so disconnected, and a short slide down follows. This produces a common gamaka sound combination. It may be thought of as a gamaka on a single swara, or as a gamaka joining two anuswaras.

Example: Sri raga $gr = R = mGmR$
If the gamaka covers two swaras (or anuswaras), the two will be joined in a single bow stroke or a single vocal syllable.

Time ratio of the pitch extremes varies much as does the previous gamaka (\( \downarrow \uparrow \)). But here the central pitch is strongest, the upswing is not disconnected, and the overall effect is smoother.

\[
\text{\( R = \)} \quad \text{[Diagram of gamaka]}
\]

Since the interval covered is rarely more than a minor third, wrist motion alone will usually suffice.

Some clues for finding gamaka and fingering.

It often happens that a violinist who is accompanying a vocalist is faced with the prospect of playing on stage a raga which he has never before heard, one in which he knows no kritis. This can happen because according to the rules of the concert game, the soloist does not have to tell his accompanists beforehand what he is going to sing, and he may often take competitive joy in offering up surprises to his violinist and his mridangam player, who must then and there pick up the raga and the kriti on the spot and play it as though they have always known it. This is one of the more difficult aspects of the concert profession.

Curious as to how a violinist is able to play a raga he has never learned, I asked L. Shankar how this is done. He told me that the violinist listens
for the *srutis* and swaras and *sancharas* (characteristic phrases) of the raga. How then does he know what fingering and gamakas to use? This, Shankar told me, the violinist knows instinctively. The instinct I gather comes from long familiarity with many ragas. For instance, when two ragas have the same interval patterns in one portion of their *arohana* or *avarohana*, it is quite possible that the same gamakas will be used for both. For instance, raga Mayamalavagaula and raga Pantuvarali differ only in that the first has a *suddha madhyama*, and the second has *prati madhyama*. Their upper tetrachords, pa to sa, are identical and the same gamakas are used in both ragas for that tetrachord.

There are also some underlying predictabilities in fingering and gamaka depending on the intervalic structure of the raga. Certain intervalic patterns seem to produce the same gamaka regardless of raga, obeying one of the many unstated laws of karnatic musical structure. They are "fixed, but not fixed"—predictable but, like the weather, unpredictable. I offer some of these patterns, keeping in mind that they will of course have their exceptions.

1. Consonant points.

For the vast majority of karnatic ragas, sa and pa, in their various octaves, are the consonant points. Usually they are among the strongest pitches in the raga as well. Often melodic fragments begin on or near one of these consonants. Certain key lines of the composition resolve on one of the consonants and at the end of a section the performer improvises his way back to the nearest sa or pa and sustains that swara. In *kritis*
a sa or pa will often be sustained for an entire tala cycle while the mridangam player executes a *mora*.

The consonant swaras are made stronger by having minimal ornamentation. Often they have no gamaka at all. But there are certain gamakas which ornament the arrival at the consonant swara. The swara may be reached by a long slide (\_/) or a curved slide from a nearby swara (\_\_). Or else the beginning of the consonant swara may be given deliberate stress by a U-slide gamaka (\_/\_/\_/). Such slides appear only when the consonant swara is to be sustained, or is in slow tempo.

When the consonant swara appears in the middle of a rhythmic line and the swara is sustained, janta-swaras gamakas are often used to maintain the tension of the moving line. They are regularly spaced, and usually extend to the *sruti* a half-tone above or below.

**Example:** Hamsadhvani raga

*from varnam "Jalajaksha"

\[
(\text{swaras}) \begin{array}{cccccc}
N & \vdash & \vdash & \vdash & \vdash & S \\
\text{(anu-swaras)} & P & s & \tilde{\text{n}} & s & \tilde{\text{n}} & s & \tilde{\text{n}} & s & \tilde{\text{n}} & s & \tilde{\text{n}} & s & \tilde{\text{n}} & s & \tilde{\text{n}} & R & S & N
\end{array}
\]

The fingering for sa and pa is fairly predictable, in accordance with the positions or shifting centers used by the left hand. On the lower pa string (III) sa will be third finger (first position) or first finger (third position). Or else it will be the open sa string (II). Pa, if not the open string (I) will be second finger on the sa string (II; third position).
Sa can be played on the sa string (II) with second finger (sixth position). Otherwise it is played on the pa string (I) either with third finger (first position) or first finger (third position).

Slides to any of these swaras will be done with the same finger; usually the first finger if the swara is in third position (sa and fa) or else second finger (pa and pa). U-gamakas from these consonant swaras will be also done on the same finger if in third position. But for U-gamaka on sa or fa in first position, the fingering 3-1-3 is used.


Many ragas contain swara intervals of a half-tone. When this occurs, the stronger of the two swaras tends to absorb the other; that is, the stronger swara will be unornamented and the weaker ornamented in such a way that the gamaka starts at the dominant pitch, deflecting briefly to the sruti of the absorbed swara. The sruti of the absorbed swara thus becomes conspicuous by its near-absence. It sounds like a janta-svara ornament placed upon its dominant neighbor. This can be seen in the example from Hamsadvani varnam on the previous page. Ni is absorbed by Sa. The gamaka on both swaras makes them sound identical, but the sruti sa is more conspicuous to the ear than the sruti ni in either swara.

Since the swara sa and sometimes the swara pa are frequently dominant, the adjacent swaras ni₂ and ri₁ are quite frequently absorbed. Likewise prati ma (ma₂) and suddha dha (dha₁) may be dominated.
by pa. The arahana-avarahana of raga Pantuvarali is an outstanding example of this absorption:

\[
\begin{array}{cccccccc}
S & R & G & M & P & D & N & S \\
S & N & D & P & M & G & R & S
\end{array}
\]

R becomes Srsr  \hspace{1cm} M becomes P,mp  
D becomes Pdpd  \hspace{1cm} N becomes Š,ns

In Pantuvarali melodies the general rule is that in every ri or ni the gruti sa will be heard; and in every ma or dha the gruti pa will be heard.

It is not only these four swaras that are subject to absorption. The pattern changes if the raga has strong melodic focus points other than sa and pa. For instance, Mayamalavagula is identical to Pantuvarali save that the madhyama is suddha. It is also a jiva swara, an important pitch equal in strength to sa or pa. It is unornamented and tends to absorb the adjacent swara ga (sometimes but not always).

Example: Mayamalavagula

\[
\begin{array}{ccccccc}
S & R & G & M & G & R & S
\end{array}
\]

However, when ga is a stronger melodic focus than ma, the same absorbing happens to ma instead. This takes place in raga Yedukulakambhoji. Ma has much gamaka, rarely settling on its gruti. Ga is a prominent gruti, having only those gamakas common to a swara which is a melodic pitch focus.

Example: from kriti "Hecharikakarara"

\[
\begin{array}{ccccccc}
gmG & gmG & m & G
\end{array}
\]

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One cannot always predict which of two adjacent swaras will be absorbed, or whether the absorbed swara will always have the gamaka, or will sometimes be heard in its unornamented *sruti*, as is the case of the ga in Mayamalavagaula raga. One must be somewhat familiar with the importance of the various swaras in the raga, or else have a quick ear for picking up the patterns. Because a swara is absorbed in gamaka does not mean that it is unimportant. Often a swara whose *sruti* is barely heard may be a key swara of the raga. This is the case of the ni in Hamsadvani, and the ma in Pantuvarali, and the ga of Todi, to name a few. Swaras can be made just as conspicuous through heavy disguise of their pitch as they can through entire lack of gamaka. The presence and the absence of gamaka each represent a conspicuous extreme by which swaras are distinguished.

The ornament for executing the absorbed swaras is either the janta-svara gamaka or the pulse-vibrato ornament. (—v— or —w—). Both can be done with either a single finger, or with two fingers placed closely together.

The raga Todi represents an interesting variation on the absorbed sound. In this raga, ri and ga are a whole tone apart in *sruti*. Both have gamaka, but the ri is a more stable tonal center than the ga, having but a slight gamaka coming from sa. The ga has a wide gamaka reaching anywhere between high ri (ri₂) and lower ma (ma₁). Often the ga may be executed so that it sounds like an absorbed swara coming from ri₂ though ri₂ is not one of the swaras in the *arohana* or *avarahana*. Ga, with its gamaka, can come from and

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return to the ri below:

The same may occur in the upper tetrachord with D N D.

This then is the sound phenomenon I call the absorbing of pitches: the moving from a strong pitch center to a swara a half step away, touching that pitch in a subtle or wavering gamaka, and retreating again to the dominant pitch. Just where this occurs in a raga depends upon the swara structure of that raga, and upon which of the swaras and srutis are dominant.


When a raga contains prati madhyama (ma₂), irregular behavior is likely to occur. Although the madhyama is often absorbed by a dominant panchama, there are instances wherein the pa is skipped over altogether, and the melody passes between ma and dha. There are also several ragas with prati madhyama which omit pa entirely. In either case, the ma is given emphasis— to borrow from western terminology, it is a chromatic touch. It appears plainly, or with an emphasizing slide such as \( \sim \) or \( \backslash \) or \( \nearrow \). For example, this is what happens in raga Purvikalyani:

\[
\begin{array}{cccccccc}
& & & & & & & \\
g & m & d & s & \sim & 2 & \backslash & 3 \\
\end{array}
\]

In raga Pantuvarali pa is a strong swara. But for the sake of variety, pa can be passed over in the same way, and the emphasis placed on ma and dha:
Example: raga Pantuvarali
from kriti "Siva Siva Siva"

Sa can be passed over in the same way as pa. Often both sa and pa will be passed over in the same raga. This lends a balance to the tetrachords. Melodies can pass between ri₂ and ri₁ or between ni₂ and ri₂ (not, however, between ni₁ and either ri). Kalyani raga is an example wherein both sa and pa can be (but are not always) bypassed in melodic passages.

In fact, ni-ri-ga is one of the most important gendharas or identifying phrases of the raga. Pa is sometimes stressed, or sometimes deliberately passed over. The same is true in raga Pantuvarali, where an alapina may briefly move around the raga omitting sa and pa so as to produce the sound of a pentatonic scale transposed: ga₂ ma₂ dha₁ ni₂ ri₁ (E, F♯, G♯, B, C♯). But immediately thereafter a sa or pa will be stressed to counteract the atonal passage and resolve the tension of the melody line.

When pa is so bypassed, the ordinary schemes of positions get altered, since the hand no longer centers at pa (string II, second finger). And so the third position here dissapears. Finger two is usually used on the slides connecting ma and dha. But in between sa and ga, played on a single string, the hand must find its own position for each swara.

(See p. 62)
NAMASKARAM
Ragas mentioned

The numbers 1 or 2 below the swara indicate whether it is lower or higher; i.e. $g_1$ is Eb; $g_2$ is E; $m_2$ is F#. Parenthesis mean that the segment of the arohana or avarahana enclosed in them is not considered by all musicians to be part of the raga.

Simple gamaka markings are given.

Anandabhairavi. $s \overset{\vee}{g_1} r_2 \overset{\vee}{g_1} m_1 p d_2 p s$

Bhairavi. $s r_2 \overset{\vee}{g_1} m_1 p d_2 n_1 s - s n_1 d_1 p m_1 g_1 r_2 s$

Hamsadvani. $s r_2 \overset{\vee}{g_2} p n_2 s - s n_2 p g_2 r_2 s$

Kalyani. $s r_2 \overset{\vee}{g_2} m_2 p d_2 n_2 s - s n_2 d_2 p m_2 g_2 r_2 s$

Malamalavagula. $s r_1 \overset{\vee}{g_2} m_1 p d_1 n_2 s$

Pantuvarali. $s \overset{\vee}{r_1} g_2 m_2 p \overset{\vee}{d_1} n_2 s - s n_2 d_1 p m_2 g_2 \overset{\vee}{r_1} s$
Purvi (as played by T. Viswanathan):

\[ n_2 \quad r_1 \quad g_2 \quad m_2 \quad d_2 \quad s \quad p \quad s \quad s \quad n_2 \quad d_2 \quad p \quad m_2 \quad g_2 \quad r_1 \quad s \]

Purnachandrika:

\[ s \quad r_2 \quad g_2 \quad m_1 \quad p \quad d_2 \quad p \quad s \quad s \quad n_2 \quad d_2 \quad p \quad m_2 \quad g_2 \quad r_1 \quad s \]

Purvikalyani:

\[ s \quad r_1 \quad g_2 \quad p \quad d_2 \quad s \quad s \quad n_2 \quad d_2 \quad p \quad m_2 \quad g_2 \quad r_1 \quad s \]

Ritigaula:

\[ s \quad g_1 \quad r_2 \quad g_1 \quad m_1 \quad (n_1 \quad d_2 \quad m_1) \quad n_1 \quad n_1 \quad s \quad s \quad n_1 \quad d_2 \quad m_1 \quad g_1 \quad m_1 \quad p \quad m_1 \quad g_1 \quad r_2 \quad s \]

Sahana:

\[ s \quad r_2 \quad g_2 \quad m_1 \quad p \quad m_1 \quad d_2 \quad n_1 \quad s \quad s \quad n_1 \quad d_2 \quad p \quad m_1 \quad g_2 \quad m_1 \quad r_2 \quad s \]

* Ni is somewhere between n₁ and n₂.

Sri Raga:

\[ s \quad r_2 \quad m_1 \quad p \quad n_1 \quad s \quad s \quad n_1 \quad (p \quad d_2 \quad n_1) \quad p \quad m_1 \quad r_2 \quad r_2 \quad s \]

Ni is slightly lower than n₁

Todi:

\[ s \quad r_1 \quad g_1 \quad m_1 \quad p \quad d_1 \quad n_1 \quad s \quad s \quad n_1 \quad d_1 \quad p \quad m_1 \quad g_1 \quad r_1 \quad s \]

Yedukulakambhoji:

\[ s \quad r_2 \quad m_1 \quad p \quad d_2 \quad s \quad (n_1) \quad d_2 \quad p \quad m_1 \quad g_2 \quad r_2 \quad s \]

ii
Glossary

akshara A unit of tala. Each tala cycle has a fixed number of counts. Each count is subdivided into aksharas. Usually, there are four aksharas per count (chatusrura nadai) or three (tisra nadai).

alankara Term used in ancient treatises meaning gamaka. It is still used in North India.

alapina A form of improvisation in which a raga is presented in phrases, without rhythm. In performance alapina often precedes the playing of a composition in the same raga.

anupallavi The section of a composition following the pallavi, or opening section. The anupallavi centers upon the higher range of the raga.

anuswara Literally "below swara"—when written underneath the main swara in a transcription, anuswaras indicate the subdivisions of the swara.

arohana The ascending order of swaras in a raga.

avarohana The descending order of swaras in a raga.

bhava The spiritual essence and beauty of a raga or a composition. Bhava is the power which evokes rasa, or emotional response, in the listener.

chakra Wheel. In the yoga system of human physiology, the body contains many chakras which are centers controlling emotions and drives.

chatusrura nadai The dividing of each tala count into four subdivisions. Most karnatic compositions are in chatusrura nadai.

gamaka The integral ornamentation on each swara. For detailed definition see page 65
gharana  Line of descent from guru to shishya; a school or style of music which has been carried on for at least three generations. A term used in hindusthani music.

guru  Teacher; also by implication spiritual guide.

hindusthani  The classical music of north India.

javali  A light compositional form (with a text more worldly than spiritual). Javalis are short, ornate, and often used to end concerts.

jiva swara  Jiva means soul. The jiva swara is the most important swara of the raga, that which gives it individuality and life.

karnatic  The classical music of the four south Indian states, Mysore, Kerala, Tamilnad and Andhra Pradesh. Madras, the largest southern city, is now the largest center for the practice of this music.

khyal  The style of singing most popular in north Indian classical music.

korrupu  A form of karnatic tala improvisation (used in swarakalpana passages by melody instruments and voice as well as in drum solos). Two or more players are involved. They take turns improvising first for one tala cycle each, then for one half cycle, then one quarter, etcetera. Korrupu is followed by mora or korwai.

korwai  A rhythmic pattern used by both drummers and swara improvisers. Like a mora, it is repeated three times. But it emphasizes the putting together of groups of odd-number length, accentuating the offbeats and syncopation.

kriti  The most prevalent compositional form in today's concert music. It is a devotional song having three sections, pallavi, anupallavi and charanam.
mendra sthayi Octave below the tonic. Sa down to sa.

meend In hindusthani music, a long, sliding ornamental phrase: moving between one between one sustained pitch and ending at another. It happens in alap.

mora The most important of drumming patterns in tala improvisation. A mora is a rhythmic pattern repeated three times. Short moras follow every composition section in a kriti, and appear on every final ending. Long moras are extended solos elaborating a particular finger pattern and its changes.

mridangam The two-headed, barrel shaped drum which is the main accompanying rhythm instrument in karnatic music.

nada Sanskrit term for sound. Used sometimes to mean the spiritual force of sound.

pallavi 1 The opening section of a composition such as kriti, varnam or javali.
2 A compositional form consisting of a single, long and complex tala cycle. The artist uses the melody of this cycle for a long improvisation which might last up to several hours. Today not many artists perform pallavi.

prati madhyama The pitch a tritone higher than the tonic; $M_2$.

rasa The emotional response evoked in the listener by the skillful rendition of a raga or composition. Rasa is a latent quality of the raga itself.

sabha A club or organization which patronizes the arts in India.

sanchara Particular phrases or swara groups by which a raga is recognized. Characteristic phrases.

sangati A line of text set to music. Also other musical lines which are melodic variations using the same text (sahitya).
sargam  The Indian solfege system. The word comes from combining the names of the first four swaras, sa, ri, ga and ma. The other three are pa, dha and ni.

shishya  The student of the guru. His position is traditionally rather like that of the apprentice.

sruti  Pitch. Intonation. The possible subdivisions of the octave. The pitch which a soloist chooses for his tonic. I also use this term sometimes to mean the pitch of the swara taken without any ornamentation.

sthayi  Octave. The main playing octave, sa to śa, is madhya sthayi. The octave below is mandra sthayi. The octave above is tara sthayi.

suddha  Used in karnatic music to mean basic, or the lower of two possible srutis. Suddha ma is ma₁ (F) suddha dha is da₁ (Ab).

swara  A unit of melody. A note plus its necessary ornamentation. A sargam syllable.

swarakalpana  A form of improvising within the tala framework, using sargam syllables. The vocalist improvises a tala cycle, ending always on a set phrase and at a set point in the cycle. The term "swaras" is also used to indicate swarakalpana.

tambura  Large stringed instrument which provides a drone for classical music.

tan  In hindusthani music this is the name for a passage of rapid, connected swaras sung with an open "ah" sound.

tanam  A type of improvisation which sometimes follows alapina in karnatic music. It centers on certain important notes of the raga; it has pulse but no steady beat.
vadi Primarily a hindusthani term, meaning the most important tonal center of a raga. The second most important swara (samvadi) is usually found four or five swaras away from the vadi.

varnam The compositional form which usually opens a karnatic concert. The varnam comes from dance music. It is fast, technically demanding, and stresses fascility rather than lyricism.

vidwan professional or master musician.

vina The most popular south Indian classical melody instrument. It is of the lute class, and is plucked. Gamakas are created on the vina by sliding, by fingerling, and by deflecting the string to the side.
Sources

Oral information is the source for the greatest part of this thesis. Many persons contributed by interview, casual conversation, and by giving me opportunity to observe and learn from them. Book information plays a relatively minor part. I give thanks to these people who are my primary sources.

karnatic violinists Papa K. S. Venkataramiah and his son V. Thyagarajan

karnatic violinists Laxminarayana Iyer and his sons L. Shankar, L. Vaidyanathan and Subrahmaniam

karnatic violinists Lalgudi G. Jayaraman, T. N. Krishnan and M. S. Gopalakrishnan

hindusthani violinists Satya Deo Pawar of Delhi; Dr. N. Rajam of Benaras and her husband Subrahmaniam

western and film violinist Malcolm Ranjore of Madras

karnatic and western violinist Adrian L'Armand and his wife Kathleen L'Armand, researchers in the sociology of karnatic music
Bibliography

The Hindu, "Karnatic Composers" series of articles by various authors published Sundays, January 4 to July 26, 1970. Madras.


Photographs

Frontpiece:
1. Papa K. S. Venkataramiah and V. Thyagarajan (taken in their home)
2. Kachcheri in a Madras temple; violinists Adrian L'Armand and his guru B. K. Viswanatha Sarma

Playing position:
1. V. Thyagarajan
2. Lalgudi G. Jayaraman
3. L. Shankar
4. T. N. Krishnan
5. M. S. Gopalakrishnan

Right hand, downbow:
1. V. Thyagarajan
2. Papa K. S. Venkataramiah
3. T. N. Krishnan
4. Lalgudi G. Jayaraman
5. L. Shankar
6. M. S. Gopalakrishnan

Right hand, upbow:
1. T. N. Krishnan
2. Papa K. S. Venkataramiah
3. Lalgudi G. Jayaraman
4. L. Shankar
5. M. S. Gopalakrishnan

Left hand:
1. Lalgudi G. Jayaraman
2. M. S. Gopalakrishnan
3. T. N. Krishnan
4. Papa K. S. Venkataramiah
5. T. N. Krishnan