Dynamics of melodic discourse in Indian music: Budhaditya Mukherjee's *ālāp* in *rāg* Pūriyā-Kalyān

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1. Introduction

This chapter presents an analysis of a performance of *ālāp*, with reference to the compositional principles that it demonstrates. Following a long succession of ethnomusicological and musicological studies, including Nettl (1974), Lortat-Jacob (1987), Nettl and Russell (1998), Treitler (1974, 2003), Nooshin (2003) and many other contributions, it is clear that compositional principles are no less important in music that is unwritten and "improvised" than in music that is written and "composed"; and that indeed, one can no longer speak of "improvisation" and "composition" in any oppositional sense. It also seems clear that the importance of compositional principles in unwritten music, such as ālāp, is related both to the performer's need to recall memorised material and invent new material that is grammatical, and at the same time to the listener's need to engage with, comprehend, and be stimulated by an auditory experience that, for him, happens in real time, whether a written score exists or not, and whether he is listening to a live performance or a recording. In this essay I will consider primarily the listener's perspective; how far the cognitive processes involved in performing and listening to ālāp are equivalent remains an open question, but that they are closely related seems likely.

1.1. Ālāp and rāga

The Sanskrit word *ālāpa* signifies speaking to, addressing, hence speech, conversation, or communication (Monier-Williams 1899: 153); it overlaps in meaning with the English word *discourse*. *Ālāp* in Indian classical music is a process rather than a genre, but it typically occurs in the form of a non-metrical "improvised" prelude, often quite extended, preceding a composed metrical piece. "Improvised" in this context means that ālāp is not normally a fixed, memorised item of repertoire, but rather a technique or style of performance that can be applied to any *rāga*. Ālāp is intimately related to the concept of *rāga*, and in canonical theoretical sources it is explained as a "manifestation" or "making clear" (*prakaṭīkaraṇa*) of the *rāga* (Widdess 1981). Without *rāga*, therefore, there would be no *ālāp*.

Rāga, an elusive but fundamental concept, denotes "passion" or "delight"[1], and as a musical term refers to the unique aesthetic qualities of a particular melodic configuration. Each such configuration, each *rāga*, has a number of melodic features besides scale structure, which may include strong and weak pitches, transilient and recursive features, melodic motives and formulae, special ornamentations, and distinctive aesthetic qualities (for examples see Bor 1999, *passim*). It is the combination of all its features that makes a rāga unique, and it is this combination that must be brought out in ālāp.[2]

Van der Meer states that ālāp "is considered the most complete and sublime method for exposing a rāga" (1982:32).[3] He suggests that ālāp is concerned with two "issues":

1. The "melodic and tonal coherence" of the rāga.
2. The unique identity of the rāga, that is, its distinctiveness from all other rāgas.

We may note here that it would require different skills on the part of the listener to appreciate these issues. The "melodic and tonal coherence" of the rāga presumably emerges from the current performance, whereas the distinctive identity of the rāga implies the listener's awareness of this and other rāgas as entities existing outside the current performance. Clearly listeners will vary as to their familiarity with Indian classical music, and therefore in the extent to which they can appreciate the second of these issues.

It is in any case doubtful whether these two issues alone are sufficient criteria for an effective ālāp performance. In addition, the materials of the rāga must be organized successively, over what is often an extended period of time, in such a way as to engage the listener's attention. Van der Meer states that ālāp is "divided into a number of parts, each of which highlights an aspect of the rāga, progressing from low to high [register]" (1982: 32). This essentially means that different scale-degrees are emphasised in turn, in ascending order. This is the fundamental organizational principle of ālāp, known as *vistār* ("expansion").

But Van der Meer makes clear that there can be more differentiation than this between "aspects" of a rāga. The example of ālāp that he analyses is a performance of rāga Hindol, which he regards as a relatively "straightforward" rāga, but he nevertheless observes that, for example, "a slow [glissando] from ma to ga [pitch #4 to 3] is avoided in the foregoing parts…as this [glissando] will become predominant in the next parts". And he continues:

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[1] Not, as so often asserted, "colour" in a general sense. The root *rañj*, from which *rāga* derives, connotes *red* colour, hence passion (Monier-Williams 1899:861, 872; Widdess 2006).

[2] Studies of ālāp with reference to North Indian classical music include Jairazbhoy 1961, Sorrell and Narayan 1980: 105–9 and 149–52, Van der Meer 1980: 32–42, Widdess 1981, Widdess 1994, Widdess 1995: 312–67, Powers and Widdess 2001: 193–4, Sanyal and Widdess 2004:141–208, Khan and Widdess i.p., etc.

[3] Van der Meer is writing specifically about ālāp in the *dhrupad* vocal style, but the comments quoted apply equally to instrumental performances of the kind to be analysed here.

"In many other rāgas the beauty and aesthetic pleasure derive precisely from a process of hiding and unveiling, of avoiding certain tones only to introduce them later, or of choosing such patterns that a suggestion of another rāga emerges." (1932: 35)

Such statements indicate a dynamic view of rāga, according to which different sections of a performance may be characterised by different melodic material. This view runs somewhat counter to, or deeper than, the typical assumption that a rāga — often represented as a scale or a simple ascent–descent pattern — remains unchanged throughout any performance as a matter of principle in Indian music. It is true that a change to a *different rāga* would not normally be contemplated in mid-performance; but *within* a single rāga it may be possible to exploit different melodic components or configurations.

Similar ideas have been also expressed by other writers. Jairazbhoy (1971: 73) associates alternative melodic configurations of a rāga with the accompanying drone, which always includes at least one other pitch besides 1 (normally 5 or 4), thereby offering the possibility of different tonal orientations. He further notes the use of more than two drone pitches by modern sitārists, an innovation that he attributes to Vilayat Khan (1971:187–189). Powers (2001: 840–42) associates different "modal nuclei" of a rāga with different stages of ālāp, but without linking these to tonal centres. In particular, Powers points to "mixed" rāgas, formed by combining particular motives or pitch areas from two or more different rāgas, as offering scope for this dynamic structure.

On the other hand, Indian musicians typically assert that every rāga, even a composite one, must form an integrated whole, with a distinctive aesthetic identity; and that the display of its separate elements should not compromise its "melodic and tonal coherence". There is thus a potential tension between dynamic and integrated approaches to rāga performance.

Van der Meer notes that "an artist in his long hours of practice [may have] done research into a special [*sc.* particular] rāga which allows him to display new aspects of the rāga" (1982: 39). I will argue that in the present example, the artist demonstrates a considerable degree of "research" into the rich melodic possibilities afforded by a composite rāga, and displays, if not new aspects as such, at least an analytical approach to its performance that exploits the different aspects of the rāga in a dynamic way within the ālāp framework.

1.2. Analysing performance on CD

The CD *Inner Voice (Budhaditya Mukherjee)* was published by Audiorec in 1991 (ACCD 1014).[4] It features the sitarist Budhaditya Mukherjee, one of the finest exponents of North Indian classical instrumental music, affiliated to the leading

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[4] The CD is available from http://www.audiorec.co.uk/.

stylistic school (*gharānā*) of sitār-playing founded by Imdad Khan (1848–1920).[5] The first 14'23" of track 2, comprising an ālāp in rāga Pūriyā-Kalyān, forms the subject of this analysis. I became closely acquainted with this CD because I was asked to write the liner notes. Listening with perhaps unusually close attention, I was struck by the formal craftsmanship displayed in this ālāp, and by the artist's exploitation of the contrasting melodic materials that combine to make up this "mixed" rāga.

But one is immediately faced with a methodological issue in analysing material of this kind. Ethnomusicologists are accustomed to analysing musical performances in context. The immediate circumstances of performance and the wider cultural background are seen as inseperable from the sounds of the music: the latter cannot be understood, it is believed, in isolation from their context. But a commercial recording captures *only* the sounds (apart, perhaps, from a small amount of contextual information provided in the liner notes): the material to be analysed in this case is thus an almost completely decontextualised artefact. The context of the performance is, in any case, totally separated from the context of listening: the music will be heard in a different context each time the CD is played. There is no possibility of vocal or visual interaction between listeners and performers, as there would be in a live event. On the other hand the recording is infinitely repeatable, unlike a live performance; it may take on new meanings, for the same or different listeners, at each playing.

Here therefore I pose the question: from the point of view of the *listener* to the recording,[6] how is the ālāp discourse audibly structured, and what part in this process is played by the manipulation of contrasting aspects of the rāga? Admittedly we cannot predict the experience of any given listener on any given occasion, but we can at least ask: What *kind* of musical experience does the performance afford, through the medium of sound alone?

Huron (2006: 231, 235) has drawn some basic distinctions among the kinds of musical expectation that listeners to any music might have, as follows (I have changed the order of presentation for convenience):

1. *Unconscious expectations*
    a. *Veridical* expectations: expectations based on long-term memories of musical patterns, arising from "repeated exposure to a single episode, token or work". For example, hearing the start of a well-known melody may arouse veridical expectations that it will continue in the familiar way.
    b. *Schematic* expectations: expectations based on the conventional patterns and structures of the musical style, absorbed into long-term memory through repeated exposure to that style. In Indian music, for

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[5] Dates from Parikh 2007. According to information given on his website, Budhaditya Mukherjee learned sitar from his father, Bimalendu Mukherjee (1925–?), who studied with Imdad Khan's son Inayat Hussein Khan (1894–1938), father of the world-famous sitarists Vilayat and Imrat Khan, and with three of Inayat's senior disciples. Bimalendu also studied with a number of instrumental and vocal teachers from other traditions. See http://www.budhaditya.com/.

[6] I am perhaps rather artificially imagining a listener who has not read the CD liner notes, written by myself, which briefly prefigure some of the content of this study.

example, one might expect the overall pitch of the melody in ālāp to rise, tempo in metrical contexts to increase, the scale to remain constant throughout the performance of one rāga, the *sthāyī* to be repeated after the *antarā* section of a composition, etc.

c. *Dynamic* expectations: expectations based on the perception of patterns emerging as the music unfolds, inferences that are "updated in real time, especially during exposure to a novel auditory experience such as hearing a work for the first time". For example, the repetition of a pitch or phrase may induce expectation of further recurrences of the same pitch or phrase.

2. Conscious expectations

Expectations based on explicit, consciously accessible knowledge acquired through training or experience. They might be triggered by, for example, the performer's announcement (or the CD track listing) specifying the rāga to be played, arousing the expectation of a particular aesthetic mood or melodic features; or by the performer's identity as a member of a particular stylistic lineage, implying to the knowledgable listener that he/she will display particular techniques of sound production or other stylistic preferences.

Helpful as this categorization undoubtedly is, there is inevitably overlap between its categories. Expectations that are fully conscious for some, based on explicit knowledge of music theory, may be unconscious for others, on the basis of prior direct experience. The unacculturated listener may be able to infer dynamically, even consciously, patterns that are engrained but unconscious schemas for an acculturated listener. Patterns that are unique to the performance, and therefore only inferable dynamically, may be schematic in structure.

Empirical research in this area with reference to Indian music has hardly begun. Nevertheless we may speculate that in an oral musical tradition that does not emphasise fixed compositions so much as partly-improvised performances that are different each time, veridical expectations — knowing exactly what comes next — will be less important than schematic expectations — knowing what is *likely* to come next. Similarly, given that the experience of a live performance of Indian music effectively amounts to "hearing a work for the first time" (since different performances of a rāga even by the same artist are likely to be different to some extent), we may assume that dynamic expectations — inferring what is about to follow from what has just been heard — play an important role in the auditory experience. Listening to ālāp would seem to require a combination of schematic and dynamic expectations, the former drawing on long-term memories of other ālāp performances, the latter based on short-term memories of the performance itself. Only in the case of listening to a recording would veridical expectations be likely to form, if one listened to the recording so frequently as to memorise parts of the performance.

With these distinctions in mind, empirically untested for Indian music though they are, I propose to analyse three aspects of the chosen performance. First, a "close reading" of the opening two and a half minutes, to see how the performer engages the unknown, unseen future listener in the process of discourse; secondly, a "top-down" overview of the whole ālāp, tracing broad processes of change; and finally, a closer

examination of selected passages that illustrate the interaction of small- and large-scale patterns.

My division of the ālāp into segments—phrases, phrase-groups and sections—in this analysis is heuristic. It seems intuitively clear that the melody proceeds in phrases, and that phrases cluster into phrase-groups separated by distinctly perceptible changes — for example, the introduction of a previously unheard pitch. My division and numbering of phrases and phrase-groups reflects my perception of such changes; some phrase-groups are clustered into larger units, introducing a further layer of hierarchical organization.

The first two notation examples show a detailed pitched and rhythmic transcription in which pitch-events are mapped against a time-scale. In subsequent examples I show only a melodic outline, without precise rhythmic indications and with reduced melodic detail, in order to show synoptically the relationship of successive phrases to each other and to an underlying contour schema. In all cases, timings are included to enable the reader to refer to the original recording, either on the CD or on the website associated with this book.

I will refer frequently to the widely-used concept of cognitive schemas. These are a type of memory structure, a template in which cognitive categories are arrayed in a specific sequential order or other spatial relationship (Snyder 2000: 95–103 etc): a "mental preconception of the habitual course of events" (Huron 2006: 419; see also 203 ff., and *passim*). Cognitive schemas are believed to play an important part in our perception of the world and our ability to interact with it or communicate about it (D'Andrade 1995; Lakoff 1987; Slingerland 2008: 162–6). Similar cognitive structures have frequently been posited in music analysis, especially of orally-generated melody (e.g. Treitler 1974, Widdess 1995b: 320 ff.), and in studies of oral poetry (Rubin 1995: 21–37). I will refer to two types of schema: a *pitch schema* encapsulates the static, quasi-spatial, hierarchical relationships among a group of defined pitches (such as a scale); while a *contour schema* is a temporal sequence of pitches underlying, and repeatedly embellished or varied in, a group of melodic phrases.

2. The ālāp begins

2.1. The introduction

The recording begins with a short introduction, the function of which is partly to establish a basic pitch schema (Fig. 1). We hear first (00:00) the drone lute *tambūrā*, the open strings of which are gently plucked in rotation to provide an almost continuous background drone throughout the performance. Two of the strings are tuned to the tonic (approximately C♯, transposed to C in the examples below), one to the octave below, and one to a semitone below the tonic. In the relative-pitch cipher notation for scale-degrees that I will use in the text of this article, with subscript dots denoting the lowest and a prime the highest of three octaves respectively, we hear: 7̣ 1̣ 1 1̣, repeated continuously.

Fig. 1

The sitārist then enters above the tambūrā drone. Before introducing any melodic content, he sounds the various drone strings (*cikārī*) of the sitār, tuned to the tonic (1) at three different octave levels, and to 3 and 5 in the lower octave. In addition, he sounds in descending succession the sympathetic strings (*tarab*), which are tuned to the scale of the chosen rāga; these are not normally plucked during the performance, but sound by sympathetic resonance in response to notes played on the melody-strings. Adding these to the tambūrā drone, and collapsing the various octaves into one, we can represent the pitch schema articulated here as follows (following a method adapted from Lerdahl (2001: 47)):

level a:	1											1	*cikārī, tambūrā*
level b:	1			3			5				7	1	*cikārī, tambūrā*
level c:	1	♭2		3		#4	5		6		7	1	*tarab*
level d:	1	♭2	[2 ♭3]	3	[4]	#4	5	[♭6]	6	[♭7]	7	1	*[theory]*

Fig. 2 Pitch Schema I

Fig. 2 means that in this performance, the octave is divided into seven unequal steps (level c). These can be mapped onto a general scale (level d) of twelve, notionally equally-spaced loci (*svarasthān*), represented in Indian notation-systems as the theoretical basis of all rāgas. Microtonal differences that may arise between the same locus as rendered in different phrases, performances or rāgas need not concern us here. The intertonal pitch-space between the steps of level c is heard in oscillations and glides produced by deflecting the vibrating string at the fret, but it cannot be measured in terms of fixed microtonal increments. In cognitive terms, there are seven pitch-class categories in this pitch-schema, and the intervening pitch continuum is heard as nuance (Snyder 2000:85). As a matter of principle in Indian classical music, no pitch-class categories foreign to the rāga, i.e. none of the bracketed scale-degrees on level d, may be explicitly articulated.

Level b shows that four of the seven scalar degrees are highlighted by the drone strings of the sitār and tambūrā; and of these, the tonic (1) is reinforced still further by additional strings at different octaves (level a). Levels a – c constitute the hierarchically structured pitch-schema within which the entire ālāp performance will be heard. We will refer to it as Pitch Schema I.

However, fig. 2 is not a complete ₇representation of the pitch domain of this

performance. Levels a and b will be almost continuously audible; their constant sounding by the sitarist and tambūrā-player make them a permanent frame of reference for the listener. But those pitch-classes of level c that do not appear on levels a and b will be heard only intermittently, in the melody itself. The melody can promote shifts of emphasis among level c pitches, and even among those at the higher levels, thereby suggesting alternative pitch-relationships without introducing any additional pitches. Such alternatives will become extremely important as the ālāp unfolds: in effect, a kind of bi-modality emerges.

An acculturated listener might consciously recognize the configuration at level c as the scale known as *Mārvā ṭhāṭ*. Several important rāgas are associated with this scale, but most of them omit pitch 5. The inclusion of this degree in the sitār's sympathetic strings, which are tuned to the actual pitches required by the selected rāga,[7] strongly implies that the rāga will be Pūriyā-Kalyān, the only well-known rāga that employs all seven degrees of the *Mārvā ṭhāṭ* scale. The sounding of the sympathetic strings at the beginning of the performance, evoking a pitch schema corresponding to a known scale-type and rāga, might therefore arouse very specific, conscious expectations in the expert listener.[8]

The introduction (fig. 1) may also establish, or at least suggest, a structuring of time. The sitārist's five plucks of the drone-strings (marked *x1–x5* in fig. 1) are sufficiently equidistant to suggest the possibility of a metrical unit, approximately 3 seconds in duration; but 3 seconds is at the upper limit of short-term memory's ability to judge duration (Snyder 2000:162), so the degree of regularity is hard to estimate.[9] Intermediate plucks on the strings tuned to 1̣, 3̣ and 5̣ (at *y*) suggest a subdivision of the x4 unit into eight roughly equal durational values, but only the first three subdivisions are expressed, and this subdivision is not subsequently confirmed. The other plucks in x1, x2 and x3 are highly ambiguous as to regularity. In the following, melodic sections, there are again suggestions of a quasi-metrical unit of around 3 sec or its binary subdivisions, but these are again ambiguous. While the performer may have perceived a regular pulse while playing, and some listeners may intuitively be able to reconstruct it, it is not explicit in the data. Probably most listeners will compare each duration only with preceding durations, not with any perceived constant unit of duration (Snyder 2000:189 ff.). For this reason, and because our interest here is in melodic rather than rhythmic procedures, we will not attempt to define the rhythm in terms of an inherent pulse.[10]

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[7] Pitch 5 can be included in drone tunings even when missing from the rāga, although normal practice today would favour replacing it by a different pitch that is present in the rāga.

[8] The artist plucks the *tarab* strings in descending scale order, except for the last four, which he plays in the order ♭2' 6 1' 7 (followed by 1 in the *cikārī*). This melodic fragment may also be intended to indicate the rāga: it foreshadows the first phrase played on the melody strings, beginning 6̣ 1 7̣ ♭2.

[9] The durations x1 – x5 are in fact not quite equal, but respectively: 3.0, 2.9, 2.9, 3.0, and 2.7 seconds.

[10] The issue of rhythmic perception in ālāp has been addressed in Widdess 1994, 1995a, Sanyal and Widdess 2004, and Widdess unpubl.

2.2. Opening the rāga: phrase-groups A1 – A6.

Fig. 3 shows the beginning of the sitārist's improvised melody (00:21 – 2:29), comprising phrase-groups A1 and A2. The notation maps musical events against a time-scale: each tick bar-line marks one second, and each line of notation represents 20 seconds. The notation distinguishes prominent melodic pitches from more transitory ones with larger and smaller note-heads respectively. The most prominent pitches are represented as quarter-notes, but this symbol has no metrical implications. Where several pitches are played in *mīḍ* (glissando, produced by pulling the string) after a single pluck, the inflections of pitch are shown as glide-lines between pitch symbols.[11]
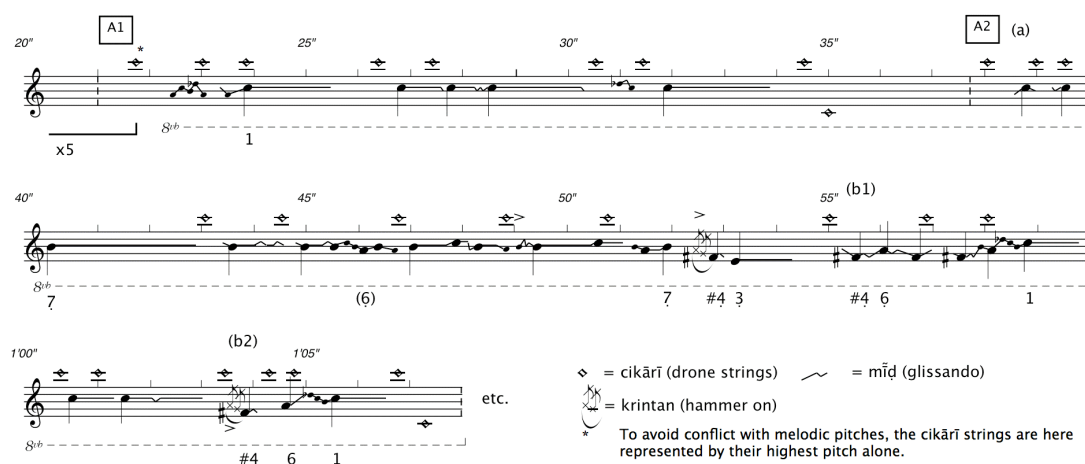
Fig. 3

The artist's opening melodic gesture (phrase-group A1, 00:22–00:35) is to reiterate the tonic (1), established in the introduction. It is normally considered important that the rāga should be identifiable within the first few phrases of an ālāp, so A1 begins to explore intervallic relations surrounding the tonic, embellishing the tonic with *mīḍs* tracing the circuitous path 6̣-1-7̣-♭2-6̣ 6̣-1—. Reiteration of 1 is again embellished by ♭2 before the end of the phrase-group (followed by a pause for plucking of high and low drone-strings).

Phrase-group A2 (00:38–01:07, fig. 3) is longer and more complex than A1, comprising two distinct phrases, moving away from and returning to the tonic respectively (the second phrase is repeated). Phrase (a) begins with a step down from 1 to the adjacent 7̣, which is then reiterated five times at irregular time-intervals. Between these reiterations, *mīḍs* explore the surrounding pitches, 6̣ and 1, always returning to 7̣. Eventually the melody leaps from 7̣ to #4̣, coming to rest on a

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[11] For a comparison of this method of notation with a spectrogram, see Sanyal and Widdess 2004:330–45.   9

prolonged 3̣. In this descent 5 is heard, if one notices it at all, only as a momentary passing-note (*kaṇ*) immediately preceding and following #4̣.[12]

Phrase (b1) returns us to the tonic by a different route. Two convoluted *mī̃ḍs* embellish a sequence of main pitches: #4̣ - 6̣ - 1. Here 5 is again heard only fleetingly in embellishment of #4̣, 7̣ is relegated to an embellishment of 6̣, and ♭2 is again a momentary upper leading-note to 1. The underlying #4̣ - 6̣ - 1 is even clearer in the repeat of this phrase (b2).

The two phrases of phrase-group A2 together trace in outline a descent from 1, via 7̣ and #4̣ to 3̣, and a return via #4̣ and 6̣ to 1. This suggests a configuration of pitch space conflicting with Pitch Schema I (fig. 4): we shall have more to say about this alternative configuration shortly.

Pitch Schema I:	1		3		5		7	1
Phrase-group A2:			3	#4		6	7	1

Fig. 4

An acculturated listener hearing only these phrases might conclude that the artist is playing the rāga Pūriyā. This is a major rāga, suitable for extended ālāp treatment because of its serious character. It uses the intervallic structure of the Mārvā scale, but 5 must be omitted.[13] 3 and 7 are strongly emphasised, and #4 is also important. In order to avoid confusion with the equally well-known rāga Mārvā (after which the scale is named), in which 6 and ♭2 are strongly emphasised, these two pitches are treated as weak notes in Pūriyā. To avoid emphasising 6 in descent, 7 characteristically falls to #4, and thence to 3, as we hear in A2(a). The ascending line #4 6 1 heard in A2(b) is a typical, though not distinctive, way of approaching 1 from below in Pūriyā; although it briefly foregrounds 6, it moves quickly through this pitch to 1, whereas to include the strong pitch 7 might necessitate some prolongation or elaboration of that pitch before 1 could be reached.

Phrase-group A3 (outlined in Fig. 5) repeats and expands the falling–rising contour of A2. But in the course of A3, a new aspect of the rāga is revealed. Phrase A3(a) begins in the same way as A2(a), with a step down from 1 to 7̣, again reiterated five times with *mī̃ḍs* elaborating the small complex of tightly adjacent pitches around 1. This time the phrase resolves through stepwise descending movement 7̣ 6̣ 5̣—, coming to rest on the pitch that was avoided in A2, 5̣. The artist underlines the novelty of this gesture by repeating the prolonged 5̣ and by arpeggiating 1̣ 3̣ 5̣ in the drone strings of the sitār, as if to remind us that 5 has all along been present in the background Pitch Schema I. In phrase (b) he further reinforces the 5̣ by repeating the

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[12] The notes 6̣ and 5̣ are not plucked with the right hand here, but played by "hammering on/pulling off" with the left hand fingers (*krintan*); they are consequently quieter than the plucked notes.
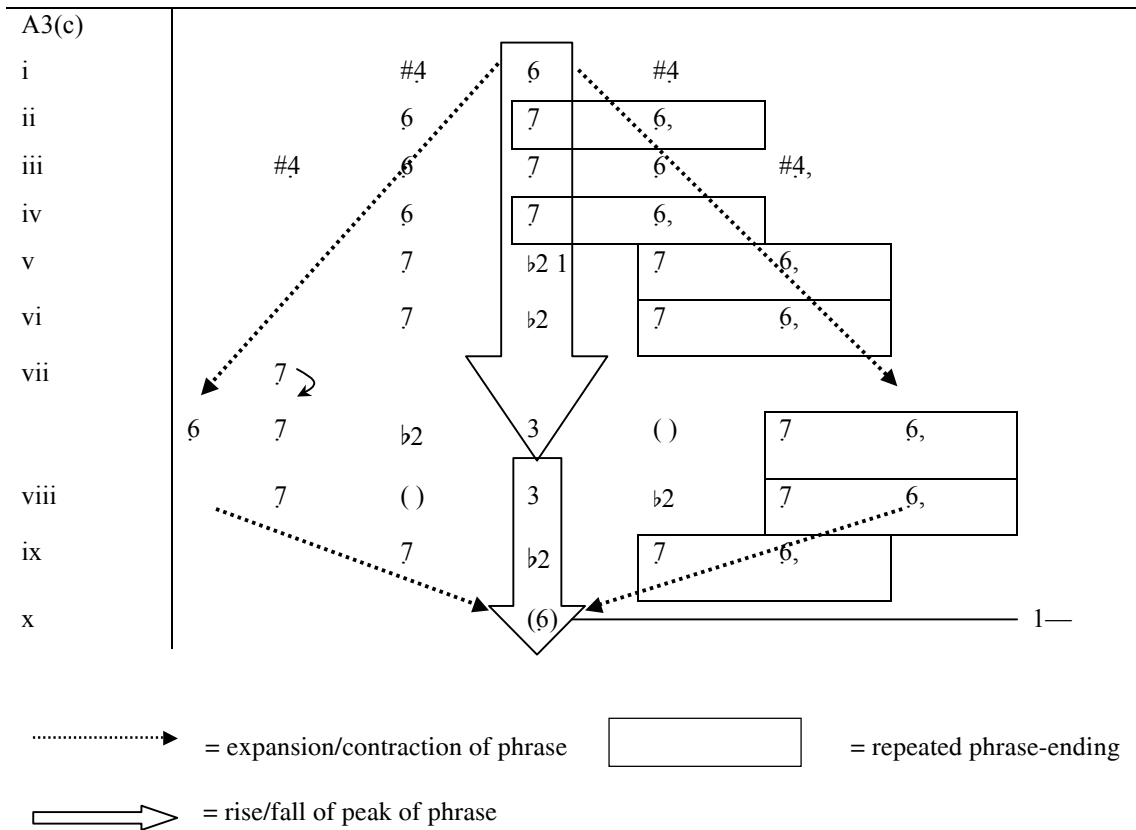
[13] Some allow 5 as a *kaṇ* between 6 and #4 in this rāga (N. Magriel, pers. comm.).

motive $\underline{5}$ $\underline{6}$ $\underline{7}$ $\underline{6}$ $\underline{5}$— : this contextualises $\underline{5}$ in relation to its upper neighbours, and links with the emphasis of $\underline{7}$ in the preceding phrase, but it contradicts the impression or "image" (*svarūp*) of Pūriyā presented in A2, and confirms the hint of Pūriyā-Kalyān in the *tarab* scale. The phrase ends with a fall to $\underline{3}$. This completes the downward movement from 1 to $\underline{3}$ in parallel with phrase A2(a); and a touch of ♭2 reminds us of the Pūriyā "image" established in A2, which the $\underline{5}$ has strikingly disrupted.

A3 (a)
1'12" Pūriyā
8vb 1 7 (6)

Kalyān (b) (Pūriyā)
8vb 5 5 6 7 6 5 3

(c) (?)
i ii iii iv v Pūriyā vi
8vb #4 6 7 (2)

vii viii ix x
8vb
(3) 6 1

○ = prolonged pitch

Fig. 5

Continuing the elaborated parallel with A2, phrase A3(c) returns to 1 by the route #$\underline{4}$ - $\underline{6}$ - 1. This time, however, $\underline{7}$ is included between $\underline{6}$ and 1, and this is developed into an elaborate excursus; a resolution on 1 may be foreseeable, as a dynamic expectation following A2b, but the resolution is delayed by the excursus. The development here illustrates a process which in an earlier publication I termed "internal scalar expansion", where a phrase is expanded by inserting material into it that reaches one or more higher pitches before regaining the original conclusion of the phrase (Widdess 1981; see further below). The process is outlined in Fig. 6.

Fig. 6

outline #*4* *6* *1*
(cf A2(b))

11

A3(c)

i   #4   6   #4

ii   6   7   6,

iii   #4   6   7   6,   #4,

iv   6   7   6,

v   7   ♭2 1   7   6,

vi   7   ♭2   7   6,

vii   7

      6   7   ♭2   3   ( )   7   6,

viii   7   ( )   3   ♭2   7   6,

ix   7   ♭2   7   6,

x   (6)   1—

········▶ = expansion/contraction of phrase   ▭ = repeated phrase-ending

⟹ = rise/fall of peak of phrase

The arrows here indicate how the single pitch 6, in the underlying melodic progression #4 - 6 - 1, is elaborated by the cumulative insertion of 7, 1, ♭2 and 3, followed by a corresponding contraction to 6. The resulting succession of motives also shows a process of end-repetition which Budhaditya Mukherjee often uses in ālāp, whereby a succession of motives or phrases all end with the same sequence of two or more pitches, here: 7 6 (shown by the boxes in Fig. 6). The effect here is to defer the goal of the phrase (1) repeatedly and with increasing intensity.

A knowledgable listener would have no difficulty in identifying the rāga in phrase-group A3 as Pūriyā-Kalyān. As its name suggests this is a composite rāga; it has been described as "a beautiful combination of Pūriyā in the lower tetrachord and Kalyān (or Yaman) in the upper tetrachord" (Bor 1999: 134). Kalyān is the name given to a large group of rāgas, and to the basic scale which most of them share:

    1   2   3   #4   5   6   7   1'

Rāga Pūriyā-Kalyān substitutes Pūriyā's ♭2 for the 2 of the Kalyān scale, and adds the 5 of Kalyān that is missing from Pūriyā (fig. 7).

Pūriyā:	1	♭2	3	#4	( )	6	7	1'
Kalyān:	1	2	3	#4	5	6	7	1'

12

Pūriyā-Kalyān:	1	♭2	3	#4	5	6	7	1'
			Pūriyā			Kalyān		
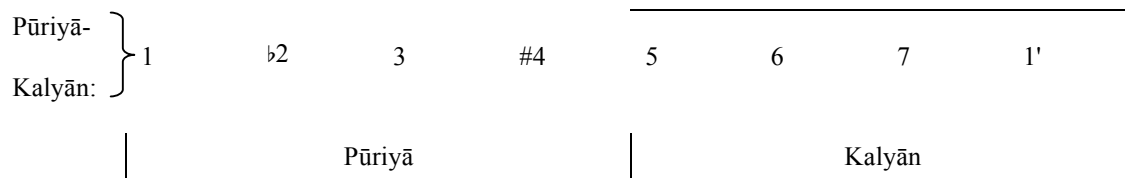
Fig. 7

As Bor observes, the lower tetrachord of the resulting scale resembles Pūriyā, the upper tetrachord Kalyān. But this tetrachordal division is not watertight: *all* the pitches apart from ♭2 and 5 are common to *both* Pūriyā and Kalyān scales. Furthermore, the combination of rāgas involves more than simply scalar material. The best-known representative of the Kalyān group of rāgas is the rāga Yaman (sometimes known as Yaman-Kalyān[14]). Pūriyā-Kalyān is usually interpreted as a combination of Pūriyā and Yaman, and Budhaditya Mukherjee clearly follows this view.[15] Pūriyā and Yaman have two features in common besides elements of scale-structure:

- In both, 3 and 7 are considered the most emphasised pitches (theoretically termed *vādī* and *samvādī* respectively). 5 in Yaman, and 1 in both, are also important. Adding these together, we arrive at level b of Pitch Schema I:

  1   3   5   7   1'

- In both Pūriyā and Yaman, there is a tendency to omit 1 and 5, especially in ascending contexts. 5 is permanently omitted in Pūriyā; it is also omitted in many phrases of Yaman, though it invariably returns.[16] 1 may similarly be omitted in both rāgas, and in both it invariably returns. This tendency carries over into the combined rāga Pūriyā-Kalyān, and suggests a temporary alternative pitch-hierarchy (Fig. 8). This alternative configuration, which we may call Pitch Schema II, perhaps owes its apparent stability, despite its polytonal or dissonant relationship with the drone, to the fact that level (b) can be enharmonically understood as an anhemitonic pentatonic series.[17]

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[14] According to some musicians and theorists, Yaman and Yaman-Kalyān are distinct, though closely related, rāgas.

[15] Most musicians would probably agree with this interpretation, but not all. A recording of Pūriyā-Kalyān by Kesarbai Kerkar appears to combine Pūriyā with Śuddh Kalyān, and the result is effectively a different rāga from the one played by Budhaditya Mukherkjee. The history of Pūriyā-Kalyān is somewhat unclear. Jairazbhoy suggests (1971: 99) that it represents a historical stage in the evolution of Pūriyā from Yaman. Earlier authors Ṭhākur (1962: 91 ff) and Bhātkhaṇḍe (1956: 239 ff) describe a similar rāga called "Pūrva-Kalyān"; it is not clear how far this equates with modern Pūriyā-Kalyān.

[16] See Jairazbhoy 1971: 82 f. for discussion of this phenomenon.

[17] That is, a scale of five degrees with intervals of three tones, two minor thirds, and no semitones. In Indian terms, 6 here corresponds to the 1 of Bhūpālī. A similar pentatonic schema is characteristic of a number of other rāgas, including Mārvā (where ♭2 and 6 would be projected at level (a) in place of 3 and 7). In Yaman, 2 is

13

	1	♭2	3	#4	5	6	7	1
level a:			3				7	
level b:		♭2	3	#4		6	7	
level c:	1	♭2	3	#4	5	6	7	1

Fig. 8 Pitch Schema II

There is thus scope for a closer integration of the rāgas Pūriyā and Yaman than a simple juxtaposition of tetrachords. The two common features—emphasis of 3 and 7, and tendency to omit 1 and 5—link Pūriyā and Yaman into a closer bond than would be the case with entirely unrelated rāgas: other things being equal, the group of pitches 3 #4 6 7 1 could indicate either rāga.[18] Thus phrases A3(c) i–iv, taken out of context, could be interpreted as either Pūriyā or Yaman.

Having introduced the basic elements of the rāga Pūriyā-Kalyān in phrase-groups A1–3, the artist reverts to the pitch and temporal schemas of the introduction, in a formulaic phrase known as *mohrā* ("seal") (A4, fig. 10). This is by convention distinguished from the remainder of the ālāp by rhythmic plucking of the drone strings of the sitār,[19] after which the tonic and surrounding pitches are stated on the melody strings. The *mohrā* ends with a *mīḍ* that alludes to the ascent #4 - 6̣ - 1, which in combination with ♭2 (taken twice in *mīḍ*) reaffirms Pūriyā.
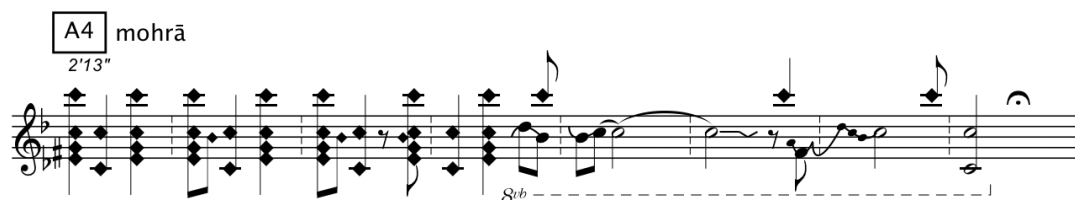
Fig. 10 *Mohrā*

Further development of the material of A2 and A3, in phrase-group A5—a series of six phrases that exploit further the contrasts and ambiguities inherent in the combined rāga—and a second *mohrā* in A6 (03:38) complete the first major section of the ālāp, in which the rāga is unfolded in the low register of the instrument. Although the conventional requirement to establish the identity of the rāga in the opening phrases of the ālāp has been fulfilled, the artist has also shown that the rāga

substituted for ♭2, but the result is again an anhemitonic pentatonic series (2 = 1 of Bhūpālī).
[18] The ascending motive #4 – 6 – 1' is sometimes used in Yaman as well as in Pūriyā. Cf Jairazbhoy 1971: 204–5, especially ll. 5–6 of the ālāp notation on p. 205.
[19] The isochronous pulsation of the *mohrā* (or *mukhṛā*) may be a temporary manifestation of an underlying metrical unit that is present throughout the ālāp. See discussion of this issue in Sanyal and Widdess 2004: 177–180.

has two aspects, and has highlighted the contrasts and ambiguities between them, thus creating a dynamic tension that continues throughout the ālāp.

3. *Vistār* and rāga

3.1. Expansion (vistār)

Fig. 11 presents an overview of the whole ālāp, expressed as a pitch-time graph. The vertical axis represents the pitch dimension of the performance, comprising a total range of two octaves and a sixth, divided into low, middle and high registers (*saptak*). The internal division of each octave according to Pitch Schema I is represented with horizontal lines, which are thicker for 1 and 5 (dashed) to aid visual orientation. The horizontal axis represents time, divided into one-minute increments.
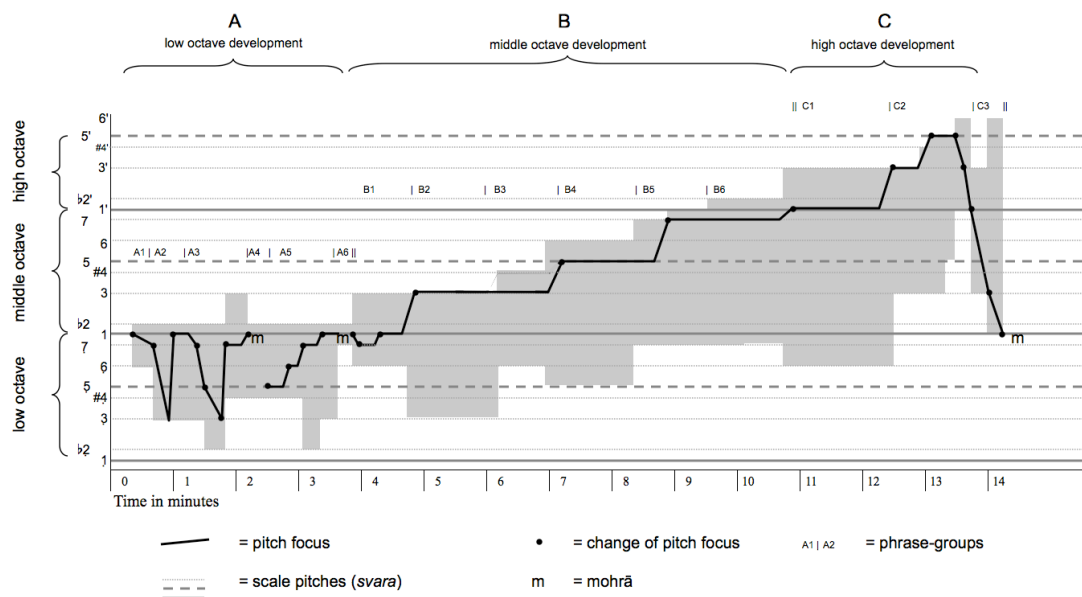
Fig. 11 Vistār in ālāp

Within this spatial and temporal grid is plotted a "pitch-focus line". This shows the most emphasised, or "focal" pitch at each stage of the melody, and the points at which this focal pitch changes. In Section A the focal pitch fluctuates within the low register, but in Section B it rises gradually through the middle octave. In Section C it continues to rise as far as 5 in the upper octave, before falling rapidly to the starting-point, 1 in the middle register.

The pitch-focus line was established by making an outline transcription in which prolonged pitches were distinguished; the most prolonged pitch in each phrase-group was identified as the focal pitch. 15The validity of this analysis can be

demonstrated either by playing (or singing) the pitch-focus line while listening to the the recording at normal speed, or alternatively by playing the recording at fast speed, whereupon the pitch-focus line becomes clearly audible, at least in Sections B and C.

In Sections B and C the artist himself draws our attention to most of the focal pitches in turn, by echoing the focal pitch an octave lower (Fig. 12). I will call this phenomenon "consonant reinforcement".[20] The lower pitch may be connected with the upper by a glissando, or by consonant leap (perfect fourth or fifth) to a pitch mid-way (e.g. 3 – 7 – 3). The latter may be embellished by a rapid scalar flourish, often involving the *krintan* technique (pitches sounded by hammering on/pulling off with the left-hand fingers). Pitches 3, 5, 7, and in the upper register 3' and 5' are all treated in this way. #4 is evidently not sufficiently stable to be treated with this degree of emphasis. The reasons for avoiding this gesture in connection with 1' will emerge later (p. xx). Meanwhile we may note how this consonant reinforcement evokes Pitch Schema I when 5 is the focal pitch, or Pitch Schema II, when 3 or 7 is the focal pitch.

Fig. 12

In sections B and C, the artist does not develop every degree of the scale of the rāga equally: the weaker notes ♭2, #4 and 6 do not appear in the pitch-focus line, although they are of course present in the melody. The pitch-focus line thus passes through:

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[20]   Although this device of consonant reinforcement seems to be very commonly employed in ālāp, I have never seen or heard it discussed. In vocal dhrupad, it often takes the form of a sweeping glissando, falling an octave and immediately returning.

1 3 5 7 1' 3' 5'

This sequence replicates Pitch Schema I. It reflects the structure of the rāga, in which 3 and 7 are inherently strong pitches, whereas ♭2 and 6 must be de-emphasised in order not to imply the rāga Mārvā. #4 is a relatively strong pitch in both Pūriyā and Yaman, and so receives some emphasis in the middle octave, but no consonant reinforcement. 5 is a strong pitch in one of the components of Pūriyā-Kalyān, namely Yaman; just as this pitch appears in the sitār drone strings, it also appears at the mid-point of the *vistār* of the middle octave, and at the highest point of the *vistār* in the high octave, even though at other times it is virtually absent from the melody for long periods.

The shaded area in Fig. 11 indicates the approximate range of the melody. A more precise indication of the pitches used in each phrase-group will be found in Fig. 14.

The structure shown by Fig. 11 illustrates a standard procedure for performance of ālāp in any North Indian rāga, termed *vistār,* "expansion". The melody "expands" through the three octave registers, first the low octave (Section A), then the middle (Section B), and finally the high octave (Section C). The middle-octave development is the longest and most gradual. This is the heart of the ālāp, invariably present even in the shortest performances,[21] whereas the lower and higher octave developments may be abbreviated or dispensed with in a short performance. The note-by-note *vistār* of the middle octave is the essential part of the ālāp, and has been a part of performance-practice and theory at least since the 13th century (Widdess 1981, 1995:361–7; Sanyal and Widdess 2004:144–7).

In an earlier publication (Widdess 1981), I suggested that in ālāp, "the principle of range expansion operates at the level of individual phrases, as well as in the organisation of the whole". I suggested that a small-scale generative process that I termed "internal scalar expansion" drives the large-scale development of *vistār*. In this process, "a rising and falling phrase is expanded at successive repetitions, by adding higher and higher notes at the apex". We have already seen an example of this process in Section A of Budhaditya Mukherjee's ālāp (Fig. 6).

An abstract model of this process would be:

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[21] In *khyāl* performances, singers normally only perform a short ālāp, perhaps only a few phrases, before introducing the composition; this short ālāp may not present the complete middle octave. However, after the composition, the ālāp is normally resumed from the point at which it was interrupted, and completed with tablā accompaniment.
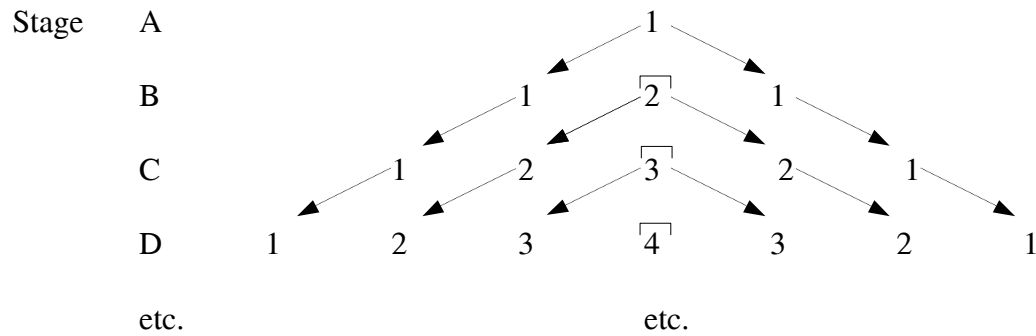
```
Stage   A                              1
                                      ╱ ╲
        B                    1     ⌐2⌐     1
                            ╱ ╲    ╱ ╲    ╱ ╲
        C              1      2   ⌐3    2      1
                      ╱ ╲    ╱ ╲  ╱ ╲   ╱ ╲   ╱ ╲
        D         1      2      3   ⌐4⌐   3      2      1

        etc.                          etc.
```

Fig. 13

Here ⌐⌐ marks the introduction of higher pitches in successive stages. In actual melody, the model is modified to take account of the characteristics of the rāga, including omitted pitches, differences between ascent and descent, "crooked" (*vakra*) pitch-order etc. Parts or the whole of each stage may be repeated, with or without variation, or omitted, or divided across successive melodic phrases, in ways that show the artist's inventiveness and sensitivity to the rāga. Each stage may be repeated many times, in whole or parts, with as much variation in articulation and emphasis as the performer's imagination can produce, before introducing the next stage. Typically, the ascent and peak area of each stage tend to be repeated more frequently and varied more extensively than the descent.

Analysis of Budhaditya Mukherjee's ālāp in Pūriyā-Kalyān suggests that the internal scalar expansion process underlies the gradual expansion of range and rise in pitch-focus in Sections B and C, and can be connected with the relationship of the pitch-focus and the phrase-group final, the artist's tendency to end successive phrases in the same way, and his separation of contrasting *aṅgs* of the rāga. We will discuss these connections with specific examples in section 4.

We might expect the process of *vistār* in ālāp to elicit schematic and even conscious expectations, since the process of *vistār* on both the small and the large scale is almost universal in ālāp. For the listener unfamiliar with Indian music, the insertion of new material within the phrase might initially come as a surprise, but after some occurrences might also become dynamically expected, as successive insertions tend in the same (rising) direction.

A related expectation, dynamic or schematic, might be that the ascending beginning of a phrase or phrase-group will be balanced by a descending conclusion. Ascent in ālāp is incomplete, and implies the completion of descent. This idea is supported by the tendency for the descending line of successive phrases to be similar each time, and relatively infrequent, whereas the ascent and peak phases tend to be highly varied, and are often repeated recursively before leading to the descent (see later, Fig. 15). The arrival of the descent is thus another expectation which the artist frequently defers, but when it comes it tends to follow a predictable pattern.

Part of the art of ālāp-performance consists in both arousing such expectations, and delaying their fulfilment through elaboration of each stage of the process. As

18

Huron notes (2006:328):

> When a future event is highly probable, listeners experience a strong sense of the inevitability of that outcome—an experience we can call the "feeling of anticipation." Anticipating events leads to changes of attention and arousal whose physiological concomitants are akin to stress...A common way to increase the feeling of anticipation (and the accompanying tension) is through *delay*. By delaying the advent of the expected event, the state of anticipation can be sustained and so made more salient for a listener.

In the context of ālāp, "highly probable" events include both the ascent to new, higher pitches, normally in mid-phrase, and the corresponding descent to lower ones, normally at the ends of phrases. Delaying the advent of such events may be particularly effective when the absence of a clear metrical framework makes it difficult to predict precisely when an expected event might occur.

3.2. Phrase-group and rāga

Fig. 11 shows one aspect of the process of this ālāp performance, namely the relationship between pitch-focus, pitch-space and time. Fig. 14 adds further information on this relationship, and enables us to see how the artist articulates the two sides of the rāga, in Sections B and C of the ālāp. The pitch-content of each phrase-group is shown in successive lines. Focal pitches are shown as o, and the final pitch of each phrase-group is marked ⊙ The solid arrows indicate changes of pitch-focus, whether between phrase-groups or within a phrase-group, and the dotted ones, changes of phrase-group final.

Fig. 14

Note that the focal pitch and phrase-group final are not always the same pitch. In phrase-groups B1 – 3, pitch 1 remains the final, while the focal pitch rises to 3; this is because the artist returns repeatedly to the tonic at the ends of phrase-groups and of many individual phrases. In B4, however, both the focal pitch and the final shift upwards to 5. This represents a major structural and aesthetic change: the artist no

20

longer feels the need to return to the tonic, and instead is content to rest on 5. 5 remains the final in B5, while the pitch-focus rises to 7; but in B6, both the pitch-focus and the final rise to 1'. In C1 and C2 the pitch-focus rises to 3' and 5', but 1' remains the phrase-group final until C3, where it falls to 1. What is striking here is that 1 and 5 are the only pitches that are used as phrase-group finals. 5 thus fulfils an important structural role, equivalent to 1, despite its omission from parts of the melody and from one component of the rāga.

We can also read from Fig. 14 the artist's separation and ultimate integration of the two *aṅgs* of the rāga. In B1–B3, 5 does not appear, and ♭2 is prominent, because in these phrase-groups he plays almost exclusively Pūriyā material. In B4, however, 5 becomes both pitch-focus and phrase-group final. At the same time, ♭2 almost disappears, because here the artist plays mainly Yaman material. This continues in B5, where the pitch-focus rises to 7; but a hint of ♭2' betokens not only the ascent to 1' but also a shift back to Pūriyā. Both occur in B6, where 5 gradually disappears and ♭2 becomes prominent in its place. Pūriyā remains dominant as the high octave development begins in C1–2a; in C2a the omission of 1', a typical feature of Pūriyā, is very striking, although it remains final for this phrase-group. In C2b, 5' re-appears and becomes the focal pitch; but ♭2 remains in play. Here for the first time in the ālāp since Section A, the artist combines Yaman and Pūriyā materials, playing phrases that explicitly include both 5 and ♭2. This is the culmination, not only of the *vistār* process, but also of the analysis and re-synthesis of the rāga that has taken place in this performance. But the synthesis is short-lived: as the artist returns to the starting-point of the ālāp – the middle-octave 1 – in C3, he also returns to Pūriyā. 5 is reduced once more to the status of a lingering *kaṇ* in C3a, and disappears altogether in C3b.

This overview of vistār and rāga indicates the overall narrative structure of the performance, but close attention to each phrase-group would be necessary to understand in more detail how the artist weaves together the elements of his musical story.

4. The dynamics of melodic discourse

In the light of the preceding overveiw of the whole ālāp, we will consider three extracts that represent key passages in the performance. They demonstrate respectively: the approach to and arrival at pitch 5, involving a transition from Pūriyā *aṅg* to Kalyān *aṅg*; the approach to pitch 1', involving a transition from Kalyān *aṅg* to Pūriyā *aṅg*; and the development of 5', involving a synthesis of the two *aṅgs*, and concluding descent, in which the synthesis is dissolved again. My analysis here will show in particular how the artist uses contour schemas to structure each passage, thus facilitating comprehension and expectation on the part of the listener.

4.1. Ascent phase 1: approaching 5 (phrase-groups B3–4)

The first passage to be analysed begins at 6:01, and consitutes phrase-groups B3–4. Immediately before this, the artist has developed the lower part of the middle octave, introducing the pitch 3 and combining it with the lower pitches already introduced in Section A. In phrase-groups B1–2, he plays almost exclusively Pūriyā material, emphasising 7 and 3, though not yet #4, and avoiding 5̣ or 5.

In phrase-group B3, shown in outline in Fig. 15, the pitch-focus remains 3, and the final of each phrase remains 1, but higher pitches are also introduced, leading towards the next stage of the *vistār*. Fig. 15 highlights four features of this passage:

- Each phrase from (a) ii onwards follows a contour schema structured as a pair of balancing statements; that is to say, an antecedent–consequent structure. The antecedent ends on the focal pitch (3), the consequent on the phrase-group final (1). Each antecedent ascends from the tonic or below to end on 3; after a momentary pause, the consequent descends to the final. In phrases (a) and (c) the antecedent is elaborated by recursion and repetition, whereas in the other phrases the antecedent leads to the consequent directly. This passage illustrates the technique of improvising a sequence of phrases all ending in the same way.
- In the antecedents, the artist employs internal scalar expansion to introduce the new, higher pitches #4 and 6. #4 appears, for the first time in the middle register, in phrase (a) ii. #4 is an important pitch in both Pūriyā and Yaman, but a change to Kalyān *aṅg* is deferred until later. Indeed, the next higher pitch in Pūriyā, 6, is introduced by internal scalar expansion in phrase (c) iv, even though the next-higher pitch in the scale of the rāga, 5, has not yet arrived. Clearly the artist wishes to maintain the Pūriyā *aṅg*, thereby deferring the rise of the focal pitch to 5, for as long as possible.
- The introduction of #4, in phrase (a) ii, allows an important motive of rāga Pūriyā to emerge, namely the descending interval #4 – 3; this motive re-inforces the pitch-focus on 3 and the image of Pūriyā, and is frequently repeated in this phrase-group, with particular emphasis in phrase (c). In the consequent of each phrase this motive is extended downwards to the phrase-group final: #4–3 ♭2–1, again making Pūriyā very apparent.
- From phrase (b) onwards, every phrase articulates Pitch Schema II, resolving onto 1 only at the final pitch of the phrase.

22

Fig. 15

Phrase-group B3 is the last phrase-group devoted to the pitch-focus on 3, and the introduction of #4 and 6 already suggests impending change. The logic of *vistār* dictates that the pitch focus must move to the next higher strong pitch of the rāga, 5. But by the beginning of phrase-group B4, pitch 5 has been scrupulously avoided for the past three and a quarter minutes, apart   from an occasional fleeting hint in

ornamentation of #4 — hardly enough to disturb the dominance of the Pūriyā *aṅg* from the beginning of Section B to this point, except perhaps for a very expert listener. Indeed the expansion to 6 and the resulting interval #4–6–#4 seems to emphasise the absence of 5. However, 5 has been quietly but persistently present throughout among the *cikārī* drone strings of the sitār. Its arrival in the melody, early in B4, could therefore occasion feelings both of surprise, and of resolution of the extended conflict, over several minutes, between the pitch-schema of the melody (Pitch Schema II) and that of the accompanying drone (Pitch Schema I).

The artist devotes phrase-group B4 to introducing and confirming pitch 5 (fig. 16). This involves several changes to the melodic discourse:

- The pitch schema changes to that of the Kalyān *aṅg*, stressing 1, 3 and 5 (see Fig. 16, phrase (b)). ♭2 is either skipped over (7̣ 1 3) or played so lightly as to be almost inaudible (7̣ [♭2] 3 or [♭2] 1 7̣ 1) in this phrase-group.

- The antecedent–consequent structure, so consistent in the previous phrase-group, disappears. Despite an initial tendency for 5 to drop back to 1 (phrases (a), (b)), 5 is quickly established as the final pitch of each phrase, approached by ascending lines from 1, 7̣, 6̣ or 5̣. There are no balancing descending phrases returning to 1. Both the pitch-focus and the phrase-group final have shifted to 5, as we noted earlier (p. ==xx== and Fig. 14). 5 has taken over the function of 1 as the pitch on which phrases end.

- 6, introduced in the previous phrase-group, is here re-introduced in phrase (c), and from then on each phrase ends 6 – 5. This pitch belongs to, and thus connects, both aspects of the rāga, but its meaning changes. In B3 it is defined as part of Pūriyā *aṅg*, preceded and followed by #4; but in B4 the same pitch becomes part of Kalyān *aṅg*, and instead of #4 – 6 – #4 (leading to 3), we now hear #4 – 6 – 5. 6 – 5 is further highlighted in different registers in B4(h), connected by a dramatic rising glissando.

24

Fig. 16

The underlying contour schema in this phrase-group, as we have seen, is not articulated as an antecedent-consequent alternation, but as an ascent of variable length and configuration leading to a repeated 6 – 5 cadence. This change in melodic sentence-structure (so to speak) further emphasises the special significance of phrase-group B3, in which the mid-point of the middle-octave development has been reached, and the Kalyān *aṅg* has emerged in contrast to the earlier dominant Pūriyā.

4.2. Ascent phase 2: approaching 1' (phrase-groups B5–6)

Having securely established 5 as both melodic focus and phrase-group final in phrase-group B4, in B5 (fig. 17) the artist begins the lengthy ascent of the upper tetrachord of the middle octave; he will not reach the goal of 1' until the very end of B6. This prolonged transition from 7 to 1' is not only due to the tension between a "leading note" and a "tonic", to borrow the Western terms for a superficially similar phenomenon; in this performance it is also because 7 is a pivot between the two *aṅgs*. In effect, the artist creates an ambiguity between two different 7s: one falls through 6 to 5, and evokes Yaman; the other rises by way of ♭2' to 1', and evokes Pūriyā. At the start of B5 we are in the Kalyān *aṅg*, and the former 7 prevails. By the end of B6 we have returned to Pūriyā *aṅg*, and it is the Pūriyā 7 that finally rises to 1'.[22]

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[22] I do not intend to imply that the two 7s are of consistently different pitch. But there may be a significant rise in pitch of 7 from the beginning of B5 to the beginning of C1. (7 at 8:22.8 is approximately C-48 cents; 7 at 11.16 is approximately C-5 cents. Intervening samples are in the range C-22 to C -14. Rise = 53 cents, about half a semitone.)

Fig. 17

Fig. 17 analyses the beginning of this transition in phrase-group B5. The whole phrase-group is a development of its first phrase, (a), where the sequence 5 6 7 6 5 is the Yaman phrase that was prefigured an octave lower in A3(b) (fig. 5). This phrase introduces 7 for the first time, at the apex of the rise–fall contour, and this

pitch continues to play a pivotal role as the focal pitch in what follows. 7 – 6 – 5 is an unambiguously Yaman cadence on the current phrase-group final, 5. So far the rāga "image" has not changed significantly, though the somewhat whimsical ending of the phrase, with a 6 – 3 glissando, seems to hint at some new departure. This follows in phrases (b) and (c), which develop (a) as a contour schema, summarised at the foot of Fig. 17.

The contour schema consists of an ascent (X) and two alternative descents (Y, Z). Z is the Yaman descent 7 – 6 – 5, and it can be heard as a balancing consequent to the ascent in X, coming to rest on the current phrase-group final (5) and re-affirming Yaman. Y is an inconclusive answer to X, ending on #4 or 3; by leading into another X ascent, Y repeatedly defers the conclusion in Z. In X, the omission of 5 in ascent (typical in either Yaman or Pūriyā) prepares for its re-appearance in Z; but at the apex, 7 (expanded to 7 1' 7 from (b)iii onwards) can lead to either Y or Z. Most often it leads to Y, where both 6 and 5 are heard only fleeting in rapid descending runs to #4. These bring to the fore the sequence 7 – #4 (– 3), which hints at Pūriyā (compare 7 – #4 – 3 in phrase-group A2, fig. 2). In phrase (b), there are seven repetitions of X + Y, in which the omission of 5 and foregrounding of 7 – #4 prepare the ground for Pūriyā to emerge, before X + Z re-confirms Yaman.

In phrase (c) the artist rebuilds the schema in reverse order, starting with Z, before a full statement of X + Y leads to a conclusion with Z. In (c)v the omission of 5 in both X and Y again prepares for Pūrīyā without leaving the domain of Yaman. But in (c) vi, just as 7 begins to fall to 6 and 5 (Z), the artist introduces a momentary ♭2' (twice) that unequivocally hints at Pūriyā (boxed in fig. 17). If the reader experiences this ♭2, as I do even after repeated hearings, as a shock, almost as if the artist had played a pitch outside the rāga, that is a measure of the success with which he has created the impression of Yaman in the preceding phrases (from B4 onwards): an impression which the Pūrīyā-like tendencies of Y have not sufficiently challenged, in my perception, to induce me to expect the ♭2.[23] The appearance of this ♭2 in the context of the Yaman-affirming 7 – 6 – 5 makes it doubly unexpected. This is perhaps the first phrase in the whole of Section B in which both 5 and ♭2 are explicitly stated. But the result is not so much a synthesis as an ambivalence, a division of ways, as if the artist is saying: from here we can go *either* 7 ♭2 1' *or* 7 6 5, either upwards into Pūriyā or down into Yaman. As we move on into phrase-group B6, the down-into-Yaman option is abandoned in favour of up-into-Pūriyā, as the *vistār* process demands.

The second stage of the ascent from 5 to 1', accomplished in phrase-group B6, features the most impassioned improvisation in this performance. After the confident assertion of 5 in B4, and the poignant fall of 7 to 5 at the end of B5, a sense of greater urgency and instability, presaged by the unexpected ♭2' at the end of B5, becomes pervasive. The pitch-focus on 7 must now rise to 1'; at the same time, Kalyān gives way to Pūriyā. The artist embellishes this double transition with the most varied stylistic palette, using quivering ornamentation, rapid flourishes, insistent repetition of

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[23] It also suggests that dynamic expectations induced by the preceding phrases are stronger than the veridical expectations that I have acquired as a result of listening repeatedly to the recording.

small phrases, consonant leaps, long glissandos, quiet *krintans* and other devices. His fingers ascend and descend the area of most intense development—between 3 and 7— so rapidly, so many times, and in so many varied ways, as to severely challenge analysis. Nevertheless, what allows us to make sense of the artist's turbulent musical thought-process here is its underlying logic, broadly outlined in Fig. 18.

Fig. 18

As shown on the first two lines of Fig. 18, the phrase-group follows a contour schema, of which the first half is repeated before proceeding to the conclusion; the third and fourth lines show how this schema is implemented in the phrase-group, with approximate timings of the main junctures. 7 at the outset rises to 1' at the conclusion of the schema. 7 is emphasised throughout, but a tendency for it to fall to 6 (implying the possibility of returning to 5?) is eventually replaced by its rise to 3', which falls to 1'. At the same time, emphasis on 3 at the beginning of the schema, articulated very clearly at the outset through consonant leaps 7 – 3 – 7, shifts early in the schema to #4: the interval #4 – 7 is articulated at several points, as a leap, or filled with #4 – 6 – 7 or rapid 7 6 5 #4 in *mīḏ* or *krintan*. This interval becomes increasingly hearable as Pūriyā, as ♭2' and 3' are gradually introduced, and 5 is reduced to a passing *kaṇ*.

At the end of this phrase-group we have arrived not only at the upper tonic, the final goal of the middle-octave *vistār*, but also back in the Pūriyā *aṅg*. As if to drive the point home, the first phrase-group of Section C (10:56) sweeps down and up the whole of the middle octave stressing Pitch Schema II, and ends with the characteristic Pūriyā ascent to 1: #4 6 1', which we heard an octave lower at the opening of the *ālāp* (see A2, fig. 3). It is now clear why the artist does not emphasise 1' here, as he does the other strong pitches reached in the *vistār*, by "consonant reinforcement" (Fig. 12). The sequence 1' – 5 – 1 – 5 – 1' would negate the transition back to Pūriyā that

has been so strenuously achieved.

4.3. Synthesis and closure (phrase-groups C2–3)

Our final examples (Figs. 19–20) represent the denouement of the melodic discourse and its return to the beginning. In phrase-group C2, as we have already noted, some of the characteristics of Pūriyā and Kalyān coallesce for the first time. The artist has reserved this synthesis for the climax of the *vistār* process, where the highest pitches of the entire ālāp—5' and 6'—are reached.

Fig. 19

Before C2 begins, the artist has established the upper tonic, and begun the development of the high octave by advancing the *vistār* to 3'. The Pūriyā *aṅg*, established during B6, remains dominant as we enter phrase-group C2. After repeated consonant reinforcement of 3, the development continues as shown in fig. 19. The underlying contour schema comprises a rising-falling antecedent contour Y,

29

repeated recursively, followed by a descending consequent Z, comprising the sequence #4' – 3' – ♭2' – 1' which was used in the same way an octave lower in B3 (fig. 15). The difference here is that Y peaks around and emphasises 5', while at the same time ascending from and returning to ♭2'.

At two points the artist interrupts the alternation of Y and Z, in order to emphasise the arrival of 5' by prolonging and repeating it (X), supporting it on the second occasion with the fifth and octave below: 5' – 1' – 5 – 1' – 5'. Despite this emphasis on 5', neither Pūriyā nor Kalyān is dominant in the phrase-group: elements of both are combined, in pitch-sequences that include both ♭2 and 5, such as ♭2 3 #4 5 and ♭2 3 5 (in the recursion from Y to X, boxed in fig. 19). This last sequence, remarkably, echoes a fifth lower the typical Pūriyā ascent to 1, namely #4 – 6 – 1', which has been heard several times (e.g. in phrase A2b, fig. 3): this implied parallelism would not be possible in either of the component *aṅgs* of the rāga alone.[24]

$$
\begin{array}{cccc}
 & ♭2 & 3 & 5 \\
= & #4 & 6 & 1'
\end{array}
$$

Immediately this synthesis of Pūriyā and Kalyān has been established, the final descent phase of the ālāp begins (fig. 20); and immediately the dominance of Pūriyā is re-asserted. The whole descent of the middle octave is accomplished in two phrases (C3a and C3b) – North Indian musicians rarely linger over this portion of an ālāp.[25] But the artist avoids a simple scalar descent, by re-ordering the pitches of Pitch Schema II, taking them in *vakra* ("crooked") order; and also by recursion, repeatedly returning to a higher pitch and repeating parts of the descent before continuing downwards. Thus in C3a he repeats the descent as far as #4, and reiterates this pitch, before descending from there to 3, evoking the Pūriyā motive #4 – 3. Similarly an emphasis on 7 and #4 evokes Pūriyā; the fleeting appearance of 5 in ornamentation of #4 indicates the last vestige of Kalyān *aṅg*. In C3b, the artist takes a final sweep of the middle and high registers, touching again the highest point reached earlier (6'), before descending in consonant leaps that lay bare the structure of Pūriyā: 3' 7 #4 3 (and at the end 7). This phrase explicitly articulates Pitch-Schema II, completely omitting 1, and thereby deferring its highly foreseeable return to the very end. The ālāp ends with the tight constellation of pitches around 1 with which it started, and the third and final *mohrā* (14:15), prefaced by a final strum of the *tarab* scale.

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[24] On consonant parallelism as a structural principle in modern and early rāgas respectively, see Jairazbhoy 1971: 77–89 etc., and Widdess 1995: 210–23.
[25] South Indian musicians often treat the concluding descent phase more elaborately than the ascent phase.

Fig. 20

5. Conclusions

This analysis illustrates with reference to Indian classical music the contention with which we began: that compositional principles are as characteristic of unscripted musical performances as of written compositions, and that they reflect the needs of performers, composers, and listeners. Indian classical musicians take pride in their independence from notational models, and in the oral transmission of musical knowledge and skills through distinguished lineages rather than through texts. Like "oral" performers in many cultures, they are highly successful at engaging the attention, comprehension and appreciation of audiences over long time-spans, in performances that involve preparation, memory, variation and spontaneous invention in varying proportions. While it is intriguing to ask "how do they do that", it is equally illuminating to enquire what their performance might mean to a listener.

I have argued that Budhaditya Mukherjee's dynamic approach to rāga in this performance is only one aspect of a highly structured melodic discourse, in which many devices are employed that allow, and encourage, the formation of dynamic, schematic, and conscious expectations on the part of the listener: a melodic discourse that affords the listener an experience of engagement, anticipation, surprise, and fulfillment. As is well known, Indian audiences certainly experience live performance in an engaged manner. Martin Clayton writes (2007) that "North Indian *rāg* performance, especially as practised in intimate and informal settings, is often distinguished by a lively interaction involving both musicians and listeners, mediated by both gestures and vocal interjections." Clayton has observed that listeners' physical reactions often anticipate events in the music, showing that they form precise dynamic expectations; and performers, of course, interact with the audience by arousing, delaying, and (perhaps unexpectedly) fulfilling such expectations.

Does this discourse displace the objectives of ālāp adduced by Van der Meer, namely to demonstrate both the internal coherence of the rāga, and its distinctness from other rāgas? It could be argued that what Budhaditya Mukherjee demonstrates is the composite character of Pūriyā-Kalyān rather than its internal coherence; only in the lower and the higher octaves do we briefly hear what an integrated Pūriyā-Kalyān might sound like. Similarly we might ³¹argue that this performance does not

demonstrate the distinctness of Pūriyā-Kalyān from all other rāgas, but rather its close relationship to the two rāgas of origin, Pūriyā and Yaman, and how it can be made to sound at times closer to one or to the other. In an informal experiment, I played two extracts from the ālāp, with no explanatory information, to a highly expert listener, and invited him to say what rāga he heard in each. He easily identified the pervasive features of Yaman in one and Pūriyā in the other, but nevertheless percipiently speculated that both extracts could come from a performance of Pūriyā-Kalyān, if "the artist is going out of his way to show incomplete or partial *angs* of the rāga".[26] That is precisely the approach that I am suggesting that this performance demonstrates: an approach that is perhaps more concerned with articulating a dynamic, engaging melodic narrative than with delineating an integrated rāga image. As Van der Meer and other writers observe, "hiding and unveiling" different aspects of a rāga is an accepted technique: it is only the extensive, structural use of the technique that is exceptional here.

What then does the artist achieve by treating the rāga in this somewhat unconventional way? Is it an approach especially suitable for a CD recording marketed originally to an audience outside India? The listener who has never heard Pūriyā or Yaman can only make sense of the recording in terms of the sounds themselves; but the artist has used those sounds in such a way as to create an internal dialogue, a narrative flow that perhaps helps to stimulate or maintain the listener's attention. Structural complexity and variety are perhaps also appropriate for a recording, if they reward repeated listening with new insights.

One could extend this argument to say that equally the other compositional principles and structural features of this ālāp, which are broadly typical of ālāp in general, lend themselves to comprehension by unacculturated as well as by more experienced listeners. Thus the compositional principle of *vistār* seems designed to permit the development of schematic or dynamic expectations on the part of the listener. Many parts of this ālāp are based on contour schemas, such as those shown in figs. 17–19, which, being based on repetition, afford the possibility of immediate recognition and anticipation. The alternation of ascent and descent, operating on both the large and the small scales, the tendency for successive ascents to reach successively higher pitches, and the less frequent but more abrupt and formulaic descents, appear to exemplify the "stimulus ramp archetype" described by Huron (1992): a pattern found in many musics, whereby "regular [small] increments of stimulus level [are] followed by occasional large decrements of stimulus level". Huron attributes this archetype to the operation of an automatic neurological orienting response mechanism, by which the listener's attention can be sustained over extended periods.[27]

Of course, *vistār* is a process of which performers, at least, are fully conscious; but if Indian classical musicians take advantage of their listeners' neurological

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[26] The listener was Dr Nicolas Magriel, a highly experienced performer and analyst of Indian music. The extracts were, first, B4 (b) to B5 (b); and second, B2—3. I did not tell him that the extracts were from the same performance.

[27] Unusually, perhaps, the process operates at several hierarchical levels of formal organization in ālāp, from individual motives to the whole ālāp, whereas the examples of ramp archetype analysed by Huron appear to operate at only one level.

responses and unconscious dynamic expectations, as well as employing culture-specific schemas (such as rāgas), this may help account for their success, since the mid-20th century, in communicating with unacculturated audiences both within and outside India, and for the development of a significant national and international niche market for commercial recordings. This success was, in turn, necessitated by the change in classical-music patronage in India itself, in the first half of the 20th century, from aristocratic connoisseurs to a broader public audience, reached by radio and sound recordings as well as live concerts. Many changes in Indian musical performance and culture have been attributed to this change in social and economic environment; the use of abstract structural procedures and neurological response mechanisms in music does not guarantee its autonomy from such social and historical motivations. These cultural factors are comparatively well documented; but to help us understand further the dynamics of musical discourse, both analysis of performance, and empirical research into the perception of structures and processes in Indian music, will be required.

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