



Messiaen's Rhythmical Organisation and Classical Indian Theory of Rhythm (II)

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MESSIAEN'S RHYTHMICAL ORGANISATION AND CLASSICAL INDIAN THEORY OF RHYTHM (II*)

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Abstract

Olivier Messiaen is the first Western composer to investigate Indian rhythmic patterns or *tālas*, and to use them consciously in his works. After studying 120 *deśitālas* which the 13th-century Indian theorist Śārṅgadeva presented in the discussion *Samgītaratnākara*, Messiaen discovered and developed the general rhythmic principles, applied afterwards in his own works.

In earlier stage of using Indian *tālas* (*Quatuor pour la fin du Temps*) is presented the simple organisation of three *deśitālas* (*rāgavardhana*, *candrikalā*, *lakṣmīṣa*), while in the *Turaṅgālīla symphonie* he introduced new methods in the organisation of the same *tālas* and superpositioned rhythms.

1.2.3. *Oiseaux exotiques* (1955)

»Schématiquement, une musique rythmique est une musique qui méprise la répétition, la carrure et les divisions égales; qui s'inspire en somme des mouvements de la nature, mouvements de durées libres et inégales«.⁴

Exotic Birds, by Messiaen, is, from the aspect of rhythm, a major work, due to the large number of *tālas* which appear in the piece, and because of the various ways they are used. The score is divided into 13





* The first part of this article was printed in *IRASM* 18 (1987), 1, pp. 117—144.

¹ C. SAMUEL, *Entretiens avec Olivier Messiaen*, Paris 1967, p. 65.

parts. The melodic material is based on the song of various exotic birds, while the rhythm is based on Indian tālas and Greek metres. The full beauty of the rhythmical structure is seen in two large tutti sections, these being of the widest scope. The first major tutti is the central, eighth, section giving the song of all the birds, and the second is the grand finale (or section eleven) in which the bird Shama (Hindi: *sāmā*), is the main soloist.

The rhythmic structure is based on a series of Greek and Indian rhythms, which Messiaen studied closely. Combining verses from ancient metric and rhythmical patterns in the classical Indian tāla system, he created in this composition a hybrid of Graeco-Indian rhythmical strophes. They are provided by percussion instruments, are represent a strict and stable framework on which the harmonic superstructure is left to unfettered melodic linearity. Although brought together here, and combined in rhythmical strophes, the Greek and Indian rhythmic models differ, both in use and in timbre.

Messiaen separated the Greek verses from the largest units of measure, the strophes, and treated them in a completely unique way, although many of them do not exist outside of the strophe. As regards length, the Greek metres remain unchanged during the entire work. Messiaen's understanding of length and shortness is, without exception, in the ratio of 2 : 1

i.e. an accented beat lasts for one quaver ( = ), and an unaccented one for one semi-quaver ( = ). The metres are of three types, and are in three groups. The first is made up of logoaedic lines of simple feet, the second consists of composed feet or metres, and the third of lines of composed metres.

As regards the tālas used, they are taken from two Indian rhythmic systems: the Śārṅgadeva system of 120 deśītālas, and the Carnatic or Southern Indian, system of 35 sulādītālas. Appearance of the Southern Indian tālas in *Exotic Birds* is an exception, as in all other compositions Messiaen used only deśītālas.

I. Deśītālas (in alphabetical order):

— caccarī	2 3 2 3 2 3 2 3 2 3 2 3 2 3
— candrakalā	4 4 4 6 6 6 2
— dhenkī	4 2 4
— gajajhampa	4 1 1 1½
— gajalīla	2 2 3
— lakṣmīśa	1 1½ 2 4
— niḥśaṅkalīla	6 6 4 4 2

II. Carnatic Tālas (shown in order of the 7 tāla families):

— from the 2nd Maṭhya family:	maṭhya-tiśra	3 2 3
	maṭhya-saṃkīrṇa	9 2 9
— from the 5th Tripuṭa family:	tripuṭa-miśra	7 2 2
— from the 6th Aṭa family:	aṭa-khaṇḍa	5 5 2 2

Unlike the unchanged Greek metre and verses, the Indian tālas are given rich rhythmical reproduction. They are subject to change such as double proportional augmentation or diminution, gradual augmentation or diminution, and irregular augmentation.

The Eighth Section: the Grand Central Tutti

This is the central part of the work encompassing the song of all the birds in a grand counter-point. It extends from number 10 to 22 (the numbers are given in the score)² and makes up almost half of the composition. The entire section is in 4/8 time (♩ = 152).

Here one finds a continuous over-layering of two rhythmical levels:

1. the first, or upper level, is performed by a group of 14 instruments (the term »upper« deriving from the notation of the parts in the score):
2. the second, or lower level, performed by a group of 9 percussion instruments, which, although they have nothing in common, are directly related to one another.

There are 47 characteristic bird motifs in the first level, and through performance together and in turn, and intertwining of songs, organised chaos is created (written aleatorics!).

The First Level: When the basic rhythmic patterns are schematically synchronised, it can be seen that the rhythmic richness of the first level comes into being from only six basic note values (see music example on p. 56).

The axis of symmetry is the quaver which is reduced by rhythmic progression to smaller values in the ratio of 1:2:3:4 (♩ : ♪ : $\frac{1}{4}$: $\frac{1}{8}$). The reverse process is not carried out in full. The rhythmic process of condensation is carried out only in the ratio 1:2:3 (♩ : ♪ : $\frac{1}{4}$), while the fourth value ($\frac{1}{8}$) is missing. It can be observed that the process is not carried out consistently as the ratio 1 : 1½ does not appear on both sides,

² Cf. O. MESSIAEN, *Oiseaux exotiques* — score, Universal Edition, UE 13154 LW

neither do the values $\overline{\text{R}}_i \overline{\text{T}}^j$ (compare with the initial ratio in the lakṣmīśa tāla: $1\frac{1}{2} 2$, and with the table of rhythmical proportions in the first movement of the *Turaṅgalīla*, first section³). In any case, the rhythmic symmetry to which Messiaen inclines is shown most clearly in the non-retrograde rhythms.

The Second Level: Unlike the polyphonic intermingling in the first level, it is surprising to find that despite the fact that there are 9 percussion instruments in the group, played by 5 performers, only one instrument is played at any one time. The second level is in fact an one-voice rhythmical line without pauses, with a number of tonal heights. This second sequence, uninterrupted from beginning to end, is divided into 4 rhythmic strophes, as follows:

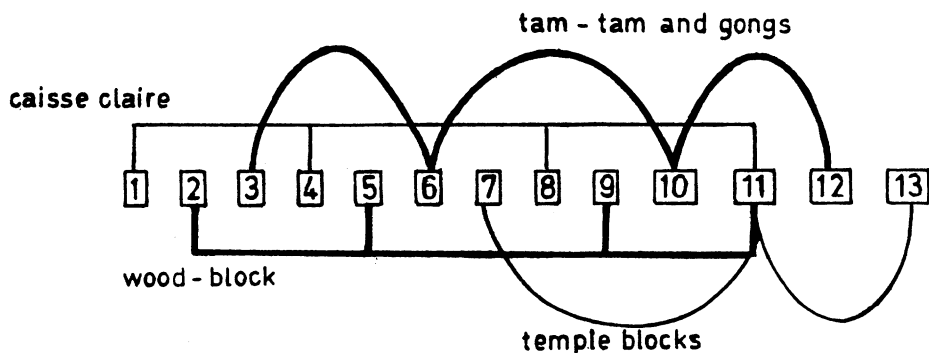
Strophe 1	<u>10</u>	<u>11</u>	<u>12</u>	(35 bars)
Strophe 2	<u>13</u>	<u>14</u>	<u>15</u>	(33 bars)
Strophe 3	<u>16</u>	<u>17</u>	<u>18</u>	(32 bars)
Strophe 4	<u>19</u>	<u>20</u>	<u>21</u>	(30 bars)

In each strophe the order of the rhythms and the instruments which play them remains the same:

³ See Table 3, part I of this article, *IRASM* 18, 1987, 1, p. 132.

1. Asclepiad	— small drum
2. Sapphic	— wood block
3. NIḤṢAṆKALĪLA	— tom-tom and gongs
4. Glyconic	— small drum
5. Adonic	— wood block
6. GAJALĪLA	— tom-tom and gongs
7. LAKṢMĪṢA	— temple blocks
8. Iambic-Elegiac	— small drum
9. Aristophanic	— wood block
10. MATHYA-SAMKĪRṆA	— tom-tom
11. CAḌCARI	— temple blocks, wood block and small drum
12. CANDRAKALĀ	— gongs
13. Dactylo-Epitrite	— temple blocks

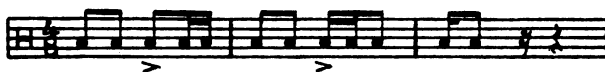
The opposition between the timbres in the Greek and Indian rhythmic models is evident, along with periodic use of the instruments:



The Greek metres are entrusted to the clear sounds of the percussion instruments: the small drum (caisse claire), wood block and temple blocks. These percussors are located in the first row of the battery which is located at the back on the left hand side of the stage. Each Greek metre is performed by only one type of percussion instrument, on one tone from beginning to end, and each rhythmic unit has the same intonation and timbre. An exception is provided by the composed dactylo-epitrite metre which ends the strophe and has three tonal heights.

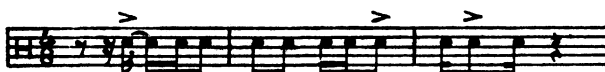
Asclepiad

caisse claire



Sapphic

wood - block



On the other hand, the value of the notes of the tālas move from part to part, usually through three note systems and three tonal heights, and the tālas (apart from maṭhya-saṅkīrṇa) do not have the same intonation. As regards timbre, the flat sounding tālas (caccarī and lakṣmīśa) and the resonant ones (all the remainder) are contrasted.

caccarī

3 temple blocks

wood-block

caisse claire

gajalīla

3 gongs

tam - tam

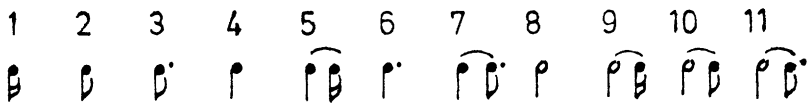
Performance of tālas in varying tonal heights is in keeping with Indian practice in which, for example, the double drum, tablā, is always tuned in the basic and dominant tone of the rāga in which it is played. Even when playing a solo, the drummer hits the rims, the centre, and the interspaces on the skin surface, and thus achieves several tonal heights.

Analysis of the rhythmic strophes shows that Greek metres always remain the same, while the Indian tālas are presented either in their basic unaltered form, or are changed according to the principles which Messiaen established through their study. The gajalīla tāla (2 2 2 3) appears in its basic form, and its time cycle is repeated once again (2 2 2 3

2 2 2 3). The caccarī tāla (2 3 2 3 2 3 2 3 2 3 2 3 2 3) is divided into two parts the second of which is broken down as follows: 2 3 2 3 2 3 2 3 1 1 1 1 1, 1 1 1 1 1, 1 1 1 1 1, 1 1 1 1 1. Laksmīśa is doubly augmented: 2 3 4 8 instead of $1\ 1\frac{1}{2}\ 2\ 4$. The three remaining tālas (maṭhya-saṃkīrṇa, niḥśaṅkalīla, and candrakalā) shorten the duration of each strophe. They are subjected to a process of gradual diminution (lessening value by

1 ♪, 2 ♪, 3 ♪) as their initial value was their augmented value.

They attain their basic duration only in the third strophe. In *Table 1* (see p. 60), a review is given of the strophes and their changes. The basic and smallest unit of the second level is the semi-quaver. *Table* shows through the growth of their proportions, that a total 11 values are present.




Despite the rich chromatism of its duration, as regards sound, the second level takes second place. Briefly sounding temple blocks, wood blocks, and the small drum (caisse claire) are covered by the sound of the solo xylophone, while the gongs and tom-tom blend with the sounds of the deep wooden wind instruments and the deep registers of the piano. It is also interesting to note that the dynamics of the second level flows mainly in the pianissimo, and rarely in the mezzoforte, while in the first level, forte and fortissimo prevail. The dynamics contribute to the colour-blending of the second level into the first.

The Eleventh Section: the Grand Final Tutti

In the grande finale the main theme, or cantus firmus, is the song of the bird sāmā, which appears in all sections, while the song of the other birds may be treated as a counter-point. This tutti extends from number 25 to number 31 i.e. for 50 bars. The measure is again

4/8 (♪ = 132).

In the *first level*, no new rhythmic values appear. Two fast movements,

or two quintuplets () in B-Major key on the piccolo, and a


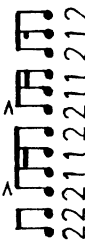
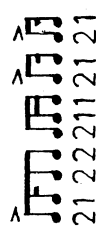
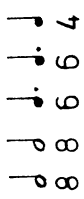
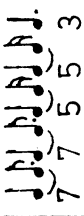
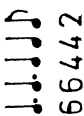
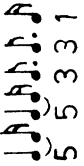
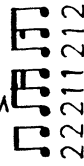
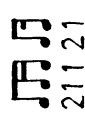
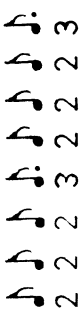
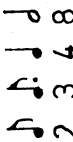
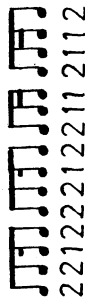
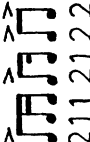
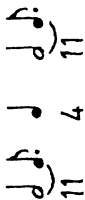
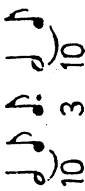
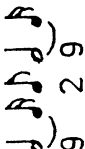
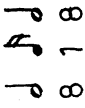

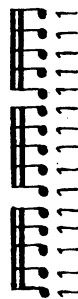
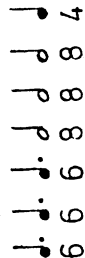
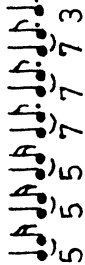

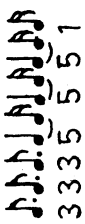
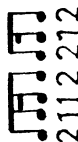
decuplet () in C-Major key on the xylophone, are in fact the written-out glissando of sāmā's call. Messiaen consider this bird to be

TABLE 1

RHYTHMICAL ORGANISATION OF STROPHES				
rhythmic models	strophe 1	strophe 2	strophe 3	strophe 4
1. Asclepiad	 222112211212			
2. Sapphic	 21222112121			
3. NIĤSĀNKĀĪLA	 8 8 6 6 4	 7 7 5 5 3	 66442	 5 5 3 3 1
4. Glyconic	 22211212			
5. Adonic	 21121			
6. GAJĀĪLA	 2 2 2 3 2 2 2 3			

7. LAKŠMĪŠA	 2 3 4 8			
8. Iambetegiāc	 221222122112112			
9. Aristophanic	 2112122			
10. MATHYA - SAMKTRNA	 11 4 11	 10 3 10	 9 2 9	 8 1 8
11. CACCART	 2323232311111  111111111111111			
12. CANDRAKALĀ	 6 6 6 8 8 8 4	 5 5 5 7 7 7 3	 4446662	 3335 5 5 1
13. Dactylo - epitrite	 2112212			

an extraordinary singer, as its varied warbling sometimes concludes with a sharp melodic descent into lower registers, and it is also characteristic that two separated tones are repeated.⁴ Its song is accompanied by rhythmic figures performed with striking twitches of its tail, producing a sound similar to that of percussion instruments.

Messiaen gives the *sāmā*'s motif in two versions:

Motif of the *sāmā*


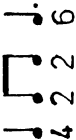
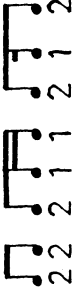
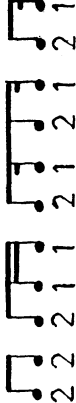
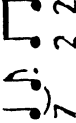
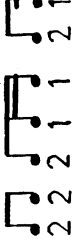

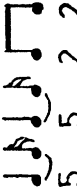
3 temple blocks or

The *second layer* in the eleventh section has a two-fold role. It is coordinated with the first level at each performance of *sāmā*'s motif and performance of the given rhythmic motif, but, with the interruptions from the other birds, it becomes separate, at which point the independent Greek and Indian rhythmic models are performed. *Sāmā*'s motif lasts throughout the number [25], from the 7th to the 11th bar in number [27] and throughout the whole of number [30]. In the other numbers, the Indian *tālas* and Greek metres comprise, as in the central tutti section, a one-voice rhythmic line. However, they do not carry on one from the other without pause in an uninterrupted succession, nor do they have strict rhythmic strophes, and there is no regular alteration nor repetition of the rhythms. The *tālas* and Greek metres used appear in the order presented in Table 2 on p. 63.

For the finale, Messiaen choose rhythms different from those in the first tutti, and only the Glyconic from the central section is repeated. The Greek metres are not subject to any change whatsoever. The *ḍheñkī tāla* is subject to double proportional diminution (from 4 2 4 to 2 1 2). *Gajajhampa* is achieved by a process of increase of one of two values. The rhythmic model is divided into two parts, after which part B is irregularly augmented, while part A remains unchanged (instead of 4 1 1 1½ we find 4 2 2 6). The three remaining *tālas* (*tripuṭa-mīśra*, *maṭhya-tīśra*, and *aṭa-khaṇḍa*) from the Southern Indian system of *sulādītālas*, are found in their basic form. Apart from that, Southern Indian *tālas* are performed by gongs, and all the other rhythmic models by wood-block.

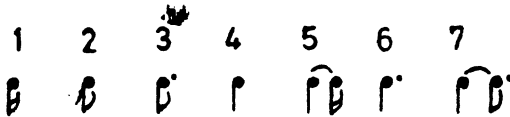
⁴ Cf. Introduction, O. MESSIAEN, *Oiseaux exotiques* — score, Universal Edition, UE 13154 LW, p. VI.

TABLE 2

1. DHENKI		wood - block
2. GAJAJHAMPA		wood - block
3. Glyconic		wood - block
4. Phalecian		wood - block
5. TRIPUṬA - MIŚRA		gongs
6. Pherecratian		wood - block
7. MAṬHYA - TIŚRA		gongs
8. AṬA - KHANḌA		gongs

by which they are set apart. Values of the tālas and Greek metres determined in this way, remain unchanged throughout the entire section.

The chromatic row, from the smallest to the highest value, encompasses only seven values, and the basic and smallest unit is the semi-quaver:



Performance of the rhythmic models is in the following order:

	25	śāmā
3 bars after	26	ḌHEÑKĪ, GAJAJHAMPA
	27	ḌHEÑKĪ, Glyconic
7 bars after	27	śāmā
8 bars after	28	ḌHEÑKĪ
	29	Phalecian, TRIPUTA-MIŚRA, ḌHEÑKĪ, Pherecratian, MATHYA-TIŚRA, AṬA-KHAṆḌA, ḌHEÑKĪ
	30	śāmā

It can be seen that while all the remaining rhythmical patterns appear only once, the ḍheñkī tāla is repeated between them, similarly to a refrain. The time cycle of the ḍheñkī tāla is repeated a number of times. Shown graphically by order of rhythms, in *Table 2* on p. 63, this is as follows:

śāmā | 1, 1, 1 | 2 | 1, 1, 1 | 3 | śāmā | 1, 1 | 4 | 5 | 1, 1, 1 | 6 | 7 | 8 | 1, 1, 1, 1
śāmā

2. Conclusion

Olivier Messiaen is the first European composer to commence more profound study of Indian music, and more specifically, the classical Indian theory of rhythm. His musical affinities, prompted by his mystical, religiously Roman Catholic experiencing of music and the world about him, towards a broadening of sound. The result of his aspirations was a pre-structuring of the primary building blocks of musical material — musical parameters.

Taking up where Debussy left off, and relying on the Indian *rāga*, he created melodic modes of his very own making. He considered rhythm to be the essential and basic, primary element of music. In his rhythmical patterns, he adopted the classical theory of the *tāla*. When developing his own rhythmic and melodic modes, all he knew of Indian music came exclusively from books, and, in the words of Hans Oesch, he still had not cast off the idea of Europe as the centre of the universe.⁵

The one hundred and twenty *deśitālas* which the Indian medieval theoretician *Sārngadeva* (13th century) collected in his discourse, the *Samgītaratnākara*, were considered by Messiaen to be the culmination of Indian, and more broadly, man's rhythmical creation. He applied them without being aware of their religious and cosmic context. Later, when he knew more not only of the structure, but also of the meaning of each *tāla*, Messiaen became fully conscious in his relation towards each individual rhythmic microcosm. But this did not lead to a change in attitude to the foreign element, which had to be assimilated into its new environment, in keeping with the mores of that environment. The Indian rhythmical patterns adopted, isolated from their cultural and social background and cut off from their own musical heritage, become musical material in the Western concept. Such new musical material, integrated into European thought, music and art, becomes merely a means of enrichment of European music, and is no longer a valuable entity in itself.

In the *deśitālas*, Messiaen discerned general principles which underly the creation of rhythm. They are: addition of a point, added value, increasing or decreasing of one value of two, irregular augmentation, gradual augmentation and diminution, dissolution and condensation, the importance of primary numbers, chromatism of duration and non-retrograde rhythms. However, that is not to say that Indian *tālas* are created according to the rules mentioned. The principles of formation of rhythmic material which Messiaen arrived at through analysis of the *tālas*, result from Western musical thought. According to Hans Oesch »valeur ajoutée« (added value) is completely non-Indian, as, in Indian practice, no process exists by which a given time structure is altered to minimum value.⁶ By the same process, Messiaen found, in *Sacre du Printemps*, the principle of rhythmic personalities (»personnages rithmiques«), which he used further in his works. However, Stravinski himself was certainly unaware of the existence of this principle, nor did he ever mention it.

Messiaen failed to become sufficiently acquainted with modern Indian musical practice and did not, consciously or unconsciously, develop rhythmic material in accordance with such practice; not even when the material in question was the *tāla*. He used Indian *tālas* in his compositions in three ways:

⁵ Compare H. OESCH, Was bedeutet asiatische Musik heute in westlichen Stilkreisen?, *Frankfurter Studien*, Band III (Zwischen den Grenzen — Zum Aspekt des Nationalen in der Neuen Musik), Frankfurt 1979, p. 131.

⁶ Cf. *ibid.*

1. use of the original tāla in its unaltered basic form, as a time cycle which could be repeated;
2. use of an altered tāla, changed according to the principles he arrived at through their study; and,
3. use of principles which derived from study of other rhythms, were inventions of his own, or were taken over from other sources.

All three methods are in exception to Indian musical practice. Even when retaining basic time periods, Indian musicians do not strike all the beats of one tāla, but distinguish the sub-sections by sound, and fill out the time spaces with various rhythmical content. The accompanying percussion player strikes the beginning of each period or the first beat of each member (aṅga), either with small cymbals or with sticks.

Not one of these three methods stands alone in Messiaen's compositions. The original tāla is always subjected to a specific rhythmical principle. Messiaen combines the tālas and all their alterations with full creative freedom according to Western musical practice e.g. canon, retrograde motion, ostinato etc. In the opinion of Hans Oesch, Messiaen's treatment of the period of the tāla as a rhythmical counter-voice, also connected by metre, is again non-Indian.⁷ However, in this way Messiaen achieved new types of polyphony and polyrhythmic structures. His newly-created rhythmic system is unique, and has been developed to the present day.

In analysing rhythmic organisation, the writer applied Messiaen's principles, or, in other words, the manner of transformation of the Indian background. The tālas are always recognisable in the compositions. In cases when they are not present in their original unchanged form, their internal inter-relations are retained through double proportional augmentation or diminution. Messiaen always uses them then, in their increased or diminished form. Review of alterations in the tāla as basic rhythmical material is as follows:

1. The tāla appears in its original form (e.g. the maṭhya-tiśra tāla 3 2 3).
2. The time cycle of the tāla is repeated once again (e.g. gajalīla 2 2 2 3 + 2 2 2 3).
3. The original tāla is doubly proportionally 'diminished' (e.g. the candrakalā from 4 4 4 6 6 2 to 2 2 2 3 3 1).
4. The tāla is doubly proportionally augmented (e.g. lakṣmīśa from 1 1½ 2 4 to 2 3 4 8).
5. The tāla is irregularly augmented or diminished. As a rule this does not occur, as the tāla would then no longer be recognisable. The sole exception encountered by the writer was the gajajhampa tāla, which comes about by division of the rhythmical pattern into two parts, after which part B is irregularly augmented, while part A remains unchanged.

⁷ Cf. *ibid.*

This in fact represents application of the rhythmical principle of increase of one of two values. The basic form of the gajajhampa tāla is 4 1 1 1½, and the resulting 4 2 2 6 is used. The gajajhampa tāla would not be recognisable if Messiaen had not written in its name in the notations. (*Exotic Birds* — Eleventh Section — Grand final tutti).

6. The tāla is broken down into smaller note values. It is usually divided into two, and only one part is diminished. Thus, it is always recognisable (e.g. the caccarī tāla, 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 appears as 2 3 2 3 2 3 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1).

7. Doubly augmented tālas are broken down because of their prolonged values. The most common example is the rāgavardhana tāla as follows: 1 1½ 1 6. Messiaen uses it in double proportional augmentation: 2 3 2 12, but in such a way as to break down the highest value by which 2 3 2 4 4 4 is obtained.

8. Tālas in inverse form. This applies to original and altered tālas. Thus, for example, the inversed rāgavardhana tāla, 1 1½ 1 6 appears as 4 4 4 2 3 2.

One does not encounter elaboration of tālas in the manner of Indian musical practice, in which they are brought to an unrecognisable state. Messiaen uses them most often as rhythmic pedals, which may be repeated similarly to the ostinato, from the beginning to the end of the section or movement. Many possibilities are offered in organising various tālas as rhythmic models. Messiaen's characteristic methods in the compositions analysed are as follows:

1. Each tāla may become an independent ostinato rhythmic pedal which is placed in polyrhythmic structure. Semi-rhythmical structure can be made up of other tālas, non-retrograde rhythms and systems of proportionally reduced and increased values (*Turaṅgalīla Symphonie* — first movement, third section).

2. The second most common method used by Messiaen was the addition and joining together of three favourite tālas (rāgavardhana, candra-kalā and lakṣmīśa). The newly-created artificial tāla becomes the ostinato rhythmic pedal in the super-imposed rhythmic pedal structure as in the first case (*Quartet for the End of Time* — first movement of the *Crystal Liturgy*; the *Turaṅgalīla Symphonie*; the fourth movement of *Chant d'Amour* 2).

3. Tālas may also be organised into rhythmic strophes. The strophes do not have to be built up solely from Indian tālas, but may also be combined with rhythmic patterns resulting from the composers's invention, or may be taken from other sources. In most cases, these other sources are Greek metres. It is important for the rhythmic strophe that the entire organisation be repeated and become complex i.e. a strophe rhythmic pedal. (*Exotic Birds* — eighth section, grand central tutti).

4. The use of one of the tālas as a rhythmic refrain can be observed. It appears between other tālas and rhythmic models, which are heard only once. The time cycle of the chosen tāla may be repeated a number of times, depending on the composer. (*Exotic Birds* — eleventh movement — grand final tutti).

5. One way in which the tāla is used is through alteration of its duration within the composition, the tāla's duration being increased or decreased. This alteration is carried out according to Messiaen's principles, arrived at through study of the Southern Indian tālas, which he then applied to the deśītālas and to the rhythms he himself created. This is a process of gradual augmentation or diminution, where each member in a time period is gradually reduced or increased in value. (*Exotic Birds* — eighth section — grand central tutti). When this process is used in the rhythmic strophes, each strophe is increased or decreased in length.

6. Application of the poetically named principle of rhythmic personalities (personnage rythmiques) conceals a triple, consciously amplified polyrhythmic layering. Applied to a tāla, this principle is realised in two ways:

a) by simple superpositioning of three tālas, one of which is in its original form, the second diminished, and the third augmented;

b) by complex superpositions of three rhythmical structures, the first of which is increased, the second decreased, and the third unaltered. The tālas may be found in any structure whatsoever (*Turaṅgalīla* — first movement — third section).

In the compositions analysed, it was found to be characteristic that in use of the tālas as ostinato rhythmic pedals, Messiaen does not end by excluding the completed time cycles of the rhythmic pedals, before the end of the section or movement (Cases 1 or 2). He forcibly ends them on the last beat of the last bar. (*Crystal Liturgy*; *Turaṅgalīla* — first movement, third section: fourth movement, first, second, third, fifth and seventh section). This process is musically justifiable, but represents a departure from Indian rhythmical practice. Indian musicians must always find themselves together at the beginning of a time cycle, on the beat called *sam*, regardless of which rhythmical content within the cycle of the tāla they had been developing up to that moment.

In usage of the tālas in rhythmical strophes and rhythmic refrains Messiaen ends their time cycle (Cases 3 and 4). However, as the rhythmical form here is a one-voice rhythmical line without superimposition of the various periods of the tāla, no comparison can be made with Indian musical practice. In Indian music one finds complex and varying development of the given tālas, but the basic time period is always retained. Therefore, superimposition of a number of tālas without development of their rhythmic content is another departure from Indian practice. When Messiaen sets a basic time cycle (Cases 1 and 2), he repeats it further

without developing it at all, this being a very simple form of rhythm when compared with Indian practice. In the remaining cases, 3 and 4, the basic time cycle is not given at all. Various tālas replace one another and are given in their entirety. Regularity and irregularity in their distribution is solely the result of Messiaen's creative freedom.

Messiaen's thought as a composer was concentrated on the problem of note values, rhythm and time. In this he strives towards infinity and eternity, in which no such concepts exist. In other words, he tries to remove the element of time from music. The Indian attitude to time is close to his way of thinking, and, for this reason, he enriches the traditional rhythmic elements in his music with rhythmic material from classical Indian music. The idea of duration of a note, existing separately from the bar and independently of metre, becomes the guiding light in his new approach to rhythm.

Although he adopts Indian rhythmic periods in theory, Messiaen treats these borrowed treasures in a way which is quite individual. He does not adopt Indian musical practice, nor does he really come close to this foreign culture. The final result is Western music with a broadened material foundation. Rhythmical organisation in Messiaen's works cannot be analysed and interpreted on the basis of the classical Indian tāla system. But it is fascinating to observe the creation of a new rhythmical language, which comes into being through integration of the Indian material. In this, Messiaen changed his musical opinion. His rhythmic system knows neither the measures of the bar, nor the measure of time in the traditional Western sense.

From this new musical standpoint, his glance behind him at Gregorian music and the music of Bach showed him that they did not have rhythm; instead, he found an uninterrupted succession of equal lengths. Messiaen cites the military march as the baldest example of the negation of rhythm. Mozart appeared to him to be the greatest applicant of rhythm in music in the classical period, and Debussy as one of the greatest of all time. However, Messiaen's paragon in Western music was Igor Stravinski, and his work, »*Sacre du Printemps*«.⁸

This new approach to rhythm is directly reflected in the notation of the rhythmic organisation. Finding himself faced with the problem of correct interpretation of his precisely marked values, Messiaen used four forms of rhythmic notation.⁹

1. The notation appearing most often for solo instruments such as the organ and the piano is also the most simple, indicating the composer's understanding of rhythm without measure or tempo. The bar lines which

⁸ Cf. C. SAMUEL, *op. cit.*, pp. 65—75.

⁹ Cf. O. MESSIAEN, *Technique de mon langage musical*, Texte, Vol. 1, Paris 1944, pp. 20—22.

appear here have the role of separating the musical periods, which most precisely express the composer's musical concept. The performer chooses a unit (usually a semiquaver), and enlivens later interpretation through experiencing of exact values which accelerate or slow down the flow of the musical development. Messiaen used such notation in all works for the organ and piano, and in chamber music and vocal compositions in which improved co-ordination of the musicians is possible (e.g. in most of the movements of the quartet, *Quatuor pour la fin du Temps*). This notation also appears in each cadence of the piano solos within large orchestral compositions (e.g. in *Oiseaux Exotiques* with bar lines, and in *Turangalila Symphonie* without bar lines).

2. As notation of this type is unsuitable for large orchestras, Messiaen had to make certain compromises. One possible solution, used rarely and reluctantly, was a polymetric notation in which each motif was separated by a bar line in a separate measure, as is the case with Stravinski's *Sacre du Printemps*.

3. Messiaen experimented further, accepting the suggestion of the conductor, Roger Désormière, that exact duration be indicated in the score with rhythmic signs. Thus, Messiaen uses three basic signs ($\square = \text{♪}$, $\Delta = \text{♩}$, $| = \text{♩}$) and their doubled form ($\square\square = \text{♩}$, $\Delta\Delta = \text{♩}$, $|| = \text{♩}$). The most complex rhythms can be written in this way, and simple example would be as follows:



4. As both versions demand certain effort from the conductor and performer, Messiaen decided that the most usual method to be used for joint performance would be fitting in of the entire rhythmical organisation through syncopation in one metre, which has no relation to rhythm. In this way, polyrhythmical layering receives a simple orientational framework, and aperiodical bar changes in relation to the lowest note value are avoided. Notation of this type coordinates the superimposition of various rhythms, this also being much easier for the performers, who are accustomed to this method. Although the notation is in contradiction with

the rhythmic concept, the listener's impression, the most important factor, is the correct one, as long as the syncopation and accents are literally interpreted.

In addition, as has already been mentioned, Messiaen took every possible opportunity to write the solos in the first form i.e. without measure. Thus, in a single score, use of all these forms of notation can be found e.g. in *Exotic Birds* where the solo piano cadences are written in the first manner, without measure, some tutti sections are in one metre i.e. the four method (in $\frac{4}{4}$ or $\frac{3}{8}$ measure), while others are given in polymetric notation (alternatives of $\frac{3}{8}$, $\frac{2}{16}$, $\frac{2}{8}$, and $\frac{3}{16}$).

As regards time and time duration, it was characteristic for Messiaen to choose a tempo and retain it without change throughout the entire movement or section. This can almost be compared with Indian rhythmic practice, where the musician, once the time structure has been chosen, does not alter it, but rather fills it out with various rhythmic qualities. This is indicated by the absence of rubato, accelerando, and rallentando in Messiaen's works, which is also the case in Indian music. Both Messiaen and Indian composers, on the basis of their respective musical systems, achieve an accelerated or slower musical flow with the aid of the value of the notes themselves, within constant time intervals. In Messiaen's case, moreover, these are exactly marked units of value which are most clearly evident in the chromatic sequence of duration. This sequence, for example, is realised as a rhythm, the flow of which gradually accelerates from the higher values to the lower, and this is often followed by a slowing down achieved through a process of non-retrogradation from the medium values to the larger ones (e.g. the non-retrograde rhythm 17-7-17, *Turaṅgalīla Symphonie*, first movement, third section). Another example can be found in the gradual augmentation and diminution of the tālas (*Exotic Birds*, eighth section, grand central tutti). Superpositioning of the various rhythmic pedals makes possible the simultaneous appearance of acceleration and retardation.

Absence of rubato is unusually similar to the Indian concept of retention of basic time, as Messiaen never leaves it to the performer to change the tempo of performance, and, in this way, to alter the duration of the performance. This derives from his musical thought according to which time, in its essence, is both constant and unchangeable (being as it is, not just part of eternity, but eternity itself), despite the fact that when observed subjectively, it seems to be changeable and divisible, and to pass more slowly or more quickly.

Under the influence of a Roman Catholic, and more general, view of the world, which sees it as being part of the Maker's order, Messiaen develops musical content cosmologically. Thus, what drew him in wonder to the time content of the tāla as its intrinsic order, the micro-structure of each tāla. This order can be seen in a succession of regular members, or aṅga. Internal micro-relations prompted him to consider proportion, and

resulted in his system of proportional diminution and augmentation of note values.

In his totality, Messiaen also aspires to an all-encompassing order between the individual musical elements comprising the work, which traditionally show separateness. For this reason, in his music, melody, harmony, rhythm, metrics, and the colour of the sound cannot be isolated as parametres, due to the fact that they are subject to a higher order of deeper connotation.

However, if the rhythmic structure of the work is set apart, it can still be seen that rhythm is the foundation-stone in the organisation of the musical material, on which the remaining element rest. But, *Exotic Birds* shows that the strict rhythmic organisation is not in the forefront when the music is listened to. It flows dynamically in the pianissimo, which automatically involves weaker audibility. Without commenting on the excellent instrumentation, which results from the higher order, one can notice dissolving of the colour of the rhythmic level into the melodic level (or, in other words, the second level into the first, see page 59). Thus, it is of primary importance that the rhythmic order has been established and exists; but it is not so necessary that it be heard. In this way, creative freedom supercedes ratio and creates all-encompassing order in the mind of the composer, which equalises all the parametres of the macro-structure.

Messiaen became one of the most important promoters of the new musical thought, but there are a number of reasons for the non-existence of Messiaen-ism. Although he had many students, the fact that he was given the chair of musical composition relatively late in life cannot be ignored. For many years, he lectured only on analysis of and aesthetics in Oriental music. In addition, because of his universal and tolerant attitudes, he encouraged his students to find their own way. The answer to the question why not one of Messiaen's students adopted Indian rhythmic structure can be found in the fact that Messiaen's musical and rhythmical world was simply too personal and unique, a reflection of his own aesthetic and ethical views. This was the peak of a specific musical development which it would have been difficult to continue in the same way without appearing as epigonic.

Pierre Boulez, who was considered by Messiaen to be his successor in some ways in the area of rhythm,¹⁰ referred to Messiaen's musical world as »reformation eclecticism«.¹¹ This is a very sound definition of Messiaen's merging of elements, which in the sense of music, time and space, appear to be unmergible; but this was achieved through the creative personality of the composer, who showed the way for many composers who came after him. Among them are a number of new passengers to the Orient.

¹⁰ Cf. *Hommage à Olivier Messiaen*, p. 18.

¹¹ Cf. H. OESCH, *op. cit.*, p. 131. Oesch gives no information on the origin of this quotation.

Sažetak**ORGANIZACIJA RITMA OLIVIERA MESSIAENA I KLASIČNA INDIJSKA TEORIJA RITMA (II)**

Olivier Messiaen prvi je zapadni skladatelj koji proučava indijske ritmičke uzorke ili tāle i svjesno ih upotrebljava u svojim djelima. Stotinu i dvadeset dešitāla koje je indijski teoretičar iz 13. st. Šārṅgadeva izložio u raspravi »Saṃgitarai-nākara« za Messiaena predstavljaju vrhunac indijskog i ljudskog ritmičkog stvaranja. U težnji da se u njegovoj glazbi čuju i čitaju »exactement les valeurs marquées« (točno označene vrijednosti), on niže notne vrijednosti koje traju apsolutno u vremenu, odvojeno od takta ili mjere, tzv. »musique amesurée« (nemjerljive glazbe).

Messiaen je u dešitālama otkrio opće ritmičke principe za stvaranje ritmova. To su: dodavanje točke, dodana vrijednost, uvećavanje ili smanjivanje jedne vrijednosti od dvije, netočna augmentacija, postupna augmentacija i diminucija, važnost prvotnih brojeva, kromatizam trajanja i neretrogradni ritmovi. Tome treba pridodati i princip ritmičkih likova koji je pronašao u »Sacre du Printemps« Igora Stravinskog i dalje primjenjivao u svojim djelima.

Pored dešitāla, Messiaen je kasnije proučavao i karnatački ili južno-indijski ritmički sustav koji se sastoji od 35 sulāditāla svrstanih u 7 porodica.

Messiaen indijske tāle primjenjuje na tri načina: 1) uporabom izvornih tāla u nepromijenjenom osnovnom obliku kao vremenskih ciklusa koji se mogu ponavljati, 2) promjenom tāla prema principima koje je izveo iz njihova proučavanja, 3) primjenom principa koji su proizašli iz proučavanja drugih ritmova, invencije samog skladatelja ili su preuzeti iz drugih izvora.

»Kvartet za kraj vremena« (»Quatuor pour la fin du Temps«) je skladba iz ranije faze uporabe indijskih tāla. Organizacija tri tāle /rāgavardhana, candrakālā i lakṣmīṣa/ kakvu nalazimo u toj skladbi karakteristična je za više djela od »Chant de Terre et de Ciel« do »Turaṅgalīla Symphonie«. Ona je najučestalija u čitavom Messiaenovu opusu i pojavljuje se i kasnije, primjerice u skladbi »Des Canyons aux Étoiles«. U simfoniji »Turaṅgalīla« uvodi nove postupke u organizaciji istih tāla i raznih superponiranih ritmova. Nakon »Turaṅgalīla Symphonie« svaka skladba donosi mnoge nove tāle i drukčije oblike njihove ritmičke organizacije, te bi stoga svako djelo posebice trebalo analizirati.