

Analysis of *Île de feu I & II* from *Quatre études de Rythme**

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Olivier Messiaen(1908-1992) was not only a composer, but an organist and ornithologist who preferred to employ his unique compositional materials based on his Catholic faith. He organized his own compositional methods and in 1944 he wrote a book called, *The Technique of my Musical Language*. He disclosed quite interesting theories in his book and *Île de feu I & II* from *Quatre Études de rythme* (1949-1950) represent such great musical materials based on that book such as modes of limited transposition, added value, augmentation, diminution, non-retrogradable rhythms, etc. In addition, he employed Total serialism which had a great effect on twentieth-century musical technique as well as the contemporary composers. Through such detailed analysis on *Île de feu I & II*, the performers could have a clear concept to perform his music with a deeper understanding.

keywords: Olivier Messiaen, *Île de feu I & II*, *The technique of my musical language*, *total serialism*

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I. Introduction

A large number of researches and analysis regarding *etude*¹⁾ have been done with famous works by Czerny(1791-1857), Chopin(1810-1849), Schumann(1810-1856), Liszt(1811-1886), Bartok(1881-1945), etc. Among them, numerous pieces have been studied and performed as not only an effective piece to improve technique skills but also as a great piece for performance opportunity. However, Olivier Messiaen's *Etude*(1908-1992) *etude* has rarely known to students as well as the performers due to the fact that his music seems to be full of difficulty in terms of complicated compositional aspects. Since then, this research will show how his music has been created in accordance with the theory book and suggest effective ways to perform through the analysis on *Île de feu I* and *II* from *Quatre Etudes de rythme*.

Olivier Messiaen(1908-1992) was a composer, an organist and an ornithologist who composed many of his compositions based upon his faith as a Catholic. Because of his unique musical techniques and teaching style, he became very influential on his contemporary composers and on the other 20th century music in general.

Growing up, Messiaen had many influences that helped him in developing his musical style which is full of many interesting aspects. One of his earliest influences was his music teacher of his youth, who helped him to see beyond himself and into other foreign musical aspects such as the "Greek meter" and "Indian rhythms." These Indian rhythms along with his deep religious ideas heavily influenced on his compositions throughout the rest of his life. They influenced upon his melodies in compositional techniques, which helped him to develop his most famous compositional method of "birdsong."

Since these influences lead him to develop such unique compositional techniques, he decided to categorize these techniques and to create his own musical language. In 1944, he published his unique musical language with the title of the book, *Technique de mon langage musical*(Technique of my musical language). In the book, he talks

1) Etudes are normally composed for mastering technique skills such as passagework, arpeggios, octaves, repeated notes, skips, etc.

about his interesting theories on, “modes of limited transposition”, “added values”, “augmentations”, and “non-retrogradable rhythms”.

In the 20th century, Messiaen contributed largely to a technique called, *total serialism* by developing and changing the *serie* technique into *total serialism*. He employed symmetrical permutations combined with musical factors such as; pitches, note-values, dynamic levels and attacks. This technique heavily influenced Karl Heinz Stockhausen’s (1928–2007) and Pierre Boulez’s(1925–2016) musical styles.

Île de feu I and *II* from *Quatre Etudes de rythme* were composed in the experimental period(1949–1950) and these are significant since they are neither religious ideas of Christianity in nature nor are related to “birdsong.”

Quatre Etudes de rythme is composed of 4 pieces: *Île de feu I*, *Neumes rythmiques*, *Mode de valeurs et d’intensités*, and *Île de feu II*. *Île de feu I* and *II* embody Messiaen’s assorted musical styles that were formulated by his book. *Île de feu II*, which is considered as his first composition of *Total serialism*, is created by 12 pitches, 12 note-values, 4 attacks and 5 dynamic levels. Due to the fact that, it creates a very emotional and compelling work of music. There are several aspects that make *Île de feu II* a very consequential piece. It is a bright, virtuosic, and technically challenging piece to play. Messiaen wrote these works while he was in Papua New Guinea. He was inspired by the local religious rituals that he witnessed. The level of difficulty in the use of *Total serialism* comes from the fact that performer must pay special attention to every marking in the music. By doing this, a performer during a performance will be able to recreate the composer’s intentions and passion to his *Total Serialism* piece of work and thereby recreate the wonderful religious rituals of Papua New Guinea.

1. Biography

Messiaen was born to Pierre Messiaen and Pierre Messiaen in Avignon, France on December 10th, 1908. His father was an English teacher and a famous translator of William Shakespeare’s masterpieces while his mother was a well-known poetess. In 1914, when Messiaen was 6 years old, the World War I came to France. His father

joined the military while the rest of the family moved to Grenoble in the Alps of the Dauphiné. It is the place where he grew up and acquired his two passions in life, Roman Catholic faith and music, which he composed by drawing on the inspirations from the majestic beauty of the surrounding nature.

Messiaen started his musical development at a young age by first learning piano. While studying piano he became enamored with the musical styles of the French composers, Claude Debussy and Maurice Ravel. In 1918, when he was 10 years old, he eagerly wanted their opera scores, so for Christmas he asked if he could get them as a Christmas present instead of toys. Jehan de Gibon, who was his first harmony teacher, gifted him with Debussy's opera score, *Pelleas et Melisande*. Messiaen was exuberant with the gift, he said, "For me, that score was a revelation, love at first sight; I sang it, played it, and sang it again and again. That was probably the most decisive influence I've received(Glasow, 1994, p. 110).

The next year when he was 11, He entered the Paris Conservatoire where he was under the tutelage of many great teacher like; Jean Gallon(1878-1959) in harmony, Marcel Dupré(1886-1971) in organ and improvisation, Paul Dukas(1865-1935) in composition, and Maurice Emmanuel(1862-1938) in history of music. It was here that he first began his study of the Greek meter and Indian rhythm and the table of 120 *decâ-tâlas* which was made by the thirteenth-century Indian musician, *Sharngadeva*.

In 1929, Messiaen wrote a set of eight preludes for solo piano that became his first compositional works to be published. Many felt that these preludes were influenced by Debussy's music, but Messiaen felt otherwise. He said;

The music differs from that of Debussy through the use of my modes of limited transpositions, which are already very distinctive and even combined. There are some polymodal passages, rather spicy for the time, and a certain amount of concern with form; thus, there preludes contain what we do not find in Debussy.
(Glasow, 1994, p. 111)

In 1931, the church of the Holy Trinity(*La Saint Trinite*) in Paris, appointed him as their organist and he remained there for more than 60 years. The following year, he married his fellow composer Claire Delbos who was a violinist. However, his joy

turned to tragedy when his wife lost her memory after an operation and spent the rest of her life in mental institutions.

In 1939, the World War II began in France and Messiaen was called up for duty. However, because of his poor eyesight, he was assigned to a medical unit as an assistant in the auxiliary. During the German rout of the French military, he was captured at Verdun and spent the next several years as a prisoner of war. During the period, he composed one of his greatest works called *Quatuor pour la fin du temps* (Quartet for the end of time) and with the help of three other prisoners, he premiered it for fellow prisoners of war and guards in 1941.

After being released in May, 1941 due to illness, Messiaen returned to the Paris conservatoire and became a professor of Harmony. He remained there as a professor until his retirement in 1978. His musical style made deep impressions upon young composers like Pierre Boulez, Karlheinz Stockhausen, Iannis Xanakis, Betsy Jolas, Alexander Goehr, and George Benjamin.

While he was at the Paris conservatoire, he met Yvonne Loriod, who was a student and a brilliant pianist in his class. In 1944, he dedicated, *the Vingt Regards sur L'Enfant-Jesus* (20 Gazes on the infant Jesus) to her, which is one of the landmarks in the twentieth century piano music. In 1961, they married following his wife's death. Yvonne Loriod became his chief interpreter and performer of all works by Messiaen. His compositions also included a diverse genre for pianos, organs, orchestras, ensembles and even operas. Messiaen died in Paris on the 28th of April, 1992.

II. His Musical Language seen in *Île de feu I & 2*

Total serialism has a fixed order of musical factors which composers must follow. This concept can be seen as strongly related to "Ritualism." Just like the strict rules that one sees people following at church, so does total serialism. By keeping this in mind, *Île de feu I* and *II*, can be seen as an interesting piece to explore.

For most compositional pieces, most composers use the rule of three in their compositions; rhythm, melody and harmony. However, according to *The Technique*

of *My Musical Language*, Messiaen utilized many other various ways to compose his compositions. Let's now explore these techniques based on his unique musical style in his theory book.

1. Rhythm

Rhythm is a fundamental aspect of music that can be defined as a 'perceptible organization of musical events in time'. Until the twentieth century, most rhythmic patterns were influenced by dance patterns, so most of western music have regular oscillating beats. The following is from his conversation with Claude Samuel and Messiaen utilized Indian rhythm as a material for *Île de feu II*.

I feel that rhythm is the primordial and perhaps essential part of music; I think it most likely existed before melody and harmony. Schematically, rhythmic music is music that scorns repetition, squareness, and equal divisions, and that is inspired by the movements of nature, movements of free and unequal durations(Glasow, 1994, p. 67).

1) Indian rhythm

Messiaen was introduced to Indian rhythm by his history professor Maurice Emmanuel(1862-1938) while he was a student at the Paris conservatoire. Messiaen's use of Indian rhythm is based on a list of 120 *decî-tâlas* by the 13th century Indian musician Sarngadeva(Johnson, 1975, p. 10). The word *decî-tâlas* was from *decî*(of the country) and *tâla*(rhythmic pattern), and it means, rhythms from different regions (Walt, 2007, p. 30). Many of these rhythms are ametric. Messiaen frequently utilized 3 rhythms of *decî-tâlas*, *râgavardhana*(number 93), *candrakalâ*(number 105), and *lakshmîca*(number 88)(Johnson, 1975, pp. 32, 34). In *Île de feu II*, he utilized *decî-tâlas* number 55, *manthikâ* rhythm in measure 1 and 3. Since these rhythms now have an ametrical aspect, they are now contrary to classical Western pulse music.

Example 1 Indian rhythms

Râgavardhana *candrakalâ* *laksmîca* *manthikâ*



Example 2 mm. 1 and 3 of *Île de feu II*

Vif et féroce (♩ = 144)



2) Added value

Messiaen defined added value as ‘a short value, added to any rhythm whatsoever, whether by a note, or by a rest, or by the dot’ (Messiaen, 1944, p. 16). Added rest was rarely utilized by Messiaen (Walt, 1007, p. 34). One of the innovative techniques in writing rhythmic patterns was adding values to these three plain rhythms. As indicated above in the Indian rhythm, it shows an ametrical aspect which is contrary to classical Western pulse music. Example 3 shows the examples of added values and example 4 shows the example of added values by a note in *Île de feu II*.

Example 3 Added value by a note, by a rest and by the dot



Example 4 mm. 28-30 of *Île de feu II*

non legato



3) Augmentation and diminution of rhythm

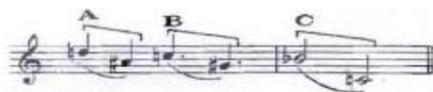
Another way to add value is to add augmentation and diminution to the rhythm. 'J. S. Bach practiced the canon by augmentation or diminution; in it the values of the proposed theme are generally doubled or diminished by half.'

Table 1 Augmentation and diminution

Augmentation		Diminution	
Addition of a quarter of the values:		Withdrawal of a fifth of the values:	
Addition of a third of the values:		Withdrawal of a quarter of the values:	
Addition of the dot (addition of half the values):		Withdrawal of the dot (withdrawal of a third of the values):	
Classic augmentation (addition of the values to themselves):		Classic diminution (withdrawal of half the values):	
Addition of twice the values:		Withdrawal of two-thirds of the values:	
Addition of three times the values:		Withdrawal of three-quarters of the values:	
Addition of four times the values:		Withdrawal of four-fifths of the values:	

In his book, *The technique of musical language*, Messiaen offered an example of inexact augmentations and explained it like this, 'B is the augmentation of A, C is the augmentation of B'(Messiaen, 1944, pp. 18-19). He employed an example of inexact augmentation In *Île de feu I*.

Example 5 inexact augmentation



Example 6 mm. 37-38 of *Île de feu I*



4) Non-retrogradable rhythm

When read from right to left, there is no chance to non-retrogradable rhythms(Walt, 2007, p. 37). 'All rhythms divisible into two groups, one of which is the retrograde of the other, with a central common value, are non-retrogradable.'(Walt, 2007, p. 37). In *Île de feu II*, he created gigantic non-retrogradable rhythms in the left hand part; the center note is d-flat in the small box in measure 92.

Example 7 non-retrogradable rhythm **Example 8** mm. 92-93 of *Île de feu I*



5) Polyrhythm

Polyrhythm is described as; 'the superposition of two or more different rhythms upon each other.'(Walt, 2007, p. 41). Messiaen endeavored to use several different rhythms into one meter. Polyrhythm has 7 different kinds and those are superposition of rhythms of unequal length, superposition of a rhythm upon its different forms of augmentation and diminution, superposition of a rhythm upon its retrograde, rhythmic canons, canon by the addition of the dot, canon of non-retrogradable rhythms, and rhythmic pedal.(Messiaen, 1944, pp. 22, 27). 'The rhythmic pedal repeats itself in *ostinato*(Latham, 2004, p. 133). It can accompany a music of entirely different rhythm or mingle with it.'(Messiaen, 1944, p. 26). To composers, Messiaen recommended to use polyrhythm with polytonality or polymodality(Walt, 2007, p. 44). In *Île de feu I*, example of can be found as following.

Example 9 mm. 18-19 of *Île de feu I*



2. Melody

Another fundamental component of music is the Melody. Melody is the “horizontal” dimension in music, which is a succession of notes with diverse single tones or pitches that creates unified shapes. Composers use the Melody in order to represent emotional expressions(Latham, 2004, p. 109). Messiaen emphasized the importance of melody. For Messiaen to make a melody, he used a variety of sources that he incorporated into his compositions. Some of his sources were; folk music, plainchants, Hindu ragas(developed Indian classical music), and birdsongs. His preference was to use the melodic intervals of the augmented fourth, major sixth, and chromatic scale(Latham, 2004, pp. 31-33).

1) Elimination

One technique that he used, based upon his book, was to use “elimination” to compose a melody. ‘Elimination consists of repeating a fragment of the theme, taking away from it successively a part of its notes up to concentration upon itself, reduction to a schematic state’(Latham, 2004, pp. 31-33). With the use of this technique, the music could be expressed dramatically in terms of tension. The melody goes to shorter version as seen below.

Example 10 Elimination from *Île de feu II*



2) Change of register

This is done by moving the low notes of the piece to the higher register and then moving the higher register to the extremely low register with abrupt leaps(Messiaen, 1944, p. 36). Messiaen employed the technique of change of register at every

interversion seen in *Île de feu II* so that the theme could be more powerful.

Example 11 *Interversion I of Île de feu II*



3. Harmony

While Melody is the “horizontal” dimension in music, harmony takes on the ‘vertical’ dimension. In general, to construct chord and chord progression, a simultaneous sounding of pitches are needed (Latham, 2004, p. 83). In order to express the diversity of timbre, Messiaen liked to use added notes to simple chords which is seen in his music quite commonly.

1) Added notes

Use of added the sixth or the augmented fourth to the dominant seventh and the ninth chords has been employed by Oliver Messiaen for making a variety of sound (Latham, 2004, p. 83). Following is the example of this found in *Île de feu I*.

Example 12 added sixth



Example 13 mm. 35-36 of *Île de feu I*



2) Effects of Resonance

There is a term by Paul Dukas, ‘effects of resonance’ which has two different ‘effects of resonance’, namely ‘superior and inferior resonance’(Walt, 2007, p. 17). Superior resonance is played in a louder sound while the inferior resonance is played quieter. It could be recognized in terms of diverse dynamic markings on the score.

Example 14 *Île de feu I* mm. 4-6

3) Chord with augmented and perfect fourths

Messiaen preferred to utilize the augmented fourth and perfect fourth to construct chords and this represents Mode 5 of limited transposition(Messiaen, 1944, p. 51). As seen in example 16, chord has been constructed with those chords which make the music sound fuller.

Example 15 mode 5 of limited transposition

Example 16 *Île de feu II* m. 62

4. Mode

A Mode is an 'arrangement of tones and semitones'. Sometimes there is no indication of a 'tonic' note. Messiaen introduced the mode of limited transposition so that he could indicate the mode which can be transposed a few times before it goes back to its original state (Latham, 2004, p. 114). These modes are based on the chromatic scale of 12 tones. Most composers use the mode I of limited transposition for the whole tone scale. However, Messiaen rarely used this scale in his music. This is how the modes of limited transposition are constructed based on his theory book (Messiaen, 1944, pp. 58–62).

Example 17 Modes and transpositions

Mode 1, 1st transposition (whole-tone scale)



Mode 2 consists of two intervals, a tone and a semitone.

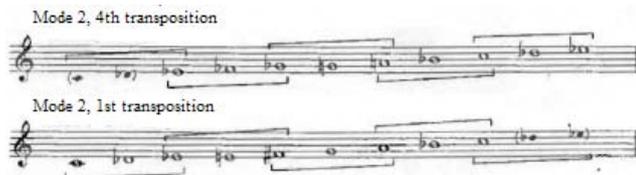
Mode 2, 1st transposition



Mode 2, 2nd and 3rd transposition



4th transposition will be the same notes as the 1st transposition.



Mode 3 is divided into three groups of four notes consisting of three intervals; a tone and 2 semitones.

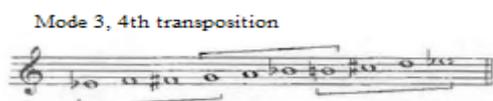
Mode 3, 1st transposition



Mode 3, 2nd and 3rd transposition



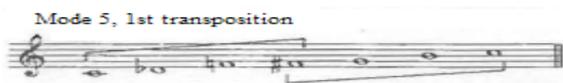
Mode 3, 4th transposition



Mode 4, 1st transposition (m3 and 3 semitones)



Mode 5, 1st transposition (M3 and 2 semitones)



Mode 6, 1st transposition (2 tones and 2 semitones)



Mode 7, 1st transposition (a tone and 4 semitones)



6. Birdsong

Messiaen, the ornithologist, loved listening to birds singing. He believed that a bird was ‘the greatest musician on our planet’(Glasow, 1994, p. 85). He liked to utilize as a compositional method by listening to birds. Messiaen traveled all over the world recording songs of birds and he transcribed them into musical notations. In addition, Messiaen loved observing his natural surroundings so that he could depict them in music more realistically. Messiaen’s technique for transcribing birdsongs into music is described below.

Birds sing in exceedingly fast tempos, which are absolutely impossible for our instrument to emulate and so I have to transcribe the song in a slower tempo. Moreover, this speed is bound up with an extreme sharpness, birds being able to sing in exceedingly high registers that are inaccessible to our instruments, and so I notate them one, two, three or four octaves lower. And that is not all: for the same reason I have to suppress very small intervals that our instruments cannot execute. I replace these intervals of the order of a comma or two by semitones, but I keep the same scale of values between different intervals, which is to say that, if a few commas correspond to a semitone will correspond to a whole tone or a third. Everything is enlarged, but the relationships stay the same, so that my version is still exact. It is the transposition of what I have heard on to a more human scale(Walt, 1007, pp. 20–21).

Example 20 mm. 4–6 of *Île de feu I* (Blackbird style)



Messiaen also created many other innovative techniques in addition to his birdsong compositional method. *Île de feu I* and *II* are regarded as great works because they represent Messiaen’s own unique musical technique that has rarely ever been seen in any other composer’s works. The next chapter is written based on ‘the composer’s analysis’ showing Messiaen’s innovative musical ideas.

III. Analysis of *Île de feu I and II*

In 1950, Messiaen composed *Île de feu I and II* from *Quatre Études de rythme*. This period(1949–1951) is now referred to as the ‘experimental period’ of Messiaen’s compositions. The experimental period is a time where he developed a *series* technique into the famed ‘total serialism’. The second piece from ‘*Quatre Études de rythme*’, *Mode de valeurs et d’intensités*, experimented with portions of ‘total serialism’ and *Île de feu II* is regarded as the first composition to truly have ‘total serialism’ in it(Walt, 2007, p. 57). Messiaen dedicated these two pieces to the island of Papua.

1. *Île de feu I*

This piece comprises two themes and 4 variations followed by episodes.

1) First theme and variations

(1) First theme (mm. 1-2) – The theme has 6 pitches, 4 different note-values, 2 attacks and 4 dynamic levels with percussive-like figure is seen, described as ‘*martelé* (hammer)’ in the left hand part(Messiaen, *Île de feu I*, Analysis by the composer). As seen in the beginning and the last note, ‘E’ seems emphasized to make music more united.

Example 23 Theme mm. 1-2

The image shows two staves of musical notation. The left staff is in bass clef and contains a rhythmic pattern of eighth notes, marked with a forte dynamic (f) and the instruction '(martelé)'. The right staff is in bass clef and contains a melodic line, marked with fortissimo (ff) and forte (f) dynamics. The tempo is indicated as 'Presque vif (♩ = 104)'. The key signature has one flat (B-flat).

(2) Variation 1 (mm. 5-6) – The theme moves to two octaves higher with birdsong (Blackbird style) with double echo, A- G# at the end in the right hand(Messiaen, *Île de feu I*, Analysis by the composer).

Example 24 variation 1, mm. 4-6



(3) Variation 2 (m. 11) – The theme is back to the original register seen in both hands with *fff* dynamic level which make music more powerful. The last part could be considered as the use of the technique, ‘omission’.

Example 25 variation 2, mm. 10-11



(4) Variation 3 (mm. 20-22) – The theme is seen as three-note chords in both hands and the indication ‘percussive-like’ is seen on the bottom so that the music could be surrounded by stronger resonances. The right hand part represents the successive sequence, parallel arrows. In measure 21, the last part of the theme is shown in both parts with an decorated ‘cymbal crash’ before the last note, ‘E’ which is repeated on a regular basis(Messiaen, *Île de feu I*, Analysis by the composer).

Example 26 Variation 3, mm. 20-22



(5) Variation 4 (mm. 35-39) – In m. 35, 37, 38 and 39, the theme is represented with bird songs and more powerful way in terms of added notes on both hands in a lower register. Due to the both hands movements in a contrary motion, ‘fan-like’ figure (from the extremes to the center) with the technique of added note, the sixth, it could imply that the music goes stronger to the end. The very last measure could be utilized to restate the sum of previous two measures for emphasis. In mm. 37-38 rhythmic value is increasing (2-3-4-5-6) based on sixteenth note value and these measures show the classic augmentation (addition of the values to themselves) except for adding sixteenth note (Messiaen, *Île de feu I*, Analysis by the composer).

Example 27 Variation 4, mm. 35-39



Example 28 A crescendo of note-values



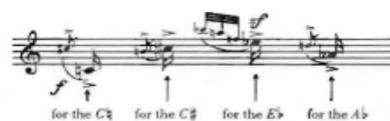
2) Second theme (mm. 25-34)

Messiaen explained that the left hand part of the melody represents the second theme while the right hand melodic counterpoint has repeated notes, following the rules of *jâti*; ‘certain notes are repeated more than others- or are given ornaments that are always the same’ (Messiaen, *Île de feu I*, Analysis by the composer).

Example 29 Second theme m. 25



Example 30 Jāti



3) Episodes

(1) Episode 2 (mm. 7-9)—In m. 7-9 left hand chord has made with the use of the augmented eighth with added the sixth. Messiaen has explained that this passage seems to have ‘feminine rhythm’ with ‘moaning’ left-hand harmonies (Messiaen, *Île de feu I*, Analysis by the composer). Non-retrogradable characteristics could be found in measure 10.

Example 31 mm. 7-9, 10



(2) Episode 3 (mm. 12-19)—Both hand parts have quite opposite characteristics in terms of playing black and white keys with ascending and descending patterns as following measures.

Example 32 mm. 12-14



With the use of Gregorian chant melody borrowed the idea from *climacus resupinus* seen in measure 18-20, it seems to show his faith based on Catholic religion (Messiaen, *Île de feu I*, Analysis by the composer).

Example 33 Gregorian chant



2. *Île de feu II*

This is the last piece from *Quatre Études de rythme*. It has a theme, *interversions* which has been made by Messiaen as a technique, and 5 variations followed by episodes. As did *Île de feu I*, this piece has been also dedicated to the island of Papua.

1) Theme (mm.1-7) and variations

A theme in left hand is created in a very similar way in terms of the theme as seen in *Île de feu I*, accompanied by upper resonances. For the theme, he employed six different attacks with the dynamic mark, *ff* while the resonance dynamic is *mf*. Pentatonic scale (sol-la-do-re-mi) has seen in the melody except for the note, 'A#'. The tonic of theme is 'A' (I) while the last note is 'E' (V) which has been utilized frequently in *Île de feu I* for the unity.

Example 34 Theme of *Île de feu II*



(1) Variation 1 (mm. 28-34)—As seen in measure 28, the theme in the right hand part goes to a lower register with addition of the notes in major sevenths while the left hand part rhythmic pattern has been added with sixteenth notes in an *ostinato* (Messiaen, *Île de feu I*, Analysis by the composer).

Example 35 Theme with major 7th in mm. 28-30



(2) Variation 2 (mm. 55-61)—With diminished and perfect fifth, the theme in the bass has been stronger with three-note chords while right hand part represents double notes in equal rhythm (Messiaen, *Île de feu I*, Analysis by the composer).

Example 36 mm. 53-58



(3) Variation 3 (m. 76-85)—With dynamic level *fff*, the theme is seen with ‘*interversion*’ IX and X. The ‘G’ note from the theme shows with the technique of ‘omission’ in m. 85 and it continuously restates in mm. 88 and 89 (Messiaen, *Île de feu I*, Analysis by the composer). *Interversion X* has a chromatic scale which is considered as a retrograde of *interversion I*.

Example 37 mm. 75-77



(4) Variation 4 (mm. 90-91)—In m. 90-91, the theme and right hand in measure 1 to 4 are in equal note-values (Messiaen, *Île de feu I*, Analysis by the composer).

Example 38 Theme mm. 1-4 and mm. 90-91

(5) Variation 5 (mm. 132-134)—In measure 132-134, the theme from the 5th measure is seen while variation 4 represents 1 to 4 measures. In mm. 133-134, the final two notes of theme, ‘G’ and ‘E’, are emphasized by repeating 12 times with the dynamic marking, *fff* (Messiaen, *Île de feu I*, Analysis by the composer).

Example 39 mm. 132-134

2) Interversions

(1) Intversion I to IV (mm. 8-27)—*Interversions* could be regarded as the most significant part of *Ile de feu II* consisting of 12 pitches, 12 note-values, 5 dynamic levels, and 4 attacks. He numbered from 12 to 1 (from 12 sixteenth note-values to 1 sixteenth note-value) with different dynamic levels each (Messiaen, *Île de feu I*, Analysis by the composer).

Example 40 numbering from 12-1 with the dynamic markings



The following table could be the list of each characteristic with numbers.

Table 2 12 pitches, 12 note-values, 5 dynamic levels, and 4 attacks

	12	11	10	9	8	7	6	5	4	3	2	1
Pitches												
Note-values												
Dynamics	<i>fff</i>	<i>ff</i>	<i>f</i>	<i>mf</i>	<i>mf</i>	<i>ff</i>	<i>ff</i>	<i>p</i>	<i>p</i>	<i>f</i>	<i>f</i>	<i>ff</i>
Attacks	>	—				—	>				—	>

Messiaen explained that *Interversion I*, 6-7-5-8-4-9-3-10-2-11-1-12, is like a pair of scissors opening out (Messiaen, *Île de feu I*, Analysis by the composer). Based on his detailed explanations, let's suppose there is an axis in the middle and then the order of *Interversion I* will be (6, 7) (5, 8) (4, 9) (3, 10) (2, 11) (1, 12) (Johnson, 1975, p. 109). Example 41 shows the *Interversion I* with pitches, values, dynamic levels and attacks.

Example 41 *Interversion I*



According to this order, *Interversion I* to *X* will be following (Messiaen, *Île de feu II*, Analysis by the composer).

Table 3 Intersion I to X

Intervention I	6	7	5	8	4	9	3	10	2	11	1	12
Intervention II	3	9	10	4	2	8	11	5	1	7	12	6
Intervention III	11	8	5	2	1	4	7	10	12	9	6	3
Intervention IV	7	4	10	1	12	2	9	5	6	8	3	11
Intervention V	9	2	5	12	6	1	8	10	3	4	11	7
Intervention VI	8	1	10	6	3	12	4	5	11	2	7	9
Intervention VII	4	12	5	3	11	6	2	10	7	1	9	8
Intervention VIII	2	6	10	11	7	3	1	5	9	12	8	4
Intervention IX	1	3	5	7	9	11	12	10	8	6	4	2
Intervention X	12	11	10	9	8	7	6	5	4	3	2	1

3) Episodes

(1) Episode 1 (mm. 62-75)—This part shows new chord progress without being related to the theme or *Interventions* showing non-retrogradable rhythm (Messiaen, *Île de feu II*, Analysis by the composer).

Example 42 mm. 62-64



In measure 68, such new ideas are shown in terms of rhythm, harmony and melody indicated by the composer. The right hand part is grouping in fours showing sequence while left hand shows chromatic scale, a retrograde of *intersion I*. The left hand part shows the technique of ‘changes of register (Messiaen, *Île de feu II*, Analysis by the composer).

Example 43 m. 68 and *Intersion I* (right hand grouping in fours)



According to the composer's note, the measures of 70-75 are considered as the 'transition passage' with the use of dynamic from *pp* to *ff*. Chromatic scale could be seen while each measure has superimposed two by two different series(Messiaen, *Île de feu II*, Analysis by the composer).

Example 44 mm. 70, 74-75

(2) Episode 2 (mm. 86-87)—Mode 3 of limited transposition has employed in both hands as following.

Example 45 m. 87

(3) Episode 3 (mm. 92-131)—With the use of sixteenth notes, both hands seem to have same rhythmic patterns. In the left hand part from m. 92, every bar represents its retrograde, 12 by 12 notes while from m. 110 every two-bar shows the retrograde as well(Messiaen, *Île de feu II*, Analysis by the composer).

Example 46 mm. 92-93

Example 47 mm. 110-113

4) Coda (mm.132–138)

The ending part from m. 135 to 138 represents the sum of the theme and dominant note, 'E' moves to 'A' as a relation of V to I, making a perfect authentic cadence.

Example 48 mm. 135–138

The measures 135–136 are written based on the mode 4, 6th and 2nd transpositions. The very last note in measure 138 is written with the intensity, *fff*, emphasizing the tonic of the theme (Messiaen, *Île de feu II*, Analysis by the composer).

The image shows a musical score for measures 135-138. It consists of two staves. Measure 135 is marked 'Modéré (♩ = 116)' and 'ff'. Measure 136 is marked 'ff'. Measure 137 is marked 'Très vif (♩ = 138)' and 'ff'. Measure 138 is marked 'fff' and '8va bass'. Below the staves, the Roman numerals I, V, V, and I are written under measures 135, 136, 137, and 138 respectively.

IV. Conclusion

There have been many various musical movements and trends that were developed in the 20th century with Messiaen (1908–1992) being the pioneer of one of these called *Total Serialism*. He had developed such a unique musical style, that he wrote it all down into a book that would explain his own compositional methods called, *Technique de mon langage musical*.

As a composer, Messiaen was always looking for new and undiscovered ways in finding inspiration for new ideas. He refused to be content with being at the same level and continued to explore new ways and techniques. Because of his discoveries and experimental approaches to music, we have a chance to achieve new perspectives in music which has made huge contributions towards 20th century musical inspirations. Today, his musical methods are part of the history of music. His talent, creativity and explorative applications to music has also opened new artistic ways for being able to

grasp new and various ideas about sound and other developing theories in music.

Great musicians are great tools for recreating many music composers' compositions if they have the necessary diverse knowledge and interpretational technique with enough understanding of their personality and characteristics and religion, etc. Olivier Messiaen's works are still considered as one of the most difficult pieces to play because of their complicated theories and unusual rhythmic patterns in addition to chords with many notes. Also a performer needs to learn the unfamiliar notes in combination to the interpretations and memory issues.

In *Île de feu I*, Messiaen utilized added notes, augmentation, polyrhythm, effects of resonance, chord with augmented and perfect fourths, birdsong as well as a wide range of register and dynamics for making diverse and colorful sounds throughout the piece. Moreover, in *Île de feu II*, he developed a *series'* technique into the *Total serialism* which is made by using 12 pitches, 12 note-values, 5 dynamic levels, and 4 attacks. Messiaen employed mathematical reasoning in developing his *Total serialism* technique, which in turn has influenced Karlheinz Stockhausen's(1928-2007) and Pierre Boulez's(1925-2016) musical styles. After his development of this new technique, it quickly spread throughout the rest of Europe and then in the United States. To most musicians, *Total serialism* seems like a very intellectual and abstract concept. However, *Île de feu II* is a very challenging and exciting piece to learn because it requires the performer to pay special attention to every detailed marking on the score since every pitch has its own duration, dynamic level and attack.

In accordance with detailed explanation and analysis on *Île de feu I & II* based on his theory book, it could be a positive tool for understanding in a deeper way. Once a performer is able to understand and acquire the necessary skills as to how his music is created with respect to the composer's theories then the performer can take great pleasure in music with diverse rhythmic patterns that enable full enjoyment to the music. Messiaen's true compositional intentions and passion in the *Total serialism* could recreate the magical religious rituals of Papua New Guinea into music.

■ References

- Arnold, D. (1983). *The New Oxford Companion to Music*. N, Y.: Oxford University Press.
- Austin, W. W. (1966). *Music in the Twentieth Century: From Debussy through Stravinsky*. N. Y.: W. W. Norton & Company, Inc.
- Bandur, M. (2001). *Aesthetics of Total Serialism – Contemporary Research from Music to Architecture*. Basel: Boston: Berlin: Birkhauser Basel.
- Barash, A. P. (2002). “Cadential Gestures in Post-Tonal Music: The Constitution of Cadences in Messiaen’s *Ile de feu I* and Boulez’s *Premiere Sonate*, First Movement.” D. M. A. Diss., The City University of New York.
- Bell, C. H. (1984). *Olivier Messiaen*. Boston: Twayne Publishers.
- Benitez, P. V. (2008). *Olivier Messiaen A Research and Information Guide*. N. Y.: Routledge.
- Dingle, C. & Simeone, N. (2007). *Olivier Messiaen: Music, Art and Literature*. Burlington: Ashgate.
- Dingle, C. (2007). *The Life of Messiaen*. Cambridge University Press.
- Glasow, E. T. (1994). *Olivier Messiaen Music and Color: Conversations with Claude Samuel*. Oregon: Amadeus Press.
- Gordon, S. (1996). *A History of Keyboard Literature: Music for the Piano and Its Forerunners*. N. Y.: Schirmer, Inc.
- Griffiths, P. (1985). *Olivier Messiaen and the Music of Time*. N. Y.: Cornell University Press.
- Hue, M. (1996). *Olivier Messiaen, the Musical Mediator*. London: Associated University Press.
- Johnson, R. S. (1975). *Messiaen*. Berkely and L. A.: University of California Press.
- Latham, A. (2004). *The Oxford Dictionary of Musical Terms*. N. Y.: Oxford University Press
- Lee, J. M. (1972). “Harmonic Structures in the ‘Quatre Etudes Rythmiques’ of Oliviers Messiaen.” Ph. D. Diss., Florida State University.
- Messiaen, Olivier. (1944). *The Technique of My Musical Language*. translated by John Satterfield. Paris: Alphonse Leduc.
- Morris, D. (1991). *Olivier Messiaen: A Comparative Bibliography of Material in the English Language*. Ulster: University of Ulster.
- Nichols, R. (1975). *Messiaen*. London: Oxford University Press.
- Nichols, R. (1986). *Messiaen*. (second ed.), N. Y.: Oxford University Press.
- Hill, P. (1985). *The Messiaen Companion*. Oregon: Amadeus Press.

- Hill, P. & Simeone, N. (2005). *Messiaen*. Yale University Press.
- Sholl, R. (2007). *Messiaen Studies*. N. Y.: Cambridge University Press.
- Simeone, N. (1998). *Olivier Messiaen: A Bibliographical Catalogue of Messiaen's Works*. Vol.14, Hans Schneider.
- Walt, S. V. D. (2007). "Rhythmic Techniques in a selection of Olivier Messiaen's Piano Works." Thesis, University of Pretoria.

■ 국문초록

올리비에 메시앙의 「4개의 리듬연습곡」 중 불의 섬 1, 2의 분석 및 제언

이 희 승

올리비에 메시앙은(1908-1992) 작곡가, 오르가니스트, 조류학자이며 카톨릭 신앙을 바탕으로 한 많은 곡들을 작곡하였다. 메시앙은 그가 사용하는 작곡기법을 정리하여 1944년에 ‘나의 음악언어 기법(The technique of my musical language)’을 출간해 독특한 이론들을 제시하였고, 이를 바탕으로 작곡된 4개의 리듬 연습곡 중 ‘불의 섬 1, 2’에서는 조옮김이 제한된 선법(Modes of limited transposition), 첨가가치 리듬(Added value), 리듬의 확대 (augmentation)와 축소(diminution), 비역행리듬(non-retrogradable rhythm), 대칭적 순열(symmetrical permutation)을 바탕으로 한 20세기 음악기법인 총렬주의(total serialism)가 사용되었다. 이를 바탕으로 불의 섬 1, 2를 분석하여 곡을 보다 깊이 이해하고 효과적인 연주를 위한 방향을 제시하고자 한다.

주제어: 올리비에 메시앙, 불의 섬 1, 2, 나의 음악언어 기법, 총렬주의

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