

The development of the Romanian music Avant-garde in the Communist Era

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Abstract: *This study aims to show the renovations that the Romanian avant-garde composers did in the Communist Era, when they had to follow imposed norms and write music that had to serve the state. The assimilation of the Western styles and techniques and the use of mathematics were a protest against the politics. At the same time they wanted to create something new and to continue George Enescu's achievements creating a synthesis between Western techniques especially twelve-tones technique, serialism, aleatorism, and Romanian folklore. I pointed out the elements that Enescu took of the folklore and how the avantgardists continued them, like modality, heterophony, variation principle, temporal organisation. Then I briefly described the alternatives that were proposed by six composers of the avantgarde: Anatol Vieru, Ştefan Niculescu, Tiberiu Olah, Myriam Marbe, Aurel Stroe and Cornel Țăranu.*

Key-words: *Enescu, folklore, modality, heterophony, time, space*

1. Introduction

It's surprising that in a period with many physical and psychical privations as the communist one, the art of composition bloomed in Romania as well as in the other countries of Eastern Europe. Although the composers had to follow norms imposed by the government, they found some ways to express themselves and at the same time to avoid the problems with authorities. Composing the required classical-romantic music in a time such as that one after the Second World War, when in the Occident new compositional techniques were developing like serialism or aleatorism, which seemed to be obsolete to the generation of composers of the 20-30ties. Therefore they wanted to learn the techniques and styles of the Western music. This was difficult, because of the 'Iron Curtain', when the communication abroad was restricted. In Romania the young composers were informed about the new scores by Bartók, Webern, Messiaen, Stockhausen, Boulez through Mihail Andricu, a composer and professor of composition at the Ciprian Porumbescu Conservatory (today National University of Music) in Bucharest. He used to have

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meetings in his apartment with his own students and with other interested students of the conservatory, who wanted to be informed about the musical news abroad. Andricu had relations to the German and French embassies and received scores, records and books. He listened, analysed and discussed these works with the students. The students who were acquainted with him created later the Romanian avant-garde in the 60-70s years, which had as its starting point the achievements of the West, but later it found their own way, based on the autochthon values, i.e. the composers took essential elements from the folklore and developed new compositional concepts and techniques. In the last 60s and begin of the 70s, when politic was for a short time more permissive, these composers could go to the Darmstadt Course of New Music (Sandu-Dediu, 2002, 29-30).

In the next pages I will write about the relation of Romanian composers in the second half of the 20th century to George Enescu (1881-1955), who was for them a model because of the synthesis he created between Western and Romanian musical characteristics; about the attempt at bringing the Romanian music into line with the Western one; about the revaluation of the folklore and finally I will briefly discuss the new compositional concepts of six composers of the avant-garde: Anatol Vieru (1926-1998), Ștefan Niculescu (1927-2008), Tiberiu Olah (1928-2002), Myriam Marbe (1931-1997), Aurel Stroe (1932-2008) and Cornel Țăranu (*1934).

The Mioritic model is reinvented in further creations, featuring among the works of the recent years, including *Seven Variations for Violin, Viola and Piano* or "*Resonances*" for a *Quartet of Clarinets*.

2. The situation of the Music in the Communist Era

Compared to other Western cultures, the cultivated music in Romania was young (one can speak of it only in the second half of the 19th century). However, it was internationally established by the first half of the 20th century by composers as George Enescu (1881-1955), Mihail Jora (1891-1971), Mihail Andricu (1894-1974), Sabin Drăgoi (1894-1968), Paul Constantinescu (1909-1963), Sigismund Toduță (1908-1991), who understood the richness of the Romanian folklore and the necessity to stylize it through Western compositional means. This was possible because of the international exchanges. Many composers went abroad and studied there.

For the next generation this was quite impossible, so that the more radical composers wanted to assimilate the forbidden Western techniques as a political protest and opposition against a programmatic, classical-romantic and folkloristic music (this has very little in common with the authentical folklore)², which had to serve the state. At the same time they felt they had a duty to continue differently to

² Rădulescu, S. (2002). *Peisaje muzicale în România secolului XX*. București: Editura Muzicală, Chapter 2.

the way of Enescu. As a consequence they arrived at an alternative to the West and to the denial of the official ideology through organizing the musical material and form on a mathematical basis. Maybe the composers wanted to create another order – even if only in the work – to the politically forced order (Szilágyi 2016, 608). It's symptomatic that the composers used just for a short time the dodecaphony and the serialism. Perhaps the egalizing of the tones, respectively the exact determining of every parameter seemed to them to be uniformity as in the communist society. Maybe they associated the strictness of the rules of serialism with the dictatorial government system. As a result they came to the controlled aleatorism through mathematics, while the composers of West came to it through the serialism. With the aid of mathematics the composers could extract some principles of the folklore without having “explicit ethnic and deliberately distinctives accents.” (Rădulescu 2002, 109).

In the further pages I will write about the achievements of Enescu and their continuation by the next generation.

2.1. Going the way of Enescu

George Enescu's personality lighted the successive Romanian music history. His multiple talents as composer, violinist, pianist, conductor, animator of musical life (founder member of the Society of Romanian Composers [1920]) and especially his legendary memory has had a certain fascination for the composers of the next generations. He studied in Vienna and Paris. After finishing his study he settled in Paris and made an international carrier as violinist, composer, conductor and teacher. Consequently he came into contact with and assimilated musical styles of that time as Post romanticism, Impressionism, Neoclassicism, Expressionism. However, his most important merit was his treatment of the Romanian folklore. I will mention some elements that he took out of the folklore, stylizing and elaborating them through Western means. Those elements were later re-evaluated and renewed by the composers of the avant-garde, whom about I will write.

2.1.1. Modality

Speaking about a mode means to refer to a scale with certain intervals. Enescu used particular modes that are present in the suburb folklore, divided in two tetrachords within the steps are mobile. The mobility often creates augmented seconds that gives the music an oriental nuance. While his melody has a modal origin, the harmony can be tonal or tonal-modal. In the case of using tonal harmonies, Enescu payed attention to the melody, while the harmonies slowly changed. Even if the starting point was the folkloric modal diatonicism, Enescu added to these modes chromatic tones, specific for the European cultivated music, creating modes

combinations or original modes that contain the chromatic total (*Apud* Myriam Marbe 1971, 809).

One can say that the modality is an emblem of the folklore as well as of the Romanian cultivated music in the second half of the 20th century. This is to hear even in the atonal, serial, aleatoric or minimal music. The starting point for composers was the diatonal and tetrachordal thinking characteristic of folklore music. The composers shifted chromatically these tetrachords obtaining new modes. Melodic profiles of a mode were frequently changed through chromatic tones. Zeno Vancea wrote about intervals which are not characteristic of folklore, like major seventh or minor ninth, but for the atonal and serial style, in order to stylize the folklore (Vancea 1968, 3). These intervals can be regarded as inversion of the second, which is the basis of modal scales. The minimodes represent an interesting aspect. The composers divided a mode in many groups, whose tones gives the chromatic total. One can hear a fusion between modalism and twelve-tone technique.

The microtonality belongs also to the modality. In my opinion the folklore as well the European cultivated music had an influence on Enescu in using the microtonality. In the *3th Sonata* for piano and violin “in Romanian popular character“ op. 25, where the fiddlers’ music were transfigured, the microtonality gives a local colour, while in his *Ædipe* Opera it is the result of Richard Wagner’s chromaticism and of the Second Viennese School.

There is microtonality also in the Byzantine as in the Extraeuropean modes that have used the avantgarde composers. They also used the microtonality which issues from the scale of the harmonic series and created in Romania the spectral technique (Corneliu Cezar, Ștefan Niculescu, Horațiu Rădulescu, Iancu Dumitrecu, Octavian Nemescu) which went parallely with the French spectralism.

Anatol Vieru and Wilhelm Georg Berger systematized the modes and developed interesting theories. Vieru based on the set theory as the American School and explained it in *The Book of Modes* (1980). Berger’s theory based on prime numbers. He wrote the book *Modal Dimensions* (1979).

2.1.2. Temporal Organisation

Although Enescu used to note precisely the rhythm, it seems to be free, improvisory, out of time. This is due to the different rhythmic values that run together and one can recognize here the *doina* influence, a folkloric lyric genre, most part sang by women, in a free form that based on the variation of certain formulas. The rhythm of *doina* – parlando-rubato – confers at the same time asymmetry and continuity to the musical phrases. The vivid giusto rhythm was also used by Enescu (but less frequently than by Béla Bartók) and opposed to the parlando rubato one, as in the *3th Sonata* for piano and violin, whereas the first theme appears in the exposition in

the *parlando-rubato* rhythm, while in the recapitulation it takes another shape through the *giusto* rhythm.

In the half second of the 20th century the precise temporal notation was given up in favour of a more and more less precise one, in order to allow room to improvise. Improvising was not only the result of the Western technique named aleatorism, but also characteristic for folklore genres of many music cultures.

2.1.3. *The Variation Principle*

The melodic, rhythmic and timbral variation is characteristic of Enescu. He never repeated a theme without variation. One can i.e. recognize a theme, even modified, in the whole sonata. This fact is due to the cyclic proceeding (the generating of a work by a cell) from the French School and the principle of developing variation from the Second Viennese School. A model for Enescu was also the *doina*, which I mentioned above, with its continuous variation. There is not a motif by Enescu or a theme that is not modified along one work. Enescu's themes are related each other through similar cells. The cells consist of certain intervals and rhythmic formulas. The intervals of a cell can be inverted, retrograded (here we can see similarities with the treatment of a row), augmented or diminished, permuted. Their rhythms can also be augmented or diminished. The variation proceeding is exciting in *Œdipe* Opera, where the leitmotifs were metamorphosed in function of the action and mood changing of the characters.

The avantgardists took from Enescu the idea of variation and nonrepetition not only in one work, but also to other works. They experimented with musical aspects in every work. Many of them didn't speak about themes, but about processes within the musical material was transformed. A process is irreversible, contrary to a theme or to a motif, whose main trait is its returning.

2.1.4. *The Heterophony*

In his career Enescu separated himself from the Western polyphony finding another type of polyphony, having the model in the folklore. He noticed that in the folklore a melody can be differently sung by more singers, namely simultaneously with his melodic and rhythmic variations. This happens accidentally (Ștefan Niculescu, 1968, 68), because of errors made by the singers or because of their creativity, and with the result of more voices, which return back afterwards to unison. This proceeding of pending between one and more voices is named heterophony. The melody and the rhythm are modified through ornaments, others intervals, rhythmic changes and shifting, rests etc. There is heterophony in the Romanian, as well as in the Japanese, Tibetan and African folklore (Sava 1991, 43) that also interested some avant-garde composers.

Ștefan Niculescu and Tiberiu Olah developed interesting theories based on the heterophony that I will discuss below. Niculescu regarded the heterophony as a natural principle comparing it with the water of a river that separates into branches forming a delta and then unifies again. He also compared it with the air in a tube which vibrates creating nodes and antinodes.

3. Alternatives to Western compositional techniques and new compositional concepts

The mathematics gave the Romanian composers the possibility to put a distance to the Western techniques especially to the serialism and aleatorism, to which they proposed alternatives. Mathematics moreover helped them through its abstraction to avoid the required norms and to take out of the folklore some principles; so that they created a music which could be recognized and appreciated also abroad (their works could be listened at international festivals like Darmstadt Course of New Music, Warsaw Autumn, and Wien Modern). They had solid knowledge in mathematics, for they studied it at the Bucharest University. Ștefan Niculescu had an engineering background and Aurel Stroe attended mathematics courses for three years. There are also other Romanian composers that studied mathematics and informatics at the Bucharest University, for example Lucian Meșianu (*1937), who is living now in Switzerland (there were also in Western musician-mathematicians as Edgard Varèse, who studied Polytechnic or Iannis Xenakis as architect). Beside the interest in mathematics it should be mentioned that the Romanian Avant-garde composers were cultivated people (professors of composition at the Music University in Bucharest respectively Cluj – Cornel Țăranu, and also musicologists), they read literature, philosophy, about art and science and tried to go in their compositions over the music, attending these domains and creating bridges between them.

3.1. Anatol Vieru – from the modal world based on the set theory to the time

In Anatol Vieru's view modality is the most natural musical language, which is present in all cultures. He turned back to the "natural" modality and taking this as a model, he developed an "artificial" complex modal theory based on the set theory. For Anatol Vieru's modal thinking the tonality and seriality are part of the same set, the twelve tempered tones set (the most dense mode), so that the contrasts between them is cancelled. The intervals of a mode are for Vieru *modal structure*. These can be symmetrical and form a palindrome (after more permutations): (1, 1, 3, 1, 1, 5) – (1, 3, 1, 1, 5, 1) – 3, 1, 1, 5, 1, 1 / 3)³, similar to Webern's rows or Messiaen's modes. A modal structure can be repeated *ad infinitum*. Similar to the serial

³ The number 1 means the unit of a half step.

composers Vieru translated the modal structures to the rhythm, obtaining through permutations and repetitions time loops. It is interesting that he started with the modal structure that he ordered “out of time” and arrived to the researching of the time with its perception in the moment of the work execution. In the second volume – *From Modes to Musical Time* – of his *Book of Modes* he described the musical metrics, the tempo, the polytempi, the proper rhythm, the time loop, the rhythm transformations, the expressive role of rests, the nonsimultaneity and synchrony, the periodicity etc., using examples of his own work or of other composer colleagues like Tiberiu Olah, Ulpiu Vlad and Ștefan Niculescu.

In the *Ode to Silence* Symphony Vieru wanted to “sculpture” the sound blocks creating a dynamic scale from *f* through *p* to *0* (rest). In this way the dynamic parameters is the most important and then followed the duration and the timbre. He created an inversely proportional relation through dynamics and durations: the quiet nuances have long durations, while the loud nuances have short durations. Relating to the timbre: the timbre of long durations (“hum”) was slowly modifying, the short durations (“flash”) are remarkable through “rough timbres” (Vieru 1993, 167, 171).

In the next work, *Hourglass I* (1968) the composer experimented the continuity and the discontinuity. It has in commune with *Ode to Silence* the rest and the contrast through the durations. It is a concert for trumpet solo and orchestra. There are three temporal layers like in *The Unanswered Question* by Charles Ives. The first one is a perpetuo. In order to obtain a continuo’s time the movement is minimal. This means that the attack and the release, the bow changing and the breathing of the wind instrumentalists are very slow. The score of the perpetuo has 24 pages what correspond to the hours of the day. Every page has 7 bars and lasts 30 seconds. The instrumentalists begin with what page they want and then they read in circle until they arrive at the beginning page, like the hands of a clock. The reading a score in circle remembers to *Zyklus* for one percussionist by Stockhausen. The second layer consists of short events, which Vieru named “ephemerides”. These are a combination of timbres, durations and dynamics. They appear and disappear fast. Every ephemerid of the 12 ones has to be played every two pages by the instrumentalists who are free in that moment (strings, winds or two percussionists). An ephemerid is followed by a rest. The intensive is the ephemerid, the longer is the rest. As the “flashes” of *Ode to Silence* the ephemerides consist of instrumental effects, but there there was a dynamic scale, while here there is a “scale of vividness” (Vieru 1993, 176). The composer described the ephemerides after their intensity of perception, like (in ascending order): 1. “a faraway thunder”, 2. “a rustle”, ...7. “cracks”, ...11. “city traffic”, 12. “iron and steel”.

With *Sieve of Eratosthenes* for clarinet, violin, viola, cello and piano Vieru created the “sieve form” using the Eratosthenes’ algorithm, through which sieve passed only the prime numbers. Their multiples remain on the surface of the sieve. The composer created 206 “time-boxes” (Vieru 1993, 215). Every time-box lasts 3-

4 seconds. The time-boxes correspond to integers and will be filled with the dividers of the respective number (see Figure 1):

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	2	3	2 ²	5	2.3	7	2 ³	3 ²	2.5	11	2 ² .3	13	2.7	3.5	2 ⁴	17	2.3 ²
19	20	21	22	23	24	25	26	27	28	29	etc.						
19	2 ² .5	3.7	2.11	23	2 ³ .3	5 ²	2.13	3 ³	2 ² .7	29	etc.						

Fig. 1. *Time-boxes in Sieve of Eratosthenes by Anatol Vieru*

The work is a “theatre without scene”, where the characters are the prime numbers. With a new prime number one can hear a new music (improvisation, musical quotes) or events characteristic for the theatre (interjections, laughing, applauding). Because the first prime numbers (2, 3, 5, 7) are more frequent and are perceived with more intensity, the instrumentalists have to improvise. For the less frequent prime numbers (11-37) the composer chose well-known melodies, like *The Moonlight Sonata* by Beethoven, *Zigeunerweisen* by Sarasate, and the *Clarinet Concerto* by Mozart etc. For the least frequent prime numbers (beginning with 41) the instrumentalists have to be actors: they have to laugh, to applaud, to pronounce consonants, vowels or syllabic words. The composer said that this piece is a “comedy of prime numbers, dadaist as allure.” (Vieru, Arzoiu 2002, 161).

The musical thinking of Anatol Vieru creatively developed from the strict mathematical organisation of the pitch to the organisation of another’s parameters as duration, dynamics and timbre. Like the serialist composers, Vieru saw relations through all the parameters, but his starting point was an extramusical category (this was valuable for his colleagues too), that of the Time and its perception. Comparing to the Western serialists, who gave more attention to the pitch and duration, Vieru centered his attention more on the dynamics and timbre.

3.2. Ștefan Niculescu – the heterophony and the *coincidentia oppositorum*

Ștefan Niculescu was influenced in his compositional works, that he explained in his book *Reflections about Music* (1980), from the heterophony used by Enescu (he was one of Enescus exegetes and member of the Romanian Academy), but also from the heterophony present in the folkloric traditions like in the Romanian, Asian (Java, Japan, Tibet) and African tradition. As an expert of the avantgardistic Western musical languages, he wanted to find a “planetary grammar” in the plurality of styles and tendencies of the 20th and 21th centuries that could unify the opposites. He found this unifying element in the European and Extraeuropean folklore cultures through the heterophony, which he gave the same status as the others three cultivated syntaxes: monody, homophony, polyphony (Niculescu 1969, 65).

Niculescu noticed that the heterophony oscillates between two states: the sounds unify into a unimelodic or univocal continuum (unison or octave) or branch into a plurimelodic or multivocal continuum (Beimel 2002, 49):

Fig. 2. Bars 1-4 from the Cantata **Răscruce** ('Crossroad') for mezzosoprano and 5 woodwind players by Ștefan Niculescu

In the conversation with György Ligeti at *Wien Modern Festival* Niculescu said that his heterophony is something between horizontal and vertical, which could be reduced neither on polyphony nor on homophony (Niculescu, Witt 2002, 42). The sonorous result is similar to some Ligeti's works, but Ligeti used another technique, the micropolyphony (canons that are rhythmically shifted). The musical perception makes the difference between three possibilities given by the principle of the heterophony:

- rarefied sonorous events, which are far away each other and which aren't perceived as a continuum;
- detailed sonorous events, which are comprehensible, for they can be related to the previous and next events;
- agglomerate sonorous events, which consist of many sonorities in a minimal unit time; they lose their individuality (Niculescu 1980, 174)

Niculescu unified the opposites through the heterophony. He took the idiom *coincidentia oppositorum* (coincidence of opposites) from the philosopher and theologian Nicolaus Cusanus. Within the heterophony there are many relations possible: unity–multiplicity, succesivity–simultaneity, general–individual, dependence–independence, continuity–discontinuity.

In Niculescu's opinion the heterophony creates forms, similar to the polyphony that created the fugue or the homophony that created the lied form or the sonata form. This happened in his work *Heteromorphy* (1967) for orchestra. In this

work there is variability within the macroform as well within the microform. The 8 sections can be played in more succesivities. His model was the Western aleatoric principle, but by him it is determined by the heterophony that is itself aleatoric. The possible forms that may take this work are controlled by the composer through mathematics (he used for his works combinatoric analysis, linear algebra, analytic geometry, set theory, graph theory, informatics, logic, statistics). Heraclitus' philosophy with the unity of opposites influenced Niculescu too. In his *Aphorisms of Heraclitus* for choir a cappella for 20 solo voices the composer used 7 aphorisms. This work is a meditation of the relation unity-multiplicity and succession-concomitance. Another form which is created by the heterophony is the "synchrony". In the *Synchrony* for flute and percussion there are asynchrony-synchrony-asynchrony after the phenomenon of the heterophony.

In the 2. *Symphony – Opus Dacicum* Niculescu tried to translate the architectonic structure of the Dacian sanctuary of Sarmizegetusa into the music: one of the 3 concentric circles has 6 pillars and 1 slab. This musically corresponds to a structure of 6 tones + 1 pedal tone. This structure goes through the whole circle of fifths. His 3. *Symphony – Cantos* (1984) has a concerto character for he has a saxophone soloist. The title refers to the importance of the melody (this is also a characteristic of many Romanian composers, who wanted to follow Enescu) that derives from the Byzantine, folkloric, Gregorian or Extraeuropean tradition. Niculescu wanted with this work to have a harmony through Eastern and Western. It is diatonic and spectral, fact that showed his definitive leave of Western twelve-tone technique.

As other composers of his generation Ștefan Niculescu used the twelve-tone and the serial technique at the beginning, but after the discover of the heterophony he organized the musical material after mathematical criteria. The principle of heterophony brought him to the philosophy of Cusanus, where the opposites are unified.

3.3. Tiberiu Olah – a new conception about musical time and space

Tiberiu Olah developed an interesting concept of musical time and space having analysed Webern and Enescu. He noticed these two different composers had something in commune: there are hidden relations between the parameters and the instrumental groups. Their thinking is every strict, despite Webern's atonal works and Enescu's parlando-rubato rhythm.

In his study *Graphic Music or a New Conception about Time and Space. Observations about the preserial period of Webern* (1969) Olah analysed the *Bagatellen* for string quartet op. 9 of Webern. He discussed the instrumentation, the rhythm, the dynamic, the general ambitus. Within every parameter he found relations that he graphically illustrated. The graphic is the materializing of an

imaginary space. Olah believed that this imaginary space is involved as a new dimension in the musical performing. It moves in circle in a multi-dimensional space. The circles issued i.e. following unlinearly the repetition of a tone in a movement and in the whole work. In this way more layers of relations appear through three different rotations: the rotation of the whole work, the rotation of every movement and the rotation from the inner part of a movement.

Olah applied this concept to his compositions. For him a composition which has more movements can be performed by itself – Olah named this proceeding “autosuperposability” – in many ways: overlapping of a work with its variant prerecorded on a tape (*Harmonies IV*); the concomitant performing of the movements of a work (*Translations I*); the overlapping of two different works. Through this he wanted to escape from the time, the time being conserved in the memory. In this sense Olah composed *The Time of Memory*.

In the second study, *The polyheterophony of Enescu. O new method of organisation of the sonorous material* (Olah, Lupu 1982) Olah analysed *Vox maris* by Enescu and discovered hidden relations that constructed an imaginary space. This space is behind the real space, behind the sonorous result. Like in the study about Webern, he wrote about the dependence between the imaginary and the real space (Olah 1982, 13). He noticed in Enescu’s heterophony more layers that are in a heterophonic relation to each other. For him there is a “heterophony of heterophonies” namely a “polyheterophony” (Olah 1982, 37).

His concept of space is evident through the grouping of the instruments. Olah was influenced by Constantin Brâncuși’s sculptures, so he composed the cycle *Brâncuși*. With this work he wanted to “sculpture” the sound, to project parameters like melody, rhythm and colour into a space and time characteristic for the music (*Apud* Olah, Lupu, 236-237). The first work, *The Infinity Column*, is based on 3 tones. The diamonds of the column are illustrated through different sonorous densities, through static as well as dynamic groups (Olah and Lupu 1991, 243). The second piece of the cycle is *The Sonata for solo clarinet*, inspired by Brâncuși’s *The Master Bird*. The bird was represented through the spacing melody. The third piece, *Space and Rhythm* (1964), was composed for about 100 percussion instruments divided into 3 groups. It was inspired by *The Egg* of Brâncuși. The movement has here its birth, the durations have different velocities of a similar material and were metamorphosed (Olah, Lupu, 237). A tone is sent from a group to the other group or repeated in echo, so one has the impression of the space. The piece can be played by one percussionist, while the other two groups had been recorded on tape. In the fourth piece, *The Gate of Kiss*, which is the musical illustration of Brâncuși’s creation with the same title, the timbre became important. It is written for orchestra, whose string instruments formed a group and the brass instruments another group. The two groups are symmetrical. The percussion is divided into 5 groups. Its sonority is rough. The woodwind instruments have transparent sonorities. In the fifth piece, *The Table of Silence*, the material is divided

into 12 groups that correspond to the 12 stools of the sculpture. These groups are around a compact group of the woodwind instruments (Manolache, Lupu 247).

The idea of the autosuperposability means a circle form that a piece can take. That is valuable for other composers too, like Bernd Alois Zimmermann or Mauricio Kagel (*Transición*). For Olah and Zimmermann spatialising the music means to escape to the running of the time.

Having as starting point Webern's and Enescu's works, as well as the importance of the relations through the parameters characteristic for the seriality, Olah created an interesting theory about time and space, dividing the instruments into groups that may be heard firstly separately and then simultaneously.

3.4. Myriam Marbe – the Fascination of the Ritual

At the beginning of her career Myriam Marbe strictly organized the material after mathematic principles, as did her colleagues, but she noticed that a system cannot assure the value of a work. As a consequence she wanted to liberate herself from any system and to create a new musical language. She discovered a certain fascination in the voice and in the words of the texts in the folklore rituals. She was interested in the old pre-Christian rituals, especially in the death ritual that is very old. There are specialized women, who have to improvise a lament, mourning for dead people. Thus the performance of a composition has to be for Marbe a ritual: not only are the music important, but also the text and the movements of the interpreters. The composer gave to the performer's precise indications, where the gesture played an important role, because of its ancient signification. This signification means the relation of the time limited human being to the absolute.

Marbe said about her *Ritual for the Thirst of the Earth* (1968) that the constructing elements were not more the tones, but the words. In the words there are also different pitches, sonorities, singing sounds, which don't derive from a mode or a row, but from the speech melody (Marbe, Gronemeyer 1991, 40). The text is about the tradition to call the rain in a dryness period. There are more customs for calling the rain. All are done by women or girls. The *Ritual for the Thirst of the Earth* is composed for 7 solo voices that can be doubled (14 voices) and percussion. The musicians have to improvise the music and the text after the indications of the composer. The text can be scanned or freely recited by a voice or more voices with repeated words or syllables. Some syllables can be distorted, others have a percussive effect. This gave an asynchronistic character. At certain moments the musicians have to cry, to applaud, to stamp their foot or to use the percussion:

The score is divided into three sections, numbered 9, 10, and 11. Each section includes a vertical staff for 7 voices (labeled 7 bis to 1 bis) and a horizontal staff for dynamics and performance instructions.

Section 9: Duration 5'32", starting with *sub p*. Dynamics include *aprox. 6"*, *molto*, and *ff*. Instructions: "Improvizatii pe textele date (cca. 2")", "Intensificare prin adaugare de cinte, bătăi din palme, din picior, percuție și salve de chiote.", "Improvisation on the given text (about 2")", "Amplification by the addition of song, handclaps, footstamping, percussion and volleys of cries."

Section 10: Duration 5'56", starting with *sub p*. Dynamics include *aprox. 6"*, *molto*, *piu*, and *ff*. Instructions: "Improvizatii pe textele date (cca. 2")", "Intensificare prin adaugare de cinte, bătăi din palme, din picior, percuție și salve de chiote.", "Improvisation on the given text (about 2")", "Amplification by the addition of song, handclaps, footstamping, percussion and volleys of cries."

Section 11: Duration 5'56", starting with *sub f*. Dynamics include *aprox. 8"*, *molto*, and *ben ff*. Instructions: "Improvizatii pe textele date (cca. 2")", "Intensificare prin adaugare de cinte, bătăi din palme, din picior, percuție și salve de chiote.", "Improvisation on the given text (about 2")", "Amplification by the addition of song, handclaps, footstamping, percussion and volleys of cries."

Section 12: Duration *aprox. 5"*, starting with *I solo*. Dynamics include *Strigat foarte tare*, *Shouted very loudly*, *ff*, and *ben ff*. Instructions: "Rugare breșată, ca pentru o respirație. Sudden breath, as if gasping for breath.", "Plouă cu gălăție, Să auză vântul. Let rain fall in showers Over grass and flowers.", "Plouă cu căderi, Să auză mări! Let rain in torrents lase Till the apple trees woe."

Section 13: Dynamics include *etc.*, *quasi f*, *f*, *sempre cresc.*, *ben f*, *cres - con - do*, *molto*, and *ff*. Performance instruction: "attacco".

Fig. 3. Fragment from *Ritual pentru setea pământului* ('Ritual for the Thirst of the Earth') for 7 voices by Myriam Marbe

The duration and the pitch are free, they are only suggested. However, there are moments when all participants have to be synchronised. These events are exactly notated. The movements of the interpreters are determined by the composer too. Marbe said:

“The work mustn’t be viewed as a pure musical work, but as a scenic whole, still more, as a ritual. For this purpose nothing of the scene arrangement, clothing or behaviour of the soloists has to remember to a concert” (Marbe 1968, 40).

Marbe said that she received another time feeling studying Enescu (she collaborated as Niculescu to Enescu’s monography). Therefore she liberated the rhythm and the form. The aleatorism is not only her reaction to the serialism, but also the desire to stimulate the creativity of the interpreters, as it occurs in the folklore.

Further Marbe tried to materialize abstract ideas. The tones of a row don't satisfy her, so she came again to words and composed *Jocus secundans* (1969) for violin, clarinet, viola, cello, piano, percussion, a small vocal group and tape (ad libitum) after the text of Ion Barbu. The title is the title of a volume of Barbu. He extracted more and more an idea and gave Marbe the idea to abstract musically a word. The piece begins with a word without semantic meaning – DATITIRIDAT – from a folkloric children song, with time remaining from this word only the rhythm of the syllables; afterwards remained only two tones from this rhythm. At the end she removed the rhythm and only the two sounds remained. Always one removed something and appeared something else (Gronemayer 1991, 43).

In *The Inevitably Time* Marbe wanted to experiment with the influence of a sonority on other sonority. There are chords that were bombed with points and splintered until they got points too. Besides points there are lines. Grouping the points she got clusters. From the clusters she wanted to obtain chords that means bombing the clusters. How we have seen, Marbe had for this piece a spatial concept that she wanted to translate into music (The spatial component was present by Vieru and Olah too). She wanted to produce holes in the music. These are possible if there is a frequency band with a continuous tone like a roar or a murmur. The band can be interrupted through holes. The instruments that may participate are arbitrary. This is for her the highest abstraction. The piece would sound differently in any epoch. It depends on what a chord means in that epoch.

Avoiding the strictness of the serialism, within each sound has to be precisely determined; Marbe used words instead of sounds, which she took from the folklore texts, especially from the rituals. The improvisation, present in the folklore, helped her to liberate herself from the rules of a system. Instead of this she received inspiration from extramusical domains i.e. from the philosophy or architecture.

3.5. Aurel Stroe – creating a “Morphogenetic Music“with different intonation systems

Aurel Stroe created the first music computer program in Romania having as a starting point a project within he wanted to integrate beside music architecture and colours. His desire was to construct a well with music and colours, like an “installation“today. He needed for this just one structure to unify these domains. Therefore he came to the mathematics and created the computer programme that he named “Musgener“ (Stroe 1970, 9). After this he renounced the installation, but created with the program some compositions. His thinking process was reflected in his study “Compositions and classes of compositions“(1970-1971). A class of compositions is a model, an algorithm, which allows the creation of a certain number of similar compositions. One part of the program gave him the possibility to

exactly determine the durations and the instruments, the other part the pitches and the dynamics. With the program he could do aleatoric as well as serial music. Characteristic for his aleatoric pieces are the “multimobiles” – small compositions whose order can be chosen from the interpreter. Stroe used multimobiles for the first time in his clarinet concerto (1974-1975). Afterwards they were constant in his work:

The image displays a musical score for the violin part of the Clarinet Concerto by Aurel Stroe. It consists of eight distinct melodic segments, each with its own tempo and dynamic markings. The segments are as follows:

- Fluente** (♩ = 126): A fast, flowing melody with slurs and accents.
- senza rit.** (without rhythm): A section where the tempo is suspended.
- Ruvido** (♩ = 138): A fast, rhythmic melody with a rough, textured quality.
- Allegretto** (♩ = 108): A moderate tempo melody with a *conforte* dynamic.
- Allegretto** (♩ = 116): A moderate tempo melody with a *conforte* dynamic.
- Andantino** (♩ = 76): A slow, gentle melody with a *conforte* dynamic.
- Quasi toccata** (♩ = 132): A fast, rhythmic melody with a *conforte* dynamic.
- Allegro con brio**: A fast, energetic melody with a *conforte* dynamic.
- Vivace** (♩ = 190): A very fast, lively melody with a *conforte* dynamic.

Fig. 4. 8 melodies of the 1st multimobile in the violin of the *Clarinet Concerto* by Aurel Stroe

Like other colleagues, Stroe was interested in Asian folkloric cultures. He researched the intervals of the Indian, Chinese, Indonesian modes and compared them each other and these with the European tempered system. As point of reference he had the natural harmonic scale. He noticed microtonal differences (in cent) between the same interval in a culture and in other culture. The higher the interval of the natural scale is, the smaller and more microtonal is it and the gap between the systems bigger. Not only the mathematical rapports are different, but also the disposition that one interval creates. An interval has a meaning in one culture and another meaning in other culture (Szilágyi 2013, 142). Stroe thought that one can not use two different intonation systems in the same work without to put its unity at risk. This means that it loses its identity and it becomes something else (Stroe 1987, 42). Stroe was interested in the process of construction, destruction and reconstruction of a musical structure. His works begin with a clear structure, but in

time this will be modified through different intonation systems, styles, genres, compositor techniques. This may generate breaks within the work and its destruction. This was Stroe's intention, because he was inspired by the morphogenetic theory of the mathematician René Thom. Thom developed at the end of the 1960s the catastrophe theory, which he applied as morphogenesis in the biology: an unexpected event in the evolution of a species that can bring modifications and junctions. The morphogenetic theory may be applied also for a system within a local dynamic creates discontinuity, breaks with repercussion on the whole system that can lead to the catastrophe (Thom 1972, 23). Stroe wanted to create breaks in his music and named his music "morphogenetic music". In the clarinet concerto the multimobiles, that consist of fragments from Bartók melodies, were transformed. The transformations are obviously on the form, tempo and dynamics parameters. In the second opera of his Trilogy *Oresteia – The Choephores* – there are two ways: Orestes' way and the way of the trombone. Orestes begins to sing in a Chinese mode, then (in the crucial moment when Orestes decided to commit the matricide) he passes to the Indian mode. The trombone begins with the natural harmonics, then passes to the 12 tempered tones (Stroe 1983, 43). Stroe believed that at the beginning the music was pentatonic (like the Chinese music), because there is pentatony in many different musical folklore cultures. At a certain point every culture evolved independently, that means that every music culture developed others modes with other mathematical relations. Stroe wanted to show this "history" in his opera. In the case of the trombone, it evolved technically, from a natural instrument to the trombone with valve, which can play in every tonality.

Stroe was interested in the mathematical relations through the modes of different cultures, comparing them with the tempered system and relating all these to the natural harmonic scale. The use of all these intonation systems had the aim of creating a break into the work, a morphogenetic music work, in order to oppose the classical traditional model of work, which is based on structural unity.

3.6. Cornel Țăranu – the variation principle at the level of all the parameters

Cornel Țăranu took the variation principle from Enescu (he knows Enescu's work very well for he completed some pieces of his) and the Second Viennese School, translating it to all parameters. The material is the twelve tones, which he presents gradually, from chromatic cells until he arrived to the chromatic total, forming a cluster. The tones of the cluster are then permuted in every variation, like the tones of an original row. Often one tone of a cluster is heard in a higher or lower register giving the impression of space. Like other composers he works with mini-modes, but with the chromatic ones. He works with a reduced material and therefore he uses proceedings as transposition of a cell, adding one or more tones, melodic or

rhythmic changes, spatializing of the tones in other octave (that I have already mentioned), inversion, retrogration, retrogradation of the inversion. The rubato rhythm that is also present in the folklore and Enescu's music can be heard and viewed in his scores being free notated, even in the metrum. An aspect that may have had Bartók as model is the ostinato, an obstinate repetition which gives vitality to Țăranu's music. He has also a sense of the colour: he uses a fine instrumentation. The reason for this is that he has had a good experience with his Ensemble *Ars Nova*, which he founded in 1968 and which he is still conducting. As Niculescu, Țăranu used all the four syntaxes in his pieces: heterophony, polyphony, homophony and monody. Here may be added the ison – a long held tone that accompanies a melody –, which many Romanian composers i.e. Niculescu took from the Byzantine music. Another characteristic for his style is the treatment of the soloist or choir voices in a similar way as the instruments.

In his cantatas or symphonies one can see a constant movement. They are dialogues between different compartments of instruments. Even if the instruments sustain a tone, this has an inner dynamic through a triller, a vibrato or an ostinato effect. In *Cortège in memoriam Avram Iancu* (1973) there are short phrases that begin and end with instrumental effects. A phrase corresponds to one verse. After the end of a phrase and the begin of the next phrase there is a breathing that gives an impression of being natural. There is a similarity with Olah: same sounds are played by other instrumental group so that one creates a space. By Țăranu there are often the same sounds, but rhythmically and timbrally changed. The interval thinking is typical for the twelve-tone music: in this piece the minor and major second, the minor third and the major sixth are important intervals that appear frequently in different contexts. Like in the Second Viennese School the tones of a (chromatic) row are heard horizontally as melody and vertically as an chord or cluster: e.g. in the fourth section the choir voices are polyphonically led until they form a chord that one can view like an multivocal ison, this will be held by strings, while the brass, and woodwind instruments, harp, piano or vibraphone play heterophonically, polyphonically or homophonically some tones of the ison. Even there are the same tones; there are always new effects, new rhythmic variations, and new order of the tones in the chord that splits it up or new syntax.

Cornel Țăranu did a synthesis between more Romanian traditional elements like variation, heterophony, rubato rhythm and new Western elements like chromatic total, cluster, horizontal and vertical as well as interval thinking.

The image displays a musical score for the Cantata *Cortège* by Cornel Țăranu. The score is arranged in a standard orchestral format with a vocal line. The instruments and parts shown are:

- Flute (FL):** Starts with a *p* dynamic, followed by a *pp* section with a *triss.* marking.
- Clarinet (Cl.):** Plays a *p* dynamic line.
- Trumpet (Tr.):** Enters with a *sord.* (sordina) marking and a *mf* dynamic.
- Arpa (Arpa):** Features a *(clet) gliss. fluide* (glissando) section with dynamics *f*, *mf*, and *p*.
- Vibraphone (Vibr.):** Provides a rhythmic accompaniment.
- Vocalists (S., A., T., B.):** The vocal line includes lyrics in Romanian: "a ur-ma... la... trei... di-mi - nea... as - lazi... di-mi - nea - fa (falset)... di-mi-". The vocal parts are marked with dynamics like *mf* and *f*.
- String Ensemble (Vni, Vle, Vlc.):** The Violin I and II parts feature *div. 2* (divisi) markings. The Viola and Violin C parts have *div. 3* markings.
- Contra Bass (Cb.):** Starts with a *pizz.* (pizzicato) marking and a *(3)* triplet marking, then moves to *arco* (arco).

The score includes various musical notations such as dynamics (*p*, *pp*, *f*, *mf*), articulations (*triss.*, *sord.*), and performance instructions like *(clet) gliss. fluide* and *div.* (divisi).

Fig. 4. Fragment from the Cantata *Cortège* by Cornel Țăranu

4. Old and New. Conclusions

How we have seen, the avantgardists had the desire to create a new Romanian music, epurating it from national emblems and conserving only the pure essence of the authentic folklore, using proceedings based on mathematics that were alternatives to

those developed in Western. Mathematics and the ancestral folklore gave them the possibilities to turn back to the music origins and finally they arrived at some principles that are valuable not only in the music, but in some other domains as philosophy, science, art, like time, space or the contrast unity–variety. They wanted to involve the reality into the music. What is new is the applying of a mathematical model in the music. However, to put music beside mathematics is old, since Antiquity and Middle Ages, when music was regarded as a science, such as arithmetic, geometry and astronomy. All these belong to *quadrivium* and are based on numbers.

A common factor between mathematics and folklore, which maybe the Romanian composers noticed, is the simplifying of the reality in order to explain it. While mathematics uses for this numbers, the folklore uses symbols, images, myths, legends. Principles as modality, heterophony, variation are not only musical, they can be found in the reality too or can reach other philosophical categories.

Anatol Vieru thought that our hearing is modal, because the modality can be found in more zones of the globe and Aurel Stroe believed that the pentatonic mode was the original mode, from it issued the other scales, because there is pentatonic not only in China, but also in many different and independently developed music cultures. Ștefan Niculescu saw the heterophony as a natural phenomenon – the delta of a river or the form of the vibrating air in a tube with nodes and antinodes. Tiberiu Olah created polyheterophonies through autosuperposability, forming circles that indicated the cyclic time which is characteristic to the rituals. Myriam Marbe took from the ritual the force of the word that has the aim to lie the human being to the transcendental world. The morphogenetic theory that interested Stroe can be applied to beings as well as to things. The principle of developing, transforming, destroying and regenerating is always valuable. The variation principle that uses Cornel Țăranu is, like the repetition, one of the principles that is based on our existence.

Some musical achievements can be applied to other domains, because of their generality. In this sense Solomon Marcus wrote about Vieru's modal theory:

“If the validation of the solutions, concerning the musical problems, was successfully carried out, mathematicians find in them many suggestions for certain mathematical solutions placed in a more general framework, completely emptied of their musical significance and, at the same time, correlated with the major structures of modern mathematics”(Marcus in Vieru 1993, 147-148).

Following George Enescu, the Romanian avantgarde composers of the second half of the 20th century brought the music into the line with the Western one, coming with original solutions and techniques, taking ideas from the folklore and mathematics, in a time of many privations like that of the Communist era. They create a composition 'school' as composers and teachers, forming the next generations of composers. Here I should mention that Myriam Marbe taught and encouraged a lot of female composers, who have made an international career. It would be interesting to write about the next generation of composers, but my aim was to limit this study to the avant-garde generation, also named “the golden generation“.

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