



# WICCR

**NOVEMBER 1986 PROGRAM GUIDE**

**Vol. III, No. 3**

Vladimir Ussachevsky at the Columbia-Princeton Electronic Music Center

Photo courtesy of: Vladimir Ussachevsky

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# Vladimir Ussachevsky at Seventy-five

A retrospective examination of a pioneering  
electronic composer

## Part I

By Dave Soldier

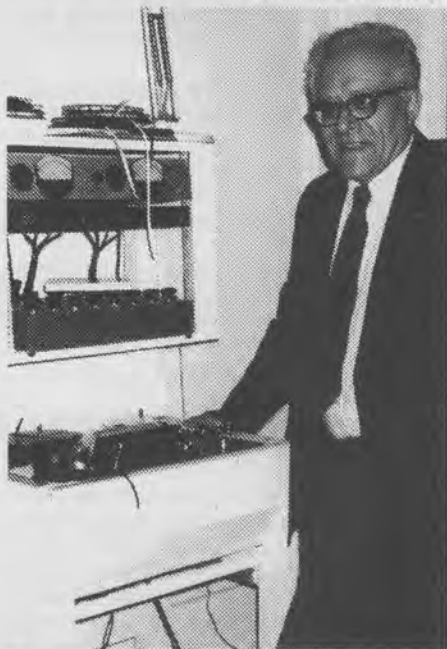
*"Perhaps you can see a certain consistency in what I did. I was always curious to see if I could do something musically viable with something that could never be thought of as music."*

—Vladimir Ussachevsky

Vladimir Ussachevsky, emeritus professor at Columbia University's music department, is one of the most significant innovators in electronic music. As chairman of the Committee of Direction of the Columbia-Princeton Electronic Music Center he co-founded the first and most influential electronic music studio in the United States. His series of works for magnetic tape, also the first in this country, introduced a variety of new techniques that transformed timbre, structure and rhythm.

Ussachevsky was born in Hailar, Manchuria, a government seat of Inner Mongolia, on November 3, 1911. Although the region was Chinese, the Russians, in an effort to shortcut the Trans Siberian Railroad, built a railway concession which cut through the state. Vladimir's father, Alexei, a career man in the Russian army, was assigned the guardianship of an enormous tract along the railroad. This land, although still a wild frontier, was inhabited by a sizeable Russian population. Colonel Alexei Ussachevsky was friendly with the Mongolians and aided them materially during a war with China. He disguised his Russian regiment as Mongolians and assisted in the capture of two strategic points. For a reward, he received some large parcels of land and was made an honorary nobleman. As a result, Vladimir Ussachevsky is a hereditary Mongolian prince.

In spite of their geographical isolation, the entire family was involved with music. Vladimir's father was a choral conductor, his mother a piano teacher, his brother and one sister professional pianists and his other sister a violinist. Vladimir Ussachevsky began the study of the piano at six



Vladimir Ussachevsky beside his tape machine.

*Suzanne Taylor*

and by thirteen was playing Russian and Gypsy music in nightclubs as well as background music for silent films. However, his exposure to the European classical tradition was severely limited: he heard no recordings of orchestral music until the age of sixteen and no works by J.S. Bach until he arrived in the United States.

Vladimir and his father were arrested by the

Soviets during an upheaval in Manchuria in 1929. Vladimir was released, but his father, an outspoken critic of the new government, was sentenced to the notorious Siberian prison, Solovki. Vladimir quickly left the country to join his brother in California. Vladimir's mother had also recently come to California to escape the political troubles of that period. Miraculously, Ussachevsky's father, although an elderly man, survived

was to have important consequences for Ussachevsky and electronic music.

### The Columbia-Princeton Electronic Music Center

In 1950, the Columbia music department applied for a tape recorder to use in teaching and recording concerts. In 1951 the first arrived, an Ampex 400. This recorder had a speed change switch and Ussachevsky began to experiment

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*"[The critics] didn't seem to want to come that far uptown."*

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his term in Siberia and moved back to Russia, settling in Vologda. He was rounded up with others by a zealous local official during the Stalinist purges of 1937, after which he "disappeared."

Ussachevsky enrolled at Pasadena Junior College in California where he studied harmony and music history. An early orchestral work earned him a scholarship to Pomona College to study counterpoint and composition. A recital of his music was given at the college in his senior year.

After receiving his B.A. in 1935, Ussachevsky enrolled as a graduate student at the Eastman School of Music in Rochester, New York, where he studied composition with Howard Hanson and Bernard Rogers. In 1936 he earned his master of music degree and in 1939, a Ph.D. in composition.

Ussachevsky's first major work, *Jubilee Cantata* for chorus, baritone, orchestra and narrator, was written in 1938 to celebrate the 50th anniversary of Pomona College. The work was broadcast over the NBC Radio Network with Hanson conducting. *Jubilee Cantata* is in a Neo-Romantic style influenced by the style of Hanson, the music of the Russian Church, and Stravinsky's *Symphony of Psalms*. Suggestions of these styles, along with that of Sibelius, remain to this day in Ussachevsky's writing for orchestra. Pomona College has recently commissioned Ussachevsky to compose a piece to celebrate its one hundredth anniversary.

An opportunity for postdoctoral work with composer Otto Luening brought Ussachevsky to Columbia University in 1947. As a very junior faculty member he was assigned a job no one else wanted—care of the tape recorders for classroom audio facilities. This departmental chore

with changing the pitch of piano sounds. He then met an engineering student, Peter Mauzey, who was in charge of the WKCR tape recorder, a Magnachord. Peter Mauzey, then an undergraduate at Columbia, built the first mixer at WKCR. He used the mixer to demonstrate "tape feedback" to Ussachevsky. Tape feedback, an echo of immediately prerecorded material, is produced by mixing the output from the playback head with the input signal. Mauzey built two mixers for Ussachevsky: one to control feedback and the other to mix input from microphones with other sources.

Ussachevsky's original electronic studio consisted, therefore, of two tape recorders, Mauzey's two mixers and a borrowed set of earphones. This was the equipment used to produce the first electronic music compositions to be played in the United States. These compositions were presented at a Composers Forum concert in MacMillan Auditorium at Columbia on May 5, 1952. This concert received some publicity from a favorable Virgil Thomson review. Reflecting on that first concert, Ussachevsky laments the absence of other New York critics: "They didn't seem to want to come that far uptown."

Otto Luening collaborated with Ussachevsky on a number of pieces soon after that concert. Together they produced a collection of works which were introduced by Leopold Stokowski at the Museum of Modern Art on October 28, 1952. The concert was the first in this country devoted to electronic music and originated the term "tape music."

In 1953 Ussachevsky and Luening received a grant to expand their equipment with filters, oscillators, and another tape recorder. It was with this system that they wrote the first works for tape

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live instrumentalists, *Rhapsodic Variations* *Tape Recorder and Orchestra* and *A Poem in Cycles and Bells*.

It was also in this period that Ussachevsky became aware of analogous musical experiments in Europe. In Paris, the style known as *Musique Concrete* used only "found" sound sources, while the *Elektronische Musik* of the Cologne studio in West Germany used only electronically produced sources. From their earliest works, the pragmatic Luening and Ussachevsky felt no reason not to use both categories of sound. In 1953, Ussachevsky introduced his and Luening's tape music on Paris radio, and to Karlheinz Stockhausen and Herbert Eimert in Cologne.

By 1955, Luening and Ussachevsky had a small studio on the Columbia campus. In 1957, a permanent installation was built in MacMillan. The studio was not set up for teaching and was too small to accommodate other composers. In an effort to expand, Luening and Ussachevsky enlisted interested composers from other universities. The formal organization, the Columbia-

remain the heart of our compositional equipment in the studio."

The Electronic Music Center has maintained its prominence throughout its twenty seven years of existence. Perhaps in recognition of this, the style of composing with tape developed by Ussachevsky and Luening is widely known as "classical studio technique." Guest composers and Columbia-associated composers who have produced pieces at the Center include Luciano Berio, Mario Davidovsky, Jacob Druckman, Ross Lee Finney, Leo Kraft, Mel Powell, Eric Salzman, Pril Smiley and Edgar Varese. Ussachevsky's own students from the studio include Charles Wuorinen, Harvey Sollberger, Wendy Carlos, Alice Shields, Charles Dodge, John Appleton, Robert A. Moog and Faye-Ellen Silverman.

### Compositions

Ussachevsky sees his individual works as falling into four broad categories: choral works, film scores, his collaborations with Otto Luening, and the electronic compositions. In addition to these

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***"The splicing block, the tape machine, and the mixer remain the heart of our compositional equipment in the studio."***

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Princeton Electronic Music Center, was formed in 1959 by Ussachevsky and Luening, with Milton Babbitt and Roger Sessions, both of Princeton University. Peter Mauzey was appointed full-time director of engineering. The RCA company leased and then donated the most advanced synthesizer of the time, the Mark II.

Ussachevsky was designated chairman of the Committee of Direction. As chairman he designed the teaching and studio facilities as well as performed administrative duties. He now feels that the demands of this position, which he held for over twenty years, limited the amount of time he was able to devote to composition.

The Center, located on West 125th Street, can accommodate about forty composers. It is equipped with state-of-the-art equipment of the highest quality. "But," says Ussachevsky, "the splicing block, the tape machine, and the mixer

compositions are a growing number of chamber works for conventional instruments which he began pursuing in 1980 after a long hiatus.

The choral works, of which *Jubilee Cantata* is an early example, are strongly influenced by th choir music of the Orthodox Church service. Other Ussachevsky choral works are a setting of *Psalm 24* (1948), *Missa Brevis* (1973), and a large, unfinished oratorio, *Creation* (1960- ) for chorus and electronics.

Ussachevsky has written scores for three films: Hector Olivera's and Fernando Ayala's version of Satre's *No Exit*, Lloyd Williams' *Line of Apogee*, and, with Luening, Pril Smiley and Alice Shields, a CBS documentary, *The Incredible Voyage*. These pieces are remarkable both for the length of the scores, which are composed completely on tape, and for the early use of electronic music with film. *No Exit* was actually made soon after the first score using synthetic-

ally derived sounds, the grade B science fiction thriller, *Forbidden Planet*.

The pieces co-written with Otto Luening are interesting for a variety of reasons. Luening and Ussachevsky worked together for seven years. This period includes not only a long series of tape pieces, but also the first-ever piece for tape and live performers, the *Rhapsodic Variations*, performed by the Louisville Orchestra in 1954. A later work, *Concerted Piece for Tape Recorder and Orchestra*, was commissioned by the New York Philharmonic and premiered by Leonard Bernstein on CBS-TV in 1960. These pieces helped to increase the popularity of electronic music and of the Luening-Ussachevsky team in particular, and resulted in appearances on the *Today* show and articles in *Newsweek* and other

publications. Other pieces co-written by Luening and Ussachevsky include *Ballet of Identity* (1956) for the American Mime Theater and music for the Orson Welles production of *King Lear* (1956).

Although these collaborations, particularly the *Rhapsodic Variations* and *Concerted Piece*, have been influential works, it is in Ussachevsky's electronic pieces that the problems and techniques of using new musical materials have been most squarely addressed. Ussachevsky states, in fact, that each of the pieces in this series was written to explore a specific musical problem. As other articles have not explored this aspect of Ussachevsky's electronic works, we will touch on each of the pieces in the second part of this article and explore the tasks that the composer set for himself to solve.

The second part of David Soldier's article will appear in December's issue of the Program Guide.

## Discography

- CBS 6566, Creation—Prologue (1961)  
CRI 112, A Piece for Tape Recorder (1955); w/Luening: A Poem in Cycles and Bells (1954); Suite from King Lear (1955)  
CRI 227, Of Wood and Brass; Wireless Fantasy (1960); w/Luening: Concerted Piece for Tape Recorder and Orchestra  
CRI 268, Computer Piece No. 1 (1968); Two Sketches for a Computer Piece (1971)  
CRI 297, Three Scenes from the Creation; Missa Brevis (1972)  
CRI 356, Metamorphosis (1957); Linear Contrasts (1958)  
DESTO 6466, Sonic Contours (1952); Other works w/Luening  
FINNADAR 9010, A Piece for Tape Recorder (1955)  
FINNADAR 90008, Pentagram for Oboe and Tape (1980)  
FOLKWAYS 6160, Sonic Contours Composition; Underwater Waltz (1952)  
FOLKWAYS 33904, Conflict, From the Creation (mid-1970's)  
GRAMAVISION 7006, Divertimento 1980-81. For Electronic Valve Instrument, Chorus, Orchestra, and Tape.

### Addresses:

- CRI, 170 W. 74th St., NYC 10023  
DESTO, 14 Warren St., NYC 10007  
FINNADAR, dist. by Atlantic Folkways, 632 Broadway, NYC 10012  
GRAMAVISION, 860 West Broadway, NYC 10012  
Try NMDS, 500 Broadway #4, NYC 10012 or MODE RECORD SERVICE, P.O. Box 375, Kew Gardens, NY 11415 for mail-order

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group have. Most veterans are willing and want to work, but many times the jobs are not there, according to Milne.

"There is just a widespread amount of unemployment where Vietnam vets are concerned. The Vietnam Veteran is the highest unemployed statistic there has ever been after a

of vets out there who have good jobs," he said. "We have a lot of lawyers and doctors, too. There's guys who own stores. There's a lot of truck drivers out there who own their own rigs who are Vietnam Veterans. So we're not what the public thinks we are. We are not failures." Torres said.

An integral part of the Vietnam veterans move-

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*"... we're not what the public thinks we are.  
We are not failures."*

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war. It's very difficult economically in this country to begin with. Vets are just having problems getting jobs," Milne said. "In the steel industry where many of the vets come from, there's no jobs period," he added.

But the picture is not all bleak. Many vets are successful according to Torres. "There are a lot

of vets out there who have good jobs," he said. "We have a lot of lawyers and doctors, too. There's guys who own stores. There's a lot of truck drivers out there who own their own rigs who are Vietnam Veterans. So we're not what the public thinks we are. We are not failures." Torres said.

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## Vladimir Ussachevsky at Seventy-five

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Part II

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### ELECTRONIC MUSIC

Expect where noted, these pieces are "performed" by tape recorder.

Transposition, Reverberation, Experiment,

Composition, Underwater Valse (1951)

These five works were the first publicly presented experiments with music on tape, played at a Composers' Forum concert in May, 1951. Although Ussachevsky now dismisses them, say-

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"Professor Cyril Harris had a device, a very expensive oscillator which produced 'warble tone.' A warble tone could be made faster, slower, wider or narrower. I liked the quality of it so I made lots of recordings on that device, all

Gongs were in various guises in this work. One sound uses a single gong stroke that is recorded five times, each time transposed up a fifth with speed variation. Ussachevsky cut off the attack and made a tape loop of the resonance. The com-

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*Ussachevsky inserted a portion of Wagner's Parsifal into the piece after learning that it was the first piece of music ever broadcast anywhere.*

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going out at different metronomic speeds. Then I was interested in using the already familiar technique of one slower or faster moving passage emerging from the other, conflicting with it, being essentially sinusoidal material. Sometimes the two fighting tones produce very unexpected effects."

Contrasting sounds were produced by a cymbal and a sawtooth. In the middle the sawtooth is treated to sound like "an outraged prima donna." Other sounds were produced by the soprano, Bethany Beardslee. Ussachevsky recorded her from across the distance of a long, reverberant hall in the Columbia journalism building. Through speed variation, her notes, already high, are transposed to a range higher than is possible for the human voice. A low tone was obtained by kicking the base of a kerosene stove at the MacDowell colony.

#### **Linear Contrasts (1957)**

"The idea behind *Linear Contrasts* was to have a rigid rhythm maintained against a very highly undulating and highly asymmetrical timbral melodic line." This work explores another method that organizes new sounds from electronic music into logical, formal structures. The rigid march-like rhythms were produced with a German sound processor that Stowkowski introduced to Ussachevsky, the *Klangumwandler*, or frequency shifter. "It did what no instrument can possibly do. It can take a sound and transform the order of the overtones in it so that everything gets totally transformed, sometimes with startling results, sometimes with pure garbage."

combination of frequency shifting and feedback on this produce a very piercing timbre. Another gong sound is a demonstration of Ussachevsky's insistence on the use of the right sound materials. Traveling in Europe, he located a rare Japanese bowl gong in the house of a German businessman. In order to record this song, he traveled to Luciano Berio's studio in Milan to borrow a tape recorder and then spent an entire day recording the gong to produce one note for the piece.

#### **Composition #4711 (1957)**

"Composition #4771 is a joke. Forty seven eleven, as you know, is cologne. I was doing music that sounded like typical early electronic music with a lot of short electronic sounds and so on, a la Cologne." (Cologne is the site of German radio's electronic studio and is chiefly associated with Stockhausen.)

#### **Wireless Fantasy (1960)**

This work was initiated by a request from a group of early radio buffs known as the DeForest Pioneers, after an important figure in early wireless communication, Lee DeForest. Ussachevsky recalls, "Lee DeForest was the man who really made radio possible. He had the first short wave station." He also designed electronic tubes for the early transmitters. The commission from the DeForest Pioneers requested that the work use wireless code signals as the basic sound material. This, of course, was the sort of problem that Ussachevsky gladly explored. He visited an early radio museum, the WZZI Historical

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Wireless Museum, in Trenton, New Jersey. There he recorded the sounds used in this piece, including spark generators, Morse signals associated with DeForest's station, and commercial teletype code.

Ussachevsky inserted a portion of Wagner's *Parsifal* into the piece after learning that it was the first piece of music ever broadcast anywhere, another one of DeForest's achievements. He uses an old Furtwangler seventy-eight treated with a band pass filter so that it sounds as if it were being broadcast by short wave transmission over a very long distance. The incorporation of the *Parsifal* fragment was another musical problem. "The objective here," says Ussachevsky, "is using totally nonmusical material and combining it with musical material."

#### **Of Wood and Brass (1965)**

As in *Piece for Tape Recorder*, this work was designed to use a limited initial vocabulary of sounds. Here, however, Ussachevsky attempts to transform those sounds so that the final quality is as far removed from the original as possible. Most of the material comes from a few notes on a trombone, some patterns played on a xylophone, a single stroke on a Korean gong, and a trumpet flourish. The transformations are more sophisticated than those in the early tape works due to the superior technical equipment available by 1965.

Ussachevsky recorded one hundred and twenty

This work explores yet another technological innovation from telecommunications research. "The principle I used was initially applied by Bell Telephone to cut down transmission time by developing a system in which small portions of the speech or sound are cut out." Ussachevsky used source material both from electronically derived and acoustically produced sounds. These were both converted into digital form and then selectively extracted using Bell Telephone's program. After the resulting patterns were translated onto magnetic tape, Ussachevsky arranged them using his usual tape manipulation techniques.

#### **Two Sketches for a Computer Piece (1970)**

Ussachevsky produced a number of experimental compositions with the GROOVE program designed to control the Moog synthesizer. Two of these works were released on record.

Besides controlling amplitude, transposition, filtering and sampling rate, GROOVE encourages "improvisation" by the computer from a paradigm based on random number sequences. Ussachevsky set up the improvisation and then selected a few of them for arrangement using tape manipulation.

#### **Colloquy for tape recorder and orchestra (1976)**

In this piece, Ussachevsky satirizes the attitude of the musical public by having members of the orchestra argue with a tape recorder. Says Ussachevsky, "Many an eye-brow is still raised at the

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## *Ussachevsky satirizes the attitude of the musical public by having members of the orchestra argue with a tape recorder.*

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tapes of sound experiments in preparation for this piece which lasts only four and a half minutes. It falls into four sections, each of which explores an extremely limited original vocabulary. The first part consists mostly of material evolved from the trombone and an electronic sounds; the second from the trumpet; the third from the xylophone, and the last from a trombone glissando and the gong stroke.

#### **Computer Piece No. 1 (1968)**

idea of having a recording-playback device, started and stopped by push-buttons, sharing the platform with musicians. So *Colloquy* gives a chance to the tape recorder to plead its case in public debate. The final proof of the legitimacy of this union must, of course, be a musical one."

At the beginning of the piece, the tape playing along with the orchestra is ignored until it provides distinctly electronic sounds. The strings pretend that nothing has happened. The second entry of the tape recorder, more obtrusive, im-



itates a phrase played by the lower strings. This causes consternation in the violins, generally the most conservative section of any orchestra. The strings demand to know, verbally, what is going on.

String player #1: What was that, the / *Nachtmusik* of some / stray alley cat?

Conductor: Strings, will you please be quiet! / Order! Order! This is no feline, / but a tape recorder.

String player #1: A tape recorder? / Comes the revolution! Since when do / people tape such noise pollution?

Later, the tape recorder requests to play with various instruments.

Conductor: And if we were to ask you to transform / the sound of a bassoon?

Tape recorder (actually, a recording of Ussachevsky's voice): Please let me try. I love experiment / Involving that peculiar instrument.

Bassoonist: What do you mean, peculiar? I object! / You squawk-box, how'd you like your panel wrecked?

Tape recorder: Pardon! I meant no slur. / It's that your sound's distinctly so complex. That all my efforts with it turn out strange.../ Why don't I play you some of my results / As background to your solo? Something else / Perhaps you'll think me. Play, if I'm forgiven!

Bassoonist: The things you have to do to make a livin'!

In the latter sections of the piece, the sounds played by the tape recorder are derived from live instrumental sources with the sound passed around between several speakers. Finally accepted by the instruments, the tape ends the piece saying "Thank you very kindly."

#### **Pentagram for oboe and tape (1980)**

This work, commissioned by oboe virtuoso James Ostryniec achieves timbral coherence through the use of recorded sounds derived from the instrument's natural sonorities. The tape in this piece uses oboe, processed oboe, and E.V.I. (Electronic Value Instrument).

"I am not totally pleased with this reversal to [electronically] imitating musical instruments," says Ussachevsky. "I'm still interested in what I can do with instrumental sounds that are unlike the original or are related and therefore congenial to the instrument with which you wish to combine."

#### **Dialogues and Contrasts for Brass Quintet and Magnetic Tape (1984)**

This piece combines live brass quintet with recordings of brass sounds, some close to the original sonorities and some highly transformed. The formal structure is an attempt to find a logical organization for new musical sounds in combination with traditional instruments. In the first movement the exchange is "more in the nature of an argument." The players respond directly to the transformed brass sounds. In the second, more subdued movement, the tape joins the players with fragmented versions of their melodic lines. In the last movement the instruments and the tape recorder appear to play independently of each other.

#### **Works for EVI**

- Celebration for EVI and orchestra (1981)*
- Divertimento for EVI and other instruments (1981)*
- Novellette pour Bourges for EVI and Piano (1983)*

The Electronic Valve Instrument (E.V.I.) is a synthesizer designed by an ex-Ussachevsky student, Nyle Steiner. Steiner, a classical trumpet player, produced the instrument so that it could be fingered like either a trumpet or saxophone and controlled by blowing into the mouthpiece. The sound can resemble an oboe, trumpet, clarinet or instruments in between. The E.V.I. has a seven octave range and enormous tonal versatility and dynamic control but maintains the nuances of a wind instrument. These works, as well as several others, were written to explore various technical possibilities for the instrument.

#### **The Creation (1960- )**

- Movements: *Prologue (1960)*
- Interlude (1961)*
- Epilogue (1970)*
- Conflict (1975)*

This oratorio is a combination of Ussachevsky's choral and electronic styles. All portions are on tape although Ussachevsky says that it would someday be desirable for a chorus to perform this work live with tape accompaniment.

The *Prologue* uses the words of the Babylonian creation story called *Enuma Elish*, sung in Akkadian, with some insertions from Ovid's *Metamorphoses* in Latin.

Speaking of the first three movements, Ussachevsky says, "I had a definite idea on not only antiphonal exchange between four choruses [called for in the first movement], but also the kind of pitch precision which is so hard to obtain in a fairly dissonant work." Choruses generally are not able to sing large, complicated chords in tune over the course of a long piece and Ussachevsky, at times, calls for ten part chords. He was able to record these harmonics in correct pitch by rehearsing the chorus in two and four bar segments and then splicing them together. The use of tape also allowed him to include both soprano and bass parts below and above the range of the voice. Parts of the piece call for choruses performing totally independent material simultaneously, which is, again, much easier to obtain on tapes.

The fourth movement, *Conflict*, uses only electronic sounds. This is programmatic music portraying the final battle between the Babylonian gods Tiamat and Marduk. Ussachevsky plans two more movements before the *Creation* is completed.

Ussachevsky is currently working on several commissions including a string quartet, a violin and piano sonata, and the piece to celebrate the 100th birthday of Pomona College.

WKCR is proud of its long association with Vladimir Ussachevsky and his colleagues, and its role in the development of electronic music. Happy seventy-fifth birthday, Mr. Ussachevsky!

*CRI* is in the process of releasing a new recording containing Dialogues and Contrasts and Colloquy.

## Discography

- CBS 6566, *Creation—Prologue* (1961)  
CRI 112, *A Piece for Tape Recorder* (1955); w/Luening: *A Poem in Cycles and Bells* (1954);  
Suite from *King Lear* (1955)  
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DESTO 6466, *Sonic Contours* (1952); Other works w/Luening  
FINNADAR 9010, *A Piece for Tape Recorder* (1955)  
FINNADAR 90008, *Pentagram for Oboe and Tape* (1980)  
FOLKWAYS 6160, *Sonic Contours Composition; Underwater Waltz* (1952)  
FOLKWAYS 33904, *Conflict, From the Creation* (mid-1970's)  
GRAMAVISION 7006, *Divertimento 1980-81. For Electronic Valve Instrument, Chorus,  
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