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by

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**Argentine Music for Flute with the Employment of Extended
Techniques: An Analysis of Selected Works by Eduardo Bértola and
Marcelo Toledo**

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Marcelo Toledo**

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Dedication

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Abstract

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Extended techniques used in contemporary music for flute refers to particular performance techniques that need to be utilized to produce non-conventional sonorities on the flute. This study provides an examination of the technical development of extended techniques in the flute repertoire by Argentine composers. A supplementary

anthology of these works has been compiled and included to provide a reference point for further academic research. Furthermore, two pieces were selected from these works to illustrate the technical evolution encompassed by the utilization of new instrumental techniques in the last five decades. An exhaustive analysis of these compositions intends to provide readers and contemporary music performers with valuable ideas that may enrich their capacity to understand the specialized repertoire and to conceive further development and musical application of new instrumental resources.

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Introduction

During the last half of the twentieth-century, composers began to explore the sonic possibilities of the flute in search for innovative ways of musical expression. This exploration resulted in the development of an entirely new instrumental language which demanded an expansion of the technical possibilities of the flute. Generally speaking, extended techniques refer to non-conventional techniques utilized to produce non-traditional sonorities on the flute, such as percussive sounds, microtones, whisper tones, glissandi, multiphonics, timbral trills, simultaneously singing and playing, and a broad palette of tone-colors, timbres, and non-traditional sounds. The production of these acoustic effects demands an innovative approach to articulation, blowing angles, breathing control, body resonance, stage performance, as well as a profound understanding of the musical language that these techniques encompass.

The increasing use of extended techniques in musical composition has created a need for supporting materials and research on the production, application, and interpretation of these techniques. Several extant sources are devoted to technical practices and procedures on the performance of extended techniques. However, little research has been done advocating aspects of their interpretation and musical application. Therefore, this treatise intends to explore and study the application of these instrumental

resources within a musical context that would enable the understanding of their evolution and musical significance.

To provide a background for understanding current trends and directions in Argentine music, a brief history of contemporary music in Argentina is presented in the first chapter. The second chapter provides an examination of the establishment and evolution of a new instrumental vocabulary, introduces explanations of technical procedures and developments, and discusses future potential application of extended sonorities. The third chapter introduces a discussion on the works compiled for the purpose of this study and presents the listing of the findings. The last two chapters correspond to musical analysis of two selected works by Eduardo Bértola and Marcelo Toledo, respectively. This selection of works was made according to the following criteria: the novelty of the instrumental techniques applied to the composition, the importance of the piece as a landmark of the composer's style, and the recognition of these works as a significant contribution to the flute literature. In addition, these pieces are employed as suitable examples to illustrate aspects related to the usage, study, practice, evolution, and interpretation of extended techniques in the flute repertoire.

Chapter 1: History of Contemporary Music in Argentina

Introduction

This chapter summarizes the history of contemporary Argentine music as it relates to instrumental music. The author's intention here is to provide an examination of the diversity of trends and aesthetics that characterize Argentine art music from 1930 to the present. It is also to provide context for understanding the musical tendencies and aesthetic attitudes that resulted in the creation of the contemporary repertoire for flute in Argentina. In order to explain the socio-political and cultural events that shaped the emergence and development of contemporary music during the third decade of the twentieth-century, a brief recount of the beginning of the twentieth-century opens the chapter and situates the reader in to the musical scene. The study of contemporary music in Argentina has been organized in three periods: the first period, in which contemporary trends became evident, spans from 1930 to 1945; the second period gained momentum after World War II from 1947 to 1975; and lastly, the third period from 1975 to the present, determined by the beginning of the military dictatorship in 1976 and the return to democracy in 1983.

To provide a broad overview of musical activities in the country and for practical reasons, references to musical compositions are limited. Certain composers have received greater attention than others according to criteria not always based on artistic merit. Such determinations could have resulted from the composer's role on the development or dissemination of prevailing aesthetics, impact on future generations, and significance with regard to contemporary music. Because of the extraordinary number of

composers and diversity of music that one must refer to when discussing the history of music in Argentina, many significant composers of true artistic merit have either been mentioned briefly or excluded entirely. Moreover, since the subject of this treatise specifically relates to instrumental music, special attention is given to instrumental aspects. Subjects pertinent to operatic music, ballet, and chamber song have been omitted in spite of their great contribution to the establishment of the Argentine musical tradition. The author realizes the omission of composers, genres and works assumes a risk. However, decisions for inclusion or omission were made on the basis of what might best contribute to a coherent historical account of the general aesthetics and styles that characterized Argentine music in the twentieth century.

The Beginning of the Twentieth-Century

Artistic manifestations are always linked to social and historical contexts. In the words of Arnold Hauser, the creative subject finds himself limited by contemporary, social conditions, hence, the resulting work of art inevitably becomes an ideological message.¹ The history of contemporary Argentine music did not escape the factors that shaped the destiny of the nation.

The beginning of the twentieth century in Argentina witnessed the consolidation of the Argentine Federal Government through the establishment of political, judicial, social, economical, cultural, and educational institutions. This period also saw the

¹ Arnold Hauser, "Objetivos y límites de la sociología del arte," in *Introducción a la Historia del Arte*. (Barcelona: Guadarrama, 1974).

emergence of social problems and the search for a national identity. In a few decades, Buenos Aires was transformed from a small village to one of the largest cities in the world where a heterogeneous spectrum of nationalities converged. In the suburbs of Buenos Aires, it was very common to find the folklore of people arriving from Europe. The influx of immigrants at the beginning of the century brought a new wave of social conflicts and the acceptance of ideologies such as anarchism and socialism among the increasing working class.

In an effort to merge this cultural diversity into a more homogeneous society, the Argentine government implemented mandatory military service and took over the church's role in registering births, marriages, and deaths. A fundamental strategy was the establishment of public elementary education, free and required for the entire population, to ensure the integration and nationalization of immigrants' descendents.

Music had also an important function within this quest for cultural homogenization. In 1910, the centennial of the May Revolution (1810) encouraged the creation of operas, symphonies, hymns, songs, and national marches. Numerous concert series were organized, and the study and re-evaluation of local composers was promoted. In addition, the publication of nationalistic piano music for the aficionado, reached a production level never surpassed in the history of Argentine music.

This period witnessed the flourishing of a prominent professional musical life in Argentina and the emergence of a national musical style. Many musical activities were developed in the capital, Buenos Aires, due to the existence of professional orchestras, such as the Orquesta Filarmónica de la Asociación del Profesorado Orquestal (A.P.O.)

and internationally renowned opera theatres such as the Teatro Colón (opened in 1908). At the turn of the new century, several symphonic works with nationalistic character had been conceived.

The patriotic sentiments that characterized the years around the centennial celebration further encouraged the production of nationalistic music with international significance. Nationalistic composers drew inspiration from the *gauchesco* tradition² and Andean and Western music for more than five decades. The golden period of national music spanned from the 1920s through the 1940s and is mainly represented by the works of Alberto Williams (1862-1952) and Julian Aguirre (1868-1924). Musical nationalism at its best did not merely repeat popular dances and folkloric genres but re-elaborated them evocatively, rather than literally, into a musical language of national roots.

Around the 1930s, new musical aesthetics came to the fore to disrupt a long-cultivated main stream of musical tradition. At the height of nationalism, Juan Carlos Paz (1897-1972) and the Grupo Renovación adhered to the most advanced techniques of the period diversifying musical aesthetics and practices. For this reason, the decade of 1930 is considered the beginning of contemporary music in Argentina.

The 1930s and 1940s in Latin American music were the beginning of a new era, an era of awareness of some of the progressive trends in twentieth-century European composition and of conscious effort to follow or assimilate these trends. Properly speaking, then, the 'twentieth-century' in Latin American music seems to begin in the early 1930s.³

² The literary movement known as *gauchesco* tradition advocates the *gaucho* (the native horseman of the *pampas*) as a national symbol and is mainly represented by the epic poem "Martin Fierro," written in 1872 by José Hernández.

³ Béhague, *Music in Latin America: An Introduction*. (New Jersey: Prentice-Hall, 1979) p. 245

1930-1945: The Rise of Contemporary Argentine Music

Nationalism and Internationalism

The cultural openness characteristic of the 1930s encouraged the incorporation of music techniques and aesthetics of a cosmopolitan scope. International trends, imported mainly from Europe and the United States, started to diverge from the national music movement cultivated in Argentina for the previous fifty years (since 1880). Even though this international trend still maintained some nationalist musical value; composers began to conceive a more abstract style which incorporated new European compositional practices as exemplified by Stravinsky, Hindemith, Bartok, and Debussy.

The emergence of these new aesthetic ideals created a continuous confrontation with the long-cultivated nationalist tradition. Juan Maria Veniard compares this conflict to a pendulum of thoughts that swings between those conservative composers who were loyal to tradition and progressive composers that favored vanguard attitudes.⁴ Roberto García Morillo explains the conflict of musical ideals as follows:

...la multiplicidad de posturas...[...] resultaron a la larga contraproducentes bajo otros aspectos, ya que así se quebró la unidad, bastante apretada y sin fisuras sensibles, que hasta entonces parecía primar, favoreciendo luego la aparición y concreción de agrupaciones mas combativas y dinámicas, pero minúsculas, y que en cierto sentido iban restando fuerza y cohesión al movimiento general de la música argentina, al establecerse rivalidades, pugnas y enfrentamientos mas o menos velados, que en ultima instancia debilitaban la posición de todos.⁵

...the multiplicity of postures... [...] resulted counterproductive in the long run because it broke the unity that was solid and without gaps, that seemed to rule,

⁴ Juan Maria Veniard, *Aproximación a la Música Académica Argentina*. (Buenos Aires: Ediciones de la Universidad Católica Argentina, 2000) p. 234.

⁵ Roberto García Morillo, *Estudios sobre música argentina*. (Buenos Aires: Ediciones Culturales Argentina, 1984) p. 340.

favoring then the creation and establishment of small, combative, and dynamic groups that to some extent debilitated the strength and cohesion of the Argentine music. The emergence of hostilities, oppositions, and ambiguous confrontations, weakened everybody's position [on Argentine art music]

Hostilities between these groups, however, did not prevent stylistic cross-references to both national and international trends within the musical production of single composers. Composers who came to prominence in this period were José Maria Castro, Juan José Castro, Arnaldo D'Espósito, Jacobo Ficher, Roberto García Morillo, Juan Francisco Giacobbe, Luis Gianneo, Pascual Grisolia, Isidoro Maiztegui, Juan Carlos Paz, Carlos Sufren, and the young Alberto Ginastera, Héctor Iglesias Villoud and Ángel Lasala.

The Grupo Renovación

The international style was quickly embraced by the members of the Grupo Renovación. This association of composers appeared in Buenos Aires in 1929 advocating the modernization of Argentine music through the promotion, mutual critical assessment, publication, and performance of their compositions. The ideals of the Grupo Renovación were in accordance with foreign associations and publications affiliated to contemporary music such as the International Society for Contemporary Music in Salzburg, Austria (1922), the New Music Society in California (1925), and the journal *Modern Music* from New York (1924). The founding members of Grupo Renovación were the brothers José Maria and Juan José Castro, Jacobo Ficher, Gilardo Gilardi, and

Juan Carlos Paz - who came to be one of the most prominent figures in contemporary music.

The diversity of musical postures and aesthetics embraced by the members of the group greatly contributed to the renovation and growth of contemporary music in Argentina. Omar Corrado refers to the group's artistic stance in the context of the Argentine nationalism apogee:

La opción neoclásica...de varios de los integrantes del grupo Renovación, por lo que ella conlleva de objetivismo, antisentimentalidad, abstracción, distanciamiento, autorreflexividad, incluso de paradójica modernidad, puede entenderse como oposición al nacionalismo romántico y gauchesco que cultivan las operas nacionalistas contemporáneas. Su paradigma, *El matrero*, es estrenada con gran suceso precisamente en 1929, año de la creación del Grupo Renovación, y representada, en los nueve años posteriores a su estreno, 39 veces en el teatro Colón y su anfiteatro, y 48 veces en las provincias.⁶

The neoclassic tendency... of several members of the Grupo Renovación, carries an inherent objectivism, anti-sentimentalism, abstraction, separation, auto-reflexivity, even modern paradoxical, that can be understood as opposition to the romantic and *gauchesco* nationalism that nurtured the contemporary nationalistic operas. Their paradigm, *El Matrero*, debuted with great success in 1929 (the same year the Grupo Renovación was formed) and was presented 39 times in Teatro Colón and 48 times in the provinces in the nine years after its debut.

However, the musical production of the Grupo Renovación was not uniform, nor was it solely confined to international trends. Some of its members adopted new techniques and aesthetic without necessarily committing their entire musical output to contemporary trends. Such is the case of Gilardo Gilardi (1889-1963) who composed nationalistic music before, during, and after his association with the group. His renewed symphonic work, *El Gaucho con Botas Nuevas* (1934), employs rhythms and melodies of

⁶ Omar Corrado, "Música culta y política en Argentina entre 1930 y 1945: una aproximación," *Música e Investigación*, no. 9. Revista del Instituto Nacional de Musicología Carlos Vega (2001): 13-33.

traditional dances such as the *chacarera* and the *malambo*. Remarkably, only after the dissolution of the Grupo Renovación in 1944 did Gilardi abandon the musical nationalism in favor of new contemporary expressions.

Although, José Maria Castro (1892-1964) remained skeptical to *avant-garde* tendencies, he stayed with the group until its dissolution. In his works, J. M. Castro adopts contemporary European techniques while keeping a definitive Argentine character. Juan José Castro (1895-1968), a central figure in the nationalistic movement in the decade of 1930, leaned toward an international style with a strong empathy for Spanish music. Toward the end of his career he turned to expressionism and experimented with serial techniques of extreme abstractions.⁷ A new influx of people who joined the group in 1931 included Luis Gianneo (1897-1968), Julio Perceval (1903-1963), Alfredo Pinto (1891-1968) and Honorio Siccardi (1897-1963).

The musical output of the members of the Grupo Renovación reveals a lack of common interests and aesthetic ideals. While the vast majority of composers favored the assimilation of neoclassical trends cultivated by Stravinsky, Milhaud, Hindemith, Copland and de Falla, the musical ideals of Juan Carlos Paz were tied to the more rationalistic approach of Schoenberg. The lack of a unifying element and the diversity of interests diminished the effectiveness of the group. In 1936, Paz distanced himself from the group to establish the Conciertos de Nueva Música and eventually founded the Agrupación Nueva Música in 1944. Paz then became a member of the International Society for Contemporary Music and increased the exposure of the group's work to

⁷ Béhague, 1979, p. 214.

foreign countries. The Agrupación Nueva Música advocated a more experimental approach sympathizing with the music styles of Varèse, Cowell, and, from 1940, Cage and Messiaen.⁸

Juan Carlos Paz and Twelve-tone Music

Twelve-tone music was considered the most radical trend in musical composition around the 1930s, and it had its first Latin American pioneer in Juan Carlos Paz. A true enthusiast of new music, Paz passionately opposed musical aesthetics that would embrace programmatic or sentimentalistic elements, hence, nationalistic music. He denounced aesthetic and conceptual inconsistency in Argentine national music and rejected its lack of professionalism and technical deficiencies.

...jamás me mostré más lapidario con respecto a los compositores de tendencia nacionalista, de gran auge a la sazón, que escribían *vidalitas* a la Debussy o Ravel, *malambos* a la Prokofiev o Bartók y operas en la línea de Verdi-Puccini-Massenet, con los nefastos descensos que son de imaginar.⁹

...I was never more strongly opposed to composers of the nationalistic trend, very successful during these times, writing *vidalitas* à la Debussy or Ravel, *malambos* à la Prokofiev or Bartók, and operas along the lines of Verdi-Puccini-Massenet, with the predictable dreadful consequences.

Even though he was a loyal follower of Schoenberg, Paz established his own dodecaphonic language through subtle tonal references and the deployment of tonal sequences (as opposed to the chromatic twelve-tone sequences used by Schoenberg). He was a composer of very strong principles, a severe critic, an articulate writer, and the

⁸ Gerard Behague, 1979, p. 272.

⁹ Juan Carlos Paz, *Memorias*. (Buenos Aires: Ediciones de la Flor, 1987) p. 113.

most important music theorist the country has had.¹⁰ Later, aware of the rational limitations of the twelve-tone system, Paz abandoned this method of composition in favor of a freer and more experimental style.

1945-1975: The Post-WWII Years

In order to understand the musical development in Argentina at the middle of the century, it is useful to highlight historical conjunctures of the time. Conflicts from the Spanish Civil War (1936-39) through the Second World War (1939-45) closed the global commerce that connected Argentina financially to the world. The economical isolation of the country led to industrialization by substituting imported goods with locally produced supplies, thus forcing Argentina into an economic growth by stimulating local industries. The resulting increase of the overall wealth of the country facilitated the establishment of public and private organizations and institutions, thereby encouraging musical activities.

The endeavors of well-established organizations such as the Teatro Colón and Asociación Wagneriana as well as the emergence of several private and governmental institutions contributed to create the most prominent musical life in Latin America.¹¹ The 1950s witnessed the rise of music schools, the national radio, music press, symphonic orchestras, and the incorporation of new music subjects in the academic programs of many universities.

¹⁰ Graciela Paraskevaídis, “Música dodecafónica y serialismo en América Latina.” Montevideo, (1997-2000).

¹¹ Gerard Béhague. *Music in Latin America: An Introduction*. (New Jersey: Prentice-Hall, 1979), p. 328.

In addition, Argentina quickly converted to a worldwide refuge for foreign musicians seeking political asylum from racial persecutions and the post-war crisis. Escaping from the Spanish Civil War in 1939, Manuel de Falla was helped by Juan José Castro and his wife upon arrival in Buenos Aires and established himself in the province of Córdoba where he later died in 1946.¹²

Musical Trends

Three groups of composers coexisted in the Argentine cultural scene after 1950. On the one hand, composers of earlier generations cultivated a weakened national style. On the other, composers of the so-called international current continued to write music in neo-classic and neo-romantic styles. This trend was represented by important musical productivity around the 1950s and had its major proponents in the works of Juan José Castro (1895-1968) and Alberto Ginastera (1916-1983). A new generation of composers with a more experimental spirit came to contribute to the scene of twentieth-century music. Among the more prominent composers of this period were Roberto Caamaño (1923-1993), Pompeyo Camps (1924-1997), Rodolfo Arizaga (1926-1985), Alcides Lanza (b. 1929), Mauricio Kagel (b. 1931), Antonio Tauriello (b. 1931), Mario Davidovsky (b. 1934), and Gerardo Gandini (b. 1936).

¹² Omar Corrado, "Música culta y política en Argentina entre 1930 y 1945: una aproximación." *Música e Investigación*, no. 9. Revista del Instituto Nacional de Musicología Carlos Vega (2001): 13-33.

Music Associations

An artistic level and musical proficiency never reached before was obtained in Argentina by the emergence of many musical associations. In addition to the musical endeavors of the Asociación Wagneriana, new organizations came to occupy and stimulate the musical scene. Among them were the Asociación Amigos de la Música (founded in 1946) and the Mozarteum Argentino (founded in 1952).

The composers' forums that took place at the Editorial de la Música Argentina (EAM) led to the upsurge of new groups of composers associated under similar ideals: the Asociación de Conciertos de Cámara (1952) and the Asociación de Jóvenes Compositores de la Argentina (1957) founded by Mario Davidovsky and Alcides Lanza. The study and promotion of contemporary music was the main aspiration of the Agrupación Euphonia, later known as the Agrupación Música Viva, which was founded by Gerardo Gandini and Armando Krieger in 1959.

Symphonic Orchestras

The period from the 1950s also saw the birth of instrumental organizations and symphonic orchestras that greatly contributed to the development of art music and have since established a high level of proficiency. The Orquesta Filarmónica de Buenos Aires was founded in 1946; the Orquesta Sinfónica Nacional appeared two years later, and the Orquesta Sinfónica de la Radio Nacional was founded in 1951. The intense cultural activity that characterized these years also reached the provincial areas. In addition to the earlier existence of the Orquesta Sinfónica de Córdoba (1932), new instrumental

organisms appeared thanks to the financial support of provincial governments and universities: the Orquesta Sinfónica Provincial de Santa Fe (1956), the Orquesta Provincial de Rosario (1959), the Orquesta Filarmónica del Gobierno de la Provincia de Mendoza, and the Orquesta Sinfónica de la Universidad Nacional de Cuyo (1948). Similar institutions were founded in other cities such as La Plata, Mar del Plata, Bahía Blanca, Tucumán, San Luis, Salta, and San Juan. Therefore, the country witnessed the emergence of concomitant instrumental institutions that, since their establishment around the middle of the twentieth-century, had fought for their institutional existence throughout the different political currents and economic hardships of the country.

The Universities

The creation of musical art degrees in undergraduate and graduate studies proliferated in the 1960s from both governmental and private sectors. The School of Fine Arts and Sciences of the Universidad Católica Argentina (UCA) was founded in 1960 under the direction of Alberto Ginestra and offered degrees in composition, sacred music, musicology, and music education. In 1966, the UCA founded the Instituto de Investigación Musicológica Carlos Vega to promote the development of music research and to technically support the music courses taught at the university. The Universidad del Salvador (also in Buenos Aires) incorporated in 1967 a music-therapy degree at the School of Medicine.

Educational centers and experimental institutes dedicated to contemporary music were also established in the provinces. In 1947, the Universidad Nacional del Litoral

launched the Instituto Superior de Música in Santa Fe. This institution currently has a regular publication which discusses music theory and new compositional techniques. The Escuela Superior de Arte de Rosario included classes and seminars in contemporary music since its foundation in 1970, and the Universidad de Córdoba incorporated a degree in music in 1960.

The Latin American Center for Advanced Musical Studies

The Latin American Center for Advanced Musical Studies (CLAEM) at the Di Tella Institute of Buenos Aires was established in 1962 by initiative of the Rockefeller foundation. The center was directed by Alberto Ginastera – considered among the most significant Latin American composers of the time. In addition to Ginastera’s contacts and recognition in North America, his teaching profile as the founder and director of the Facultad de Artes and Ciencias Sociales at the UCA in Buenos Aires confirmed him as the optimum candidate for the conduction of the CLAEM. The center offered two-year fellowships to twelve Latin American composers and promoted the most advanced compositional techniques through the organization of seminars conducted by internationally renown composers such as Aaron Copland, Luigi Dallapiccola, Oliver Messiaen, Luigi Nono, and Iannis Xenakis. During its ten years of existence, the CLAEM facilitated the young Latin American fellows’ exposure to the most advanced trends in music composition.

The Rise of Electroacoustic Music

Electroacoustic music was quickly accepted among the most innovative composers in Argentina. According to the International Electronic Music Catalog (1968) by Hugh Davies, Mauricio Kagel composed nine electroacoustic pieces between 1950 and 1954 in Argentina; among them *Música para la Torre* (1954) for prerecorded sounds with light projections. Kagel then moved to Germany in 1957 where he earned worldwide recognition. Another composer who submerged into the field of electroacoustic composition was Hilda Dianda (b. 1925). She worked in Europe with Francesco Malipiero and Hermann Scherchen at the Instituto de Fonología de Milán, and her musical compositions include instrumental and electroacoustical works. Rodolfo Arizaga composed the first Argentine compositions to employ the *Ondes Martenot*, such as *Délires* (1957) and *El Organillo* (1958).

Around the 1950s and 1960s, the Universidad de Córdoba (UNC) and the Universidad de Buenos Aires (UBA) were the two prominent centers of experimentation in the field of electronic music. The first established laboratory in Latin America, the Estudio de Fonología Musical at the UBA, was founded in 1958 by Francisco Kröpfl and Fausto Maranca. While there, Kröpfl composed *Ejercicio de texturas* (1959) and *Ejercicio de pulsos* (1960). Since 1962, Kröpfl also was director of the Laboratorio de Música Electrónica at the Di Tella Institute where CLAEM functioned.

In Córdoba, the house of Horacio Vaggione was the gathering place for experimental composers such as Graciela Castillo, Oscar Bazán, and Carlos Ferpozzi among many others. The same group of composers created the Centro de Música

Experimental at the Universidad Nacional de Córdoba. While at the center, Vaggione composed a number of important compositions, among them, *Ritual* (1963) and *Hierro y Espacio* (1964) for electronic sounds and *Fausto* (1966) for electronic sounds and orchestra.

Several Argentine composers were attracted to electroacoustical compositions and contemporary compositional methods while working or studying abroad. Alcides Lanza worked during the 1960s at the Columbia-Princeton Electronic Music Center in New York where he composed some of his most renowned compositions such as *Plectros II* (1966) for piano and tape and *Interferences II* (1967) for percussion ensemble and tape. Lanza moved to Montreal in 1971 where taught composition at McGill University until 2005. Also at the Columbia-Princeton Electronic Music Center was Mario Davidovsky. In 1960, he obtained a scholarship that allowed him to study with famous composers such as Varèse, Babbitt, Ussachevsky, Luening and Sessions. Among Davidovsky's most distinguished works are the series of ten *Synchronisms* (1963-1974) for live instruments and pre-recorded sounds attesting for his continuous interest in articulating acoustic and electronic media into a coherent musical discourse. *Synchronisms No. 1* was written for flute and tape in 1963, and *Synchronisms No. 6* for piano and tape would win Davidovsky the Pulitzer Prize in 1971. Another composer interested in electroacoustic music was Eduardo Bértola, who during his years in Paris studying with Pierre Schaeffer and Emile Leipp, wrote the electroacoustic works *Episode* and *Penetraciones* (1969), *Dynamus* and *Pexoa* (1970), and *Penetraciones II* (1971).

1975 to Present: From Dictatorship to Democracy

The historical period known as *El Proceso* refers to the time of military dictatorship from 1976 until the reestablishment of democracy in 1983. During 1976 and 1978, more than 30,000 people between 15 and 35 years-old disappeared. It was a true genocide of a complete generation. Many academic institutions were condemned and public opinion and freedom of expression were stifled. Trade unions or any other kind of political activities were forbidden. The media and the press were subjected to a strict censorship, and artists and intellectuals were closely observed. In this frame, there was neither much space nor support for the development of any kind of artistic expression, and many musicians and artists were exiled to other countries seeking political asylum. Contemporary music trends that had been cultivated during the 1950s and 1960s were abandoned, or at least concealed, until the arrival of the democratic government of Raúl Alfonsín. The political transition to democracy encouraged the return of artists and intellectuals to the country as well as their re-inclusion into the academic life and national media. The proliferation of music institutions, academic programs, instrumental groups and concert series has had, since then, an ever-increasing impact upon the diffusion and study of contemporary music.

Multiplicity of Styles

Far from one school or technique attaining primacy, the tendency of the last decades of the century has been toward a multiplicity of trends. Assorted compositional procedures and styles were applied on a basis of personal instances and preferences.

Indeed, a variety of musical idioms can often be perceived even within the work of a single composer. Twelve-tone techniques, polytonal, non-serialist and atonal were common practices along with newer compositional techniques such as aleatory music, minimalism, electroacoustic music, and instrumental experimentation. Among the new generation of composers were: Marta Lambertini (b. 1937), Eduardo Kusnir (b. 1939), Armando Krieger (b. 1940), Mariano Etkin (b. 1943), Julio Viera (b. 1943), Luis Maria Serra (b. 1942), Lionel Pilippi (b. 1943), and Carmelo Saitta (b. 1944).

New Music Schools and Music Programs

The restoration of democracy encouraged the creation of new institutions promoting the study and research in musical subjects. In the last two decades of the twentieth century, the Dirección Nacional de Enseñanza Artística founded the Centros Polivalentes de Arte dedicated to the teaching of the arts. Located throughout the country, these centers contribute to the preparation of music teachers not only in Buenos Aires but also in the provinces of Chubut, Córdoba, La Rioja, Mendoza, Misiones, Santa Fe and Tierra del Fuego.

Several centers for music research and studies were established in Buenos Aires. During the 1980s, the Fine Arts School at the Universidad de Buenos Aires incorporated academic programs in music, theatre, and film. The Universidad de Quilmes and the Universidad de Morón were among the institutions founded in the surrounding areas of Buenos Aires in the past two decades. Both institutions began programs of electroacoustic and contemporary music composition oriented to young composers interested in

composing via advanced technologies. In addition, in 1982, the Universidad Católica de Buenos Aires launched new programs in choral and orchestral conducting and created the Centro de Estudios Electroacústicos in 1988.

The Centro de Estudios Avanzados en Música Contemporánea (CEAMC) was founded in 1993. Under the direction of composer Rubén Blasco, this institution offers two-year graduate programs in contemporary music, jazz, popular music, and electroacoustic music composition. The main purpose of the CEAMC is to promote Argentine contemporary music through the organization of concerts and seminars on new music.

In 2003, the Universidad Nacional de Cuyo (UNC) launched a Master's program specialized in the performance of contemporary Latin American music. Directed by Dora de Marinis, the program advocates Latin American music through the study of its music, composers, and cultural identity. Seminars on Latin American music are offered by renowned musicologist and composers such as Gerard Béhague (USA), Mario Lavista (Mexico), Diego Luzuriaga (Ecuador), and Francisco Kröpfl (Argentina).

New Advances in Electroacoustic Music

The CLAEM (1962) and the Estudio de Fonología Musical at the UBA (1958) began their downfalls at the beginning of the 1970s. At the same time, another center gained ground in Buenos Aires. The Centro de Investigación en Comunicación Masiva, Arte y Tecnología (CIMAT) was created by the Buenos Aires municipal government and directed by Jose Manzanero, Gerardo Gandini, Francisco Kröpfl, Fernando Reichenbach and Gabriel Brncic (Chile). In 1975, Eduardo Bértola, Jorge Rapp, Graciela

Paraskevaídis, María Esther Cora and Raúl Rodríguez founded the Núcleo de Música Nueva de Buenos Aires, devoted to the promotion of electroacoustic music. The Centro Cultural Recoleta was founded during the 1980s under the direction of Jose Manzanaro who encouraged the creation of the Laboratorio de Investigación y Producción Musical (LIMP). Francisco Kröpfl undertook the direction of the LIMP where he was able to gather the best technology by acquiring equipment which once belonged to the former CIMAT and CLAEM. Currently, the LIMP constitutes the most advanced center for computer-assisted composition in Argentina.

Contemporary Music Ensembles

The dissemination of twentieth-century music in Argentina in the last decades has been promoted by the valuable endeavor of chamber music groups dedicated to the performance and study of contemporary music. Created in 1996, the CEAMC's Quintet (comprise of flute, violin, clarinet, cello and piano) has premiered pieces for Argentine audiences of classic-contemporary composers such as Boulez, Feldman, Scelsi, Stockhausen, Berio, Berg, Webern, Schoenberg, Messiaen, and Stravinsky. Through the commission and performance of pieces, the quintet has also contributed to the promotion of notable Argentine composers such as Gerardo Gandini, Manuel Juárez, and Salvador Ranieri.

The Gest(u)alt Ensemble is a group of musicians comprised of instrumentalists, composers, and technicians dedicated to the improvisation and exploration of new instrumental sounds and their interaction with live electronic sounds. Under the direction

of Jorge Sad, the group functions as a resident ensemble and research team at the Instituto de Investigación en Sonido y Música por Medios Digitales at the Universidad de Morón since 2001. Sad states that the ensemble works “in such a way that the distinction between ethnic music, art-rock, and contemporary music is suppressed.”¹³

In 1997, Oscar Edelstein created the *Ensamble Nacional del Sur* (ENS). This group serves as a forum for music research and creation that includes composers, performers, and technicians whose common goal is to gather and further their knowledge of the performance and composition of contemporary music. This group has performed in Buenos Aires, the University of Washington in Seattle (USA), and at the Art Institute at the University of Brasilia. Since 1999, the ENS has been recognized as a research project *Música y Drama, Nuevas Direcciones en Performance* sponsored by the Universidad de Quilmes and the Fine Arts Institute at the Universidad Nacional de Buenos Aires.

The cosmopolitan ensemble *LonBa* was created in 2003 by Christian Baldini, Matias Giuliani, and William Atwood (England). Through its two years of existence, the ensemble has repeatedly presented contemporary music concerts at the Centro de Experimentación del Teatro Colón (CETC). The ensemble encourages the promotion of works composed by its members as well as Argentine and British twentieth-century compositions. Its repertoire includes electroacoustic and instrumental works by national composers such as Marta Lambertini, Jorge Horst, Jorge Sad, and Carmelo Saitta, and

¹³ Program notes by Jorge Sad (2000).

international composers such as Giacinto Scelsi, Simon Holt, Morgan Hayes, and Anthony Gilbert.

Focused mainly to perform Argentine and Latin American contemporary music, the *Compañía Oblicua* was created in 2004 by the initiative of composer Marcelo Delgado. Currently, the group is a resident ensemble at the CETC collaborating on the production of an interdisciplinary project that includes choreographies and music newly composed for the next series of concerts starting in April 2005.¹⁴

Music Festivals and Concert Series

In the last decades, the emergence of music associations and foundations has contributed to a greater public appreciation of new aesthetics and trends through the systematic organization of concerts, music festivals, and contemporary music seminars. The Fundación Encuentros, founded and directed by composer and musicologist Alicia Terzian, has been a correspondent of the International Society of Contemporary Music since 1979. The main objectives of the foundation include the commission, creation, and performance of new works and the organization of seminars and workshops on contemporary music. Annually, the foundation organizes an international festival in which local and international artists are gathered to facilitate the diffusion of Argentine and Latin-American music.

Launched by the Modern Art Museum Association of Buenos Aires and musically directed by Jorge Haro, LIMbØ is an inter-disciplinary project whose goal is to promote

¹⁴ Marcelo Delgado, correspondence to author (February, 2005).

artistic creation and experimentation through new technologies and to offer a suitable space for Argentine composition. In this context, the center organized the Iberia and Latin American Art and New Technology Festival in December of 2004. LIMbØ, regularly organizes concerts, seminars, and lectures related to vanguard composition through advanced technology.

Many events and concerts series are organized regularly with the objective of creating a suitable space for the performance and premiering of contemporary music. Since its inception in 1984, the Centro Cultural Rojas (CCR), annexed to the UBA, has been consolidated as a venue for promoting artistic and cultural productions. Concerned with the integration of popular and art music genres, the center gives a series of popular and contemporary music concerts. The concert series *Experimenta* was created by Claudio Korembli in 1997 and supported by the CCR and the Buenos Aires municipal government until 2000. The concerts were interrupted by the economic crisis suffered by the country in 2001, and have been recently reestablished in 2005 as an independent cooperative at the Centro Latinoamericano de Creación e Investigación Teatral (CELCIT).

The Centro de Experimentación del Teatro Colón was founded in 1996 by Gerardo Gandini and supported by the municipal government of Buenos Aires. Currently, the center offers a series of contemporary music concerts organized by Martin Bauer and Diana Teocharidis. Other venues for the performance of new music in Buenos Aires are facilitated by cycles of contemporary music concerts at the Teatro Municipal

San Martín, Goethe Institute, and SADAIC (Agency for the Argentine Society of Writer and Composers of Music).

In the provinces, the promotion of contemporary music has been taking place mainly at academic institutions by the organization of master classes, seminars, lectures, conferences, and concerts. In 2004, the Instituto Superior de Música at UNL hosted the Second Contemporary Music Journeys in Santa Fe where distinguished composers and musicologists offered classes and seminars on twentieth-century music. Among the faculty were Graciela Paraskevaídis, Dante Grella, Jorge Horst, Osvaldo Budón, Marcelo Toledo, and Jorge Molina.

The Contemporary Art Museum at the Universidad Nacional de Misiones (MACUNaM) organized the concert series *Otras Musicas I* and *II* (in 2003 and 2004, respectively) including guest artists and composers Wade Mathews (United States), Bob Rainey (United States), Francisco López (Spain), Lê Quan Ninh (France), and the Argentines Jorge Haro, Leonel Kaplan, and Diego Chamy.

Chapter 2: The Development of a New Instrumental Idiom

Contemporary music makes almost universal use of materials formerly considered unusable – Henry Cowell

Introduction

The twentieth-century was characterized by an increasing multiplicity of postures in all areas of the arts. From the beginning of the century, composers turned toward new sonic materials in search of new means of musical expression. Musical composition was then marked by a strong interest in timbre and embraced the incorporation of noises and complex sonorities into the musical discourse.

The development of new instrumental techniques has been a remarkable phenomenon in contemporary music to which many factors have contributed. In addition to being a direct consequence of timbric expansion, instrumental techniques have also been influenced by the extensive use of percussion instruments, the inclusion of folk and newly-invented instruments, the arrival of electronic music, the exposure to jazz and rock techniques, and finally, the advent of an ever-increasing number of instrumentalists who were genuinely interested in exploring and establishing new idiomatic resources of the flute.

It would exceed the scope of this study to comprehensively investigate all the tendencies and trends that populated the landscape of contemporary music in the past century. However, a glance at the different aesthetics that led to the development and application of extended instrumental techniques may shed some light onto the

understanding of how and why these techniques were created and what potential they offer to composers and performers alike.

A Journey to Instrumental Experimentation

On Timbre and Color

At the beginning of the twentieth century, composers began to conceive a type of music in which tone color would replace pitch as a primary structural element of the work of music. Traditional musical parameters such as meter, fixed pitch, and metric organization of rhythms were becoming less important in favor of a greater concern for timbre as a constructional resource in music composition. The interest then turned from melodic, rhythmic, and chordal organization to the nature of sound and all of its resources. Elements such as attacks, decay, texture, timbre, and frequency became the tools to articulate and convey a new musical language.

The expansion of the timbral palette to new kinds of sonorities devoid of discernible pitches led to the dissolution of traditional linear voice-leading concepts. Instead, a new concern for the vertical dimension paved the way for the liberation of *musical space* from the hierarchy of chordal components, the vertical ordering and spacing of which were previously determined by the traditional tonal principles of triadic construction and function.¹⁵

As part of the new interest in expanding sonic possibilities, composers in the early part of the century began to exploit different instrumental techniques that enabled them to extend the palette of instrumental colors. One of the pioneer figures of this instrumental expansion was Henry Cowell (1897-1965), who besides introducing cluster sonorities,

¹⁵ Elliot Antokoletz, *Twentieth-Century Music*. (New Jersey: Prentice-Hall, 1992). p. 337.

expanded piano techniques to strumming, plucking, and producing harmonics and glissando slides on the piano strings. Additionally, percussion instruments were some of the first sonic fields in which composers dared to explore. John Cage (1912-1992), a follower of Cowell, turned to composition for percussion instruments almost exclusively in the 1920s and 1930s. Cage then went further into the expansion of the sonic possibilities of instruments by modifying the conventional piano with the insertion of metal, rubber, wood, and other types of objects between the strings of the instrument.

From Sounds to Noises

Musical approaches based primarily on the organization of noise and timbre had their roots in Italian Futurism early in the twentieth-century. Futurism, as expressed in the 1913 manifesto of the painter and composer Luigi Russolo, *L'arte dei rumori* (The Art of Noises), was a musical philosophy inspired by modern urban sounds that incorporated noises as the basis for their musical idiom. Although musical Futurism flourished for a very short time between 1909 and 1915, its musical influence on percussion and non-notated composition was historically significant.

...writers, artist, and musicians began to search for new aesthetic bases and new technical media that would reflect the dynamic character of contemporary society and extol the age of the machine, motion, war, and violence.¹⁶

The French-American composer Edgard Varèse (1883-1965) sympathized with the Futurist ideas, considering sounds of modern life and technology as a potential source for developing a new musical language. However, Varèse opposed the musical

¹⁶ Ibid., p. 341.

philosophy of the Futurists and argued that they failed to transform basic materials drawn from everyday sounds into a more abstract and integrated musical idiom.

The Futurist believed in reproducing sounds literally; I believe in the metamorphosis of sounds into music...¹⁷

The inclusion of noise – that is, sounds with a high degree of indeterminacy – in musical composition offered a greater gamut of sonic materials available to musical composition and paved the way to the production of unconventional instrumental sounds.

Electronic Manipulation of Sounds

In 1948, Pierre Schaeffer (1910-1995) began to consider the use of natural sounds as the basis for musical compositions. Following the steps of the Italian Futurists, Schaeffer proposed the transformation of sounds and noises by mechanical manipulation through the use of the gramophone. The further invention of the magnetic tape after 1950 greatly facilitated the mathematical and technological control of musical parameters and timbral expansion sought in both *musique concrète* and electronic music. The basic difference between *musique concrète* and electronic music is the source of the sound themselves. While *musique concrète* uses natural sounds recorded directly on tape, electronic music uses sounds exclusively generated from electronic devices and recorded on magnetic tape. Although subjected to discrepancies and arguments in the beginning, in the late 1950s, both aesthetics often were joined in single compositions.

¹⁷ Ibid., p. 343.

The production, manipulation, and synthesis of the sound's parameters by means of electronic generators and the use of the magnetic tape have resulted in a radical transformation of the musical panorama. New technologies applied to music composition have led to unlimited possibilities for the manipulation of frequencies, durations, timbres, and dynamics. Since the advent of electronic music, composers and instrumentalists alike have been compelled to bring these innovations to the instrumental arena by imitating a greater palette of sounds and effects. Regarding the impact of electroacoustic music upon musical composition in the twentieth-century, George Crumb expressed:

The advent of electronically synthesized sound after World War II has unquestionably had enormous influence on music in general. Although I have never been directly involved in electronic music, I am keenly aware that our sense for sound characteristics, articulation, texture, and dynamics has been radically revised and very much affects the way in which we write for instruments. And since I have always been interested in the extension of the possibilities of instrumental idiom, I can only regard the influence of electronics as beneficial.¹⁸

Mixing Instrumental and Electronic Sounds

Further timbral and technical expansion was created through the combination of live instruments and pre-recorded or interactive sounds. The interchangeability of their functions exerted the need to create new instrumental resources that could ease the dialogue between instruments and electronic mediums. To coordinate the performance of live instrumental and pre-recorded sounds, the instrumentalist is often instructed to improvise passages exploring figures, timbres and colors while interacting with the

¹⁸ George Crumb: "Music, does it have a future?" *The Kenyon Review*, (1980).

electronic sounds. Techniques such as glissandi, microtonal inflections, flutter tonguing, and key clicks were some of the first to be utilized in combination with electronic sounds.

The Computer in Musical Composition

Electronic music paved the way for the use of computers in musical composition by the late 1950s. The musical application of the computer first developed in the United States at Stanford University by the American composer and computer-music pioneer John Chowning (b. 1934) and was furthered in France at the Institut de Recherche et Coordination Acoustique/Musique (IRCAM) directed by Pierre Boulez (b.1925).

Along with electroacoustic media and the experimental inclusion of noises, the use of digital technology as a means for musical creation exerted a great influence on the development of new instrumental techniques. The digital manipulation of all parameters of sounds led to a greater compositional control. The computer offered even greater and more precise technical resources for producing different speeds, durations, textures, dynamics, attacks, decays, and intonations. Composers began to use these possibilities in instruments urging performers to explore the peripheral fields of sounds through the development of unconventional techniques and thus creating an entirely new instrumental language.

A New Instrumental Language

I dream of instruments obedient to my thought and which with their contribution of a whole new world of unsuspected sounds, will lend themselves to the exigencies of my inner rhythm. – Edgard Varèse

The Contemporary Repertoire for Flute

The flute achieved a privileged position as a primary solo instrument of the twentieth-century repertoire thus becoming an idiomatic vehicle for the development of new sound effects and techniques. The first piece written for solo flute that demanded the utilization of extended techniques is believed to be *Density 21.5* written by Edgard Varèse in 1936. The instrumental idiom of *Density 21.5* reveals Varèse's preoccupation with extending the sonic boundaries of the instrument by including an extended range of register, extreme dynamic contrasts, and the use of percussive effects obtained by slapping the keys of the flute.

This experimental spirit traveled to different locations throughout the world. In Brazil, Heitor Villalobos composed his *Assobio a jato* (Jet Whistle) in 1950, asking the flutist to blow with great force directly into the mouthpiece of the instrument to create an unpitched sound similar to a whistle. In 1958, Luciano Berio wrote *Sequenza I*, another landmark in the solo flute repertoire which contains the first notated multiphonic sound for the flute. Conceived entirely in proportional notation, its contemporary language includes sudden dynamic and register changes, key slaps, and extensive use of flutter tonguing.

Other avant-garde composers who explored the innovative language of the flute around this time include Oliver Messiaen with his *Le Merle Noir* (1951) and André

Jolivet with *Cinq Encantations* and *Suite en Concert* (1965). The arena of electroacoustic music composition for flute had been favored by many distinguished composers. According to Ardal Powel, Bruno Maderna appears to have been the first composer to have combined taped electronic music with solo live performance as early as 1952 in his *Musica su due dimensioni I* for flute, percussion, and tape.¹⁹ At the Columbia-Princeton Electronic Music Center, the Argentine composer Mario Davidovsky composed *Synchronism I* in 1963. Conceived for solo flute and pre-recorded sounds, *Synchronism I* holds the distinction of being the first electroacoustic piece to convey an extended conception of instrumental resources by the utilization of percussive attacks, key-clicks, and flutter tonguing.

In the 1990s, Karl Stokhausen composed several pieces dedicated to flutist Kathinka Pasveer utilizing extended instrumental techniques. These pieces were to be performed in a theatrical sense, incorporating gestures and scenic movements within the composition. In East Asia, contemporary compositions for flute found inspiration in the long-established tradition of the Japanese *shakuhachi*, and other non-mechanized instruments. The characteristic use of microtonal inflections in Asian music paved the way to the incorporation of quarter-tones and other variations of pitch in the contemporary repertoire for flute. An important body of Asian works was produced after World War II by composers such as Yoritsune Matsudaira, Toru Takemitsu, and Kazuo Fukushima. Other notable compositions which denote a technical expansion of the

¹⁹ Ardal Powell, *The Flute*. (New Haven and London: Yale University Press, 2002) p. 273.

instrument's idiom were conceived by John Cage, Pierre Boulez, Krzysztof Penderecki, Luigi Nono, Salvatore Sciarrino, Morton Feldman and the Finnish composer Kaija Saariaho among many others.

Performers/composers

A prominent contributing factor in the establishment of a new instrumental vocabulary was the ever-increasing number of instrumentalists who specialized in the performance of *new music* and were eager to explore and expand the sonic capabilities of the flute. Consequently, many of these innovative performers began composing for the instrument with direct performance experience. Indeed, the development and application of extended techniques required a thorough understanding of the instrument's possibilities that often-times, only a performer knew in detail.

Not until the avant-garde revolution did flutists again begin writing for their instrument to any significant extent. When they did, it was a matter of necessity, because the new techniques required such intimate knowledge of the instrument's technical capabilities.²⁰

Among these versatile musicians, the New York-born Robert Dick embodies the multifaceted profile of a virtuoso, innovator, improviser, and composer. He describes himself as “a musician with twenty-first-century skills and eighteenth-century attitudes” and explains in an interview by the Italian flute journal *FaLaUt* in 2001:

In the 19th century, there was a schism in the world of European music. Creativity and performance were separated from each other. In the 18th century, musicians were trained as musicians first and as players of several instruments secondly.

²⁰ Nancy Toff, *The Flute Book: A Complete Guide for Students and Performers*. (New York: Charles Scribner's Sons, 1985) p. 256.

Thus all players had creative skills and could compose and improvise. I am one of the many musicians worldwide who see the role of the musician in the 18th century terms. It's just that we are playing the music of our time –composing, performing, and improvising.²¹

When asked about his twentieth-century attitude, Dick replied it was “to be aware of as much music as possible without limits of genres or worrying if something is classical or not and to draw freely on it all.”²²

Known worldwide for reinventing the vocabulary of the contemporary flute, Robert Dick developed an imaginative style that combines the traditions of classical music, rock, blues, world music, jazz, and electronic music. Through his own publishing company, Multiple Breath Music Imprint, Mr. Dick has authored recognizable standard methods in the contemporary music literature for flute including *The Other Flute: a Performance Manual on Contemporary Techniques* (1975), *Tone Development through Extended Techniques* (1986), *Circular Breathing for the Flutist* (1987), and a catalogue of more than 70 works for flute, piccolo (in C and A^b), alto flute, and bass flutes in (F and C). Dick moved to Switzerland in 1992, was awarded the Guggenheim Foundation Fellowship in 1994, and currently lives in New York City where he is on the faculty at New York University (NYU). Having transcended the expressive and technical capabilities of the flute, Dick's compositions and methods continue to inspire performers and composers alike.

In Switzerland, Matthias Ziegler is another versatile and innovative flutist. A composer and performer, Ziegler has broadened the expressive potential of the

²¹ Robert Dick, interview by Renata Cataldi, published in *FaLaUt*, Italy, 2001.

²² Robert Dick, interview by Ann Cecil Sterman, for the New York Flute Club, New York, 2003.

conventional flute and the electroacoustically amplified bass and contrabass flutes. His compositions incorporate elements of jazz, classical, and folk music reflecting a wide range of diverse musical influences. As a member of the Collegium Novum Zurich, Ziegler has worked with composers such as Mauricio Kagel, Heinz Holliger and George Crumb. Ziegler is currently on the faculty of the Musikhochschule Winterthur in Zurich.

Another remarkable flutist who has contributed to the establishment of a new vocabulary of sounds for flute is Pierre-Yves Artaud. As professor of flute at the Paris Conservatoire, he has authored several flute collections, methods, and treatises relevant to both modern and traditional flute playing. Among the most renowned are *Elementary Method for the Flute* (1972) available in several languages (e.g., French, Japanese, German, and English); and in collaboration with Gérard Geay, *Present Day Flutes* (1980), and *A Propos de Pédagogie* (1996). Artaud has worked on important research projects on the flute, particularly at the IRCAM in Paris, where he was put in charge of the Instrumental Research Workshop of Pierre Boulez from 1981-1985.

Flute-making Innovations

The implementation of extended techniques in the contemporary flute repertoire has been facilitated by the development of new flute manufacturing innovations that enhance the performance of contemporary music. Eva Kingma, a Dutch flute maker and the first female craftsman of a long-established male tradition, began building wooden flutes in the 1950s. In collaboration with flutist Jos Zwaanenburg, Ms. Kingma designed the first open-hole alto flute and later extended the same concept to bass flutes, thus

adding the technical potential for performing extended techniques such as glissandi, multiphonics, and color trills, among other effects to these instruments. An absolute breakthrough in contemporary flute making was her development of the quarter-tone scale flute, today available from several flute manufacturing companies.

Brannen Brothers Inc., a well known manufacture of fine flutes, was established by brothers Bickford and Bob Brannen in 1978. With an open approach towards radical innovations, the firm quickly adopted the revolutionary Eva Kingma quarter-tone flute. Currently, the company offers the *Brannen-Cooper Kingma System* flute which features a full quarter-tone scale as well as complete multiphonic venting that allows the player to perform not only chromatic quarter-steps scales but also chromatic multiphonic progressions.

The increasing interest upon electronic manipulation and amplification of flutes has led to a technical exploration in the manufacturing of lower range flutes with soft and rich tones of great expressive potential. In 1981, the German flute maker, Christian Jaeger, built the first double bass flute (two octaves lower than the concert flute). Flute makers in France, such as Michel Parmenon and Jack Leff, created a double-bass flute in C with a B-foot in collaboration with flutist Pierre-Yves Artaud in 1983.

The most recent revolutionary invention came about in 2004 as Robert Dick's Glissando Headjoint (manufactured by Brannen Brothers Flute Makers). This device facilitates glissando inflections of a major third for a short length of air (such as C2) and a major second for a long length of air (such as the low B1). The telescoping Glissando Headjoint slides down inside a carrier tube to extend or shorten the length of the flute and

thus lowering or raising the resultant pitch. A mechanical device extends from the lip plate embracing the flutist's cheeks to ensure the steadiness of the instrument and embouchure position.

Extending the Technical Boundaries

New Sounds, New Techniques

Throughout the twentieth-century, the flute idiom has been extended beyond its traditional monophonic character. Nowadays, the flute is capable of producing a versatile array of sonorities beyond its traditional conception. Generally speaking, the contemporary vocabulary for flute encompasses some of the following sounds: 1) polyphonic textures created by the execution of multiphonics, and simultaneous singing and playing; 2) pitch inflections obtained by the use of microtones, bending, and glissandi; 3) unconventional attacks and articulations involving percussive and toneless attacks created through the combination of air and tongue strokes as well as vocal effects; 4) a variety of tone-production devices including, buzzing, whistle-tones, flutter tonguing; and, lastly, 5) a wide palette of color and timbral possibilities through the employment of alternative fingerings and natural harmonics.

In light of the extant major sources available on the production of extended techniques later recommended on this chapter, this study will not elaborate a detailed explanation of each technical device. However, thorough explanation and recommendations on the performance and interpretation of extended techniques is provided in the analysis of pieces included in the following chapters.

Technical Benefits

The daily practice of extended techniques requires the performer's exploration of different blowing angles, air pressures, and an extended range of embouchures and mouth positions. This exploration sensibly increases the player's air support, lip suppleness and body resonance thus greatly benefiting his technical development not only in contemporary but also in traditional playing.

This work [extended techniques] develops the strength, flexibility and sensitivity of embouchure and breath support, increasing the player's range of color, dynamics and projection.²³

Robert Dick emphasizes that the practice of extended techniques should be understood as a complement to traditional practice and never a substitution. A balanced practice program should then include etudes and works from the traditional repertoire as much as new techniques. In this way, the complement between traditional and contemporary practices empowers not only technical but interpretative aspects of performance.

Considerations on Flute Designs

As opposed to the plateau or closed-hole model flute, an open-hole or French model flute with a low-B footjoint is preferred for the performance and practice of extended techniques. The longer length of the tube as well as the open-hole keys permits

²³ Robert Dick, *Tone Development Through Extended Techniques*. (St. Louis: Multiple Breath Music Company, 1980) p.7.

the production of a greater number of multiphonics and tone-colors by half-holing the open-hole keys. The model is also more advantageous because the open-hole mechanism facilitates the performance of pitch inflections such as microtones and glissandi.

While the concert flute (standard C-flute) is a well standardized instrument in terms of its construction and measurements; piccolos, alto, and bass flutes are far from the case at present. According to Robert Dick, these instruments vary in considerable ways from maker to maker thus affecting the acoustical qualities and capabilities of producing new sounds. Therefore, not all sonorities possible in the concert flute are transferable to the piccolo and lower flutes. Additionally, piccolos are not yet available in open-hole models thus limiting the production of the sonorities which depend on venting the center-hole of the keys. While open-hole flute models exist for the alto and bass flutes, their manufacturing has not yet been widely commercialized and thus they are typically found in closed-hole models. Composers and performers should then be aware of the technical limitations of these instruments without assuming that the concert flute's vocabulary of sounds will consistently transfer to the other members of the instrumental family.

Recommended Literature

The few existing referential sources on the performance of extended techniques are, by the most part, devoted to technical matters and rarely advocate interpretative concerns. The most updated and flute-specialized literature on extended techniques were created by Robert Dick and Pierre Artaud. *The Other Flute: A Performance Manual of*

Contemporary Techniques (1975) by Robert Dick is a major source of reference for composers and performers including a complete quarter-tone scale fingering charts for closed and open-hole flutes and a comprehensive study on many contemporary resources and techniques providing precise notation and practice instructions. Particularly oriented to performers, is his book *Tone Development Through Extended Techniques* (1986) where Dick introduces a pedagogical approach to new sonorities in the flute. *Present Day Flutes* (1980) by Pierre-Yves Artaud is also a valuable reference that provides notation for extended techniques and multiphonic fingerings for alto and bass flutes.

In addition, the following resources on the performance of extended techniques are recommended: Bruno Bartolozzi's *New Sounds for Woodwinds* (1967); Thomas Howell's *Avant-Garde Flute: a Handbook for Composers and Flutist* (1974); James Pellerite's *A Modern Guide to Fingering* (1964); Martin Gumbel's *Neue Spieltechniken* (1974); and Gardner Read's *Compendium of Instrumental Techniques* (1993).

Notating New Sounds

*“Musical notation, after all, is not an ideal method of communication, utilizing, as it does, visual devices to express aural concepts. But it is all we have.”*²⁴

The multiplicity of new instrumental techniques in the twentieth-century has originated a corresponding increase of new symbols to represent each of the new sonic materials and procedures. Contemporary notation for flute brings a complex coordination of simultaneous resources into the score. There is an increase of precise information

²⁴ Kurt Stone, *Music Notation in the Twentieth Century: A Practical Guidebook*. (New York: Norton & Company, 1980) xvii.

detailing formerly subsidiary elements such as polyphonic textures, contrasting dynamics, change of timbres, pitch inflections, unconventional fingerings, as well as numerous sound production and articulation techniques.

The necessity of conveying musical materials on the score accompanied the proliferation of customized systems of notations that vary from composer to composer, and even, from piece to piece. Moreover, identical notation for different effects and unexplained signs and procedures attest for the lack of agreement on the notation of contemporary sonorities.

The misunderstanding of notations and the lack of acquaintance with the real possibilities of the instrument, have led to serious performance problems, causing complete failure of well-conceived contemporary compositions. When compelled to interpret contemporary pieces which require the application of complex performance skills, the performer finds additional frustration in deciphering unclear terms and symbols. A process of standardizing musical notation of extended techniques is critical to the assessment of the contemporary flute repertoire. Consequently, a meticulous and illustrated choice of notation is encouraged to all composers who intend to use this new musical language. In order to facilitate the decoding of the musical score and performance practices, it is important that composers begin following the directions of major sources of instrumental notation such as Robert Dick and Pierre-Yves Artaud's contemporary treatises (see recommended literature). An agreement on the use of symbols would greatly alleviate the performer's efforts, time, and frustration, hence, favoring the access and study of the repertoire as well as contributing to its exposure.

However, the author recognizes that the notation of symbols to denote unconventional sonorities is further complicated by the fact that music composition is an evolving field in permanent search for transformation. Although there are sounds that have occupied a central role within musical composition in the last century (such flutter tonguing, key clicks, overtones, etc), many others are yet to be discovered. And hopefully, each composer will try to re-invent and re-contextualized sound materials into a personal musical aesthetic. In this endless quest for musical creation, establishing and assimilating what has already been created could only ease the way for envisioning the new.

About the Interpretation of Extended Techniques

The Performer's Role

The utilization of new instrumental techniques and the consequent redefinition of technical principles have created the need for a new approach to performing new music. On one hand, the contemporary player must free him/herself from the rules of traditional instrumental usage. On the other, he/she needs to develop a deep understanding of the new premises embraced by the contemporary music idiom. Interpretation, understood as the expression of personal ideas about the intended meaning of a piece of music, implies a complex process of contextualization comprised of the decoding of musical notation, the interpretation of the composer's ideas on the score, the application of technical knowledge in the production of particular sonorities, and lastly, the integration of technical and creative procedures into a musical output of artistic significance. In

performing contemporary pieces with extended techniques (as well as any other music style), the scope of the performer goes beyond the mere technical proficiency. It requires a certain degree of technical acquaintance with the contemporary flute idiom, a deep understanding of the musical language that these techniques encompass, and an open disposition to learn and try new means of expression.

New Performing Parameters

Performing standards such as good intonation, homogeneity of tone, beauty of sound, accuracy of rhythms, etc, have been subjected to reconsideration and evaluation into a greatly expanded musical dialectic. Bruno Bartolozzi observes that performance efforts had largely and formerly concentrated on a single objective: “the emission of single sounds of maximum timbric homogeneity throughout the range of instruments.”²⁵ Although this ideal is still pursued, contemporary musical aesthetics demand a greater control of tone production and the ability to emit a much larger gamut of timbres, colors, dynamics, attacks, and all sorts of instrumental effects.

...contemporary music requires means of expression which can no longer be exclusively provided by “beauty” of sound or “tunefulness.” In fact, as there are no longer ‘false’ notes now that the electronic sound spectrograph has allowed the frequency of any sound to be determined, so there are no longer sounds which are “ugly,”..., etc. Rather there are only sound phenomena which are useful in proportion to how much they lend themselves to organized musical usage.²⁶

²⁵ Bruno Bartolozzi. *New Sounds for Woodwinds*. (London: Oxford University Press, 1967) p. 3.

²⁶ *Ibid.*, p. 5.

The dichotomy between ‘good’ and ‘bad’ sound has been subjected to criteria of perception and contextualization. In contemporary music, the correctness of a sound does not rely on its intrinsic quality, but rather on the context into which the sound is inserted. Therefore, the instrumental vocabulary has expanded rather than decayed, and, though quality of tone continues to be inherent in good performance, the instrumental idiom has changed radically.

A New Level of Virtuosity

Contemporary music for flute offers new challenges to performers by encouraging and inspiring them to a greater instrumental expertise. The interpretation of pieces incorporating extended techniques requires the development of special skills and practices. For instance, the production of multiple sonorities, such as multiphonics, requires the familiarization with new fingering positions and a more sophisticated control of the air stream through sensitive changes of the embouchure, lip aperture, blowing angles, air speeds, and air support. The flutist needs to be concerned not only with the emission of one well-produced tone but with the emission of two or three unstable tones simultaneously. The process of incorporating these techniques into the player’s instrumental glossary demands a great amount of patience, daily dedication, and perseverance. Part of this process includes the exploration of the peripheral possibilities of both the performer and instrument and to fully understand the capabilities of both.

The redefinition of performance practices consequently creates a redefinition of the concept of virtuosity. Since the eighteenth- and nineteenth-centuries, the term *virtuoso*

had always been used to refer to a musician of extraordinary technical ability. Although in contemporary music, the term continues to imply technical ability; the technical ‘principles’ have changed along with the musical aesthetics and styles. Whereas the Baroque-music virtuoso dazzled the audience with the tasteful use of subtle ornamentations and brilliant dexterity, the twentieth-century flute virtuoso overwhelms with unsuspected sounds and unusual polyphonic textures. Technical demands have changed over the time, widening the concept of instrumental virtuosity.

Instrumental Expansion in the Second Millennium

New flute playing is the continuation of the life and tradition of the flute and flutist. There is more for us to say than ever before, and the concept of the flute that will never be outmoded is that it is an instrument of expression and beauty.-Robert Dick

It is very difficult to foresee what directions modern compositions for the flute may take when confronted with the almost unlimited sonic possibilities that the instrument has to offer. The development of instrumental techniques has expanded the musical vocabulary of the flute to a degree in which the performer’s voice, speech, and stage presence are projected over the constrained sound of the instrument.

We are in a time of growth and change for the flute, a time when limitations, both technical and conceptual, are being left behind. The flute is taking on roles never before imagined, that of a polyphonic instrument, for instance, or that of a quickly changing voice capable of being drum-like one instant, ephemeral the next, then showing surprising power. All aspects of flute playing are therefore affected, and an important goal is for the player to integrate the immense capacities of the

instrument into a coherent whole in which all parts support and strengthen one another.²⁷

When confronted with the idea of future direction, the following questions arise. Will the unrelenting experimentation that characterized music performance and composition in the last century find some place in future decades? Will these innovations come to a process of assessment and evaluation of their intrinsic value as means for musical creation?

As the second millennium awakes, the flute has been conceptually reinvented, and it has witnessed an incipient process of standardization in both notation and performance practices. Flutter tonguing, tongue rams, jet whistles, microtonal inflections, and many other sonorities have occupied modern composition fairly consistently for more than half of a century. They have ceased to be “unconventional” and have become normative. Perhaps some day soon, these “new instrumental techniques” will go beyond their technical implications to become a well-adopted vocabulary of sounds forming an integral part of the flute idiom. On the development of instrumental idioms, George Crumb remarks “[it] has been an ongoing process over the centuries; in fact, it is incumbent upon each age to ‘reinvent’ instruments as styles and modes of expression change.”²⁸

In the history of music, performing techniques were created and established along with the style that needed their application. As summarized by Crumb, analogous to this

²⁷Robert Dick, *Tone Development Through Extended Techniques*. (Saint Louis: Multiple Breath Music Company, 1980) p. 7.

²⁸George Crumb. “*Music: Does it have a future?*” *The Kenyon Review* (1980).

development of techniques, is the evolution of the piano idiom as first established by Beethoven. In his compositions, Beethoven broadened the expressive range of the instrument by gradually enlarging the range, sustaining power, and the brilliance of the instrumental idiom. His accomplishments may have seemed to complete the instrument's evolution to his contemporaries, but shortly after his death, in 1827, Chopin published the Etudes, Op. 10. Essentially based on allowing widely spaced figuration to continue vibrating by means of depressing the damper pedal, this new style introduced a new approach to performing the piano. Continuing in the tradition of breaking through previous conceptions and practices, Debussy and Bartok further expanded on the piano idiom in the twentieth century. The experimentalists Cowell and Cage, in more recent times, have continued to create new practices and sounds by producing sounds through direct contact with the strings or introducing objects between the strings of the piano.

Clearly, the next generation of musicians will always find new ways to create music and express themselves thus never exhausting the resources of any instrument. Similarly to the piano history, the development of the flute's contemporary idiom is also in the hands of virtuoso-composers who dare to transcend the conceptual, technical and expressive boundaries of the instrument, redefining its language and scope. Once the technical innovations have been probed and assumed; once they become part of a new glossary of sounds; once sounds grow to be independent from their technical procedures, may the aesthetic of instrumental expansion find a deeper connection to musical meaning and materialize into works of valuable artistic significance.

Chapter 3: Anthology of Works

Introduction

In order to study the application and development of extended techniques within a musical context, an anthology of works by Argentine composers has been compiled. The fifty compositions listed at the end of this chapter (tables 1 and 2) have served the author as a concise frame of reference for evaluating the use of extended techniques in a particular repertoire. The list of works is also intended to serve as a future reference-point for further research on contemporary Argentine composition.

It is important to notice that the findings included in this treatise do not represent all existent contemporary compositions for flute in Argentina. Only those compositions employing an extended technical conception of the instrument (i.e. extended techniques) have been included. In addition, it also becomes clear that in compiling works and data in a time-restricted research project, it is impossible to escape limitations imposed by time, space, and access to information and materials. Thus, the resultant findings are not an all-inclusive listing of compositions but rather those which were accessible to the author or facilitated by composers and instrumentalists for the cause of this study.

The following chapter discusses the compositions compiled in this treatise. A periodic organization into three compositional phases provides analytical axes to identify composers, trends, external or internal influential factors, and the extent and content of the repertoire here presented. Most importantly, this chapter intends to demonstrate how and when contemporary instrumental techniques were first applied to musical compositions by Argentine composers and how these techniques evolved within the

context of pre-established geo-political and socio-cultural conditions. This evaluation includes composers who were born in Argentina as well as those who obtained Argentine citizenship after long-residencies in the country. Many composers who have emigrated to other countries to work or study, are considered here for their experiences have greatly contributed to broaden the musical panorama in the country.

Evaluation of the Findings

Works Composed During the 1960s and 1970s

The first compositions for flute to employ extended techniques were composed in the 1960s and 1970s. Curiously, the few works compiled from this period were conceived by composers who emigrated to other countries and have had an experience studying or living abroad. In the frame of this anthology of works, the first piece that utilized extended techniques was *Synchronisms I*, by Mario Davidovsky. As previously discussed in this treatise, the piece was composed in 1963 at the Columbia-Princeton Electroacoustic Music Center. In addition to tone production techniques such as flutter tonguing, key-slaps, and unconventional articulation devices, Davidovsky expands the timbric palette of the flute by tightly interlocking electronic and acoustic sounds.

Few years later in Argentina, Alicia Terzian composed *Shantiniketan* (1970), from the Armenian “Peaceful Dwelling.” Upon studying medieval Armenian music in Italy, Terzian’s compositions were characterized by an atonal idiom and persistent employment of microtonalism. The extended techniques included throughout the course of this composition reflect Terzian’s fondness for microtonal inflections characteristic of

Armenian music. These include bending of pitches, microtones, glissandi, and flutter tonguing.

The Italian born Salvador Ranieri (b. 1930) moved to Argentina in 1947 exemplifying those musicians who found refuge in Argentina after WWII. In 1970, Ranieri composed his solo flute piece, *Centellos*, and had it premiered the same year by Alfredo Ianelli at the Teatro Municipal San Martin in Buenos Aires. Conceived in three movements in a thorough atonal language, the work utilizes extended techniques such as flutter tonguing, natural harmonics, key-slaps, and color trills. *Centellos* received the Fondo Nacional de las Artes Composition Award in 1972.

Upon studying in France, the Argentine-Brazilian composer Eduardo Bértola (1939-1996), composed a group of four works for flute: *Trópicos* (1975) for violin, Bb clarinet, and flute; *Anjos Xifópagos* (1976) for two flutes (later analyzed in this treatise), *Translaciones* (1976) for unaccompanied flute, and *La visión de los vencidos* (1978) for four flutes. Characterized by a concise, bold, and unelaborated musical aesthetic, Bértola's inclusion of extended techniques seems to obey his compositional premises by providing instrumental means for timbral contrast and harsh sonorities. In his compositions for flute, Bértola employs flutter tonguing, key-slaps, and glissandi.

The Argentina-born composer, Alcides Lanza, composed *Acúfenos III* (1977) at the Electronic Music Studio at McGill University in Montreal, Canada. Scored for flute, piano, and pre-recorded sounds, the work employs a large amount of extended techniques including, key-slaps, key-clicks, flutter tonguing, vocal exclamations, glissandi, quarter-tones, jet whistles, aleatoric fingering, and unpitched sounds produced by covering the lip

plate and blowing inside the flute. The electronic tape part includes sounds produced by indigenous instruments such as *quena* (cane end-notch vertical flute), *ocarina* (ceramic flute), three-hole flute, and pan pipe adding a flavor of Andean music to the piece.

Works Composed During the 1980s and 1990s

Compositions conceived in the 1980s were more difficult to obtain for the subject of this study. Although the author was able to trace the existence of a number of compositions, the score or further information on the pieces was not always available through composers or interpreters. Oscar Di Liscia (b. 1955) provided the score of his piece *Que sean dos* for flute and guitar, composed in 1987. During these years, Di Liscia was the dean of the Diffusion Department at the Centro de Investigación Musical at the Universidad Católica Argentina. Later, the composer resided in the United States where he was on faculty at the University of California in San Diego (1993), Stanford University in Palo Alto (1999), University of Miami (2000), and the University of Washington at Seattle (2001). Currently, Di Liscia is the Assistant Professor of Electroacoustic Composition and Computer Music Programming at the Universidad Nacional de Quilmes in Argentina. *Que sean dos* was conceived in one movement and written in proportional notation. Key-slaps, key-clicks, unpitched sounds, breathy-quality sounds, glissandi, specifications on frequency and width of vibrato, flutter tonguing, and harmonics are incorporated into a textural fabric where timbre functions as the structural parameter of the piece.

As timbral expansion came to be one favored concern to many Argentine composers and trends, compositions for flute in the 1990s increased in quality and quantity. Although timid in its beginning, the implementation of extended techniques into musical composition for flute saw an ever-increasing usage toward the end of the millennium. The employment of extended techniques gradually moved towards forming the basis of musical compositions rather than simply being used as sporadic timbral effects. In other words, in an earlier stage of evolution extended techniques were conceived as timbric effects; while nowadays, they often become the primary material from which composers draw musical ideas. That evolution took place, concomitantly, in different musical genres, currents, aesthetics, and works of composers living in the country and abroad.

In Argentina, *Mocqueur Polyglotte* (1995) for unaccompanied flute was composed by Marta Lambertini and commissioned by the Mexican flutist Horacio Franco. Currently the Dean of Fine Arts at the Universidad Católica Argentina, Lambertini explains that her compositions have frequently alluded to birds as utilized by Olivier Messiaen. Indeed, the basic motive on which the piece was based was taken from Messiaen's *Oiseaux exotiques*. This motive is subjected to a process of transformation and reconfigurations through rhythmic variations, partial and total augmentations, transpositions, retrograde movements and inversions. In *Mocqueur Polyglotte*, extended techniques enrich the timbric palette of the flute tone by including jet whistles, unconventional articulations, and polyphonic textures created by singing and playing simultaneously.

In the arena of flute and orchestra composition, *Los Cantos del Viento* stands as the only solo work with orchestra that includes the utilization of extended techniques. The piece was composed by Leopoldo Martí in 1995 and dedicated to the memory of the illustrious Argentine musician Atahualpa Yupanqui. Following the traditional structure of the concerto, the work is structured in three movements. According to Prof. Beatriz Plana's research project, "Música Argentina Contemporánea para Flauta," at the UNC, Martí's musical materials are derived from Latin American pre-colonial music. Martí includes pentatonic scales, typical accompaniments, harmonic sequences, and rhythms of characteristic Latin American popular songs and dances such as the *huayno* (Andean music of Argentina, Bolivia, Chile, and Peru), *merengue* (Venezuela), *candombe* (Afro-Uruguay), and the Brazilian *samba*. The composer finds an element of timbric contrast by the soloist alternating instruments from concert flute to alto flute and piccolo. The diversity of timbres and tone characteristics of each one of these instruments along with the tasteful use of harmonics, whistle-tones, flutter tonguing, and airy-quality tones enhance Martí's folk-ingrained musical aesthetic.²⁹

The association of composers, Música al Margen, was founded in Buenos Aires by Aitana Kasulin, Gabriel Collauti, and Pablo Gómez to promote the composition, publication, and performance of new music. The first enterprise of the group was to publish a series of pieces for unaccompanied flute and flute and piano in 1997. Two unaccompanied flute pieces from that publication utilized extended techniques: *La Maga*

²⁹ Beatriz Plana, "Música Argentina Contemporánea para Flauta." (Research Project: Final Report. Universidad Nacional de Cuyo, Mendoza, Argentina, 2002) p. 48.

and *A la Flauta*. *La Maga* was composed in 1994 by Aitana Kasulin (b. 1964) and organized in three movements. Kasulin uses contemporary technical resources such as microtones, whistle-tones, alternative fingerings, multiphonics, multiple sounds achieved by simultaneously playing and singing, key-slaps, flutter tonguing, tempo variables on the production of vibrato, and a variety of articulations obtained by the utterance of the following consonants “p, t, k, ch.” The second work included in *Música al Margen*, *A la Flauta*, was composed in 1996 by Gabriel Colautti (b. 1968). According to the composer, the work denotes a formal rather than timbral concern. The composition is influenced by serialist principles as the structure is determined by the grouping of motivic units and their transpositions. The occasional use of flutter tonguing and harmonics serves as a secondary function within the structure of the piece.³⁰

Contemporary composition for flute continued to experiment into the electroacoustic music field in the last decade of the twentieth century. In 1999, composer Jorge Sad (b. 1966) wrote *La ida hacia debajo de la tierra de la tarde* in collaboration with flutist Juliana Moreno. Scored for flute, live electronics, and computer-generated sounds, the piece explores the timbric boundaries of the flute in relation with its electronic transformations. Juliana Moreno explains that the work is based on the improvisation of musical gestures drawn from folk and contemporary music.³¹ Extended techniques are integrated into the context of this improvisation with the intention of erasing timbric references of the instrument itself. Moreno utilizes buzzing sounds

³⁰ Gabriel Collautti, interview by author, e-mail correspondence, January 14, 2005.

³¹ Juliana Moreno, interview by author, e-mail correspondence, February 8, 2005.

produced by vibrating the lips into the flute's lip plate, key-slaps, tongue-stops, timbral trills, and a gamut of sounds created by the articulation of the voice into the instrument. Moreover, another array of tone colors and timbral variations is achieved by the interaction with live electronics, further providing the performer with tools to modify the flute sound in live performance.

During the 1990s, some Argentine composers living abroad were also attracted to instrumental experimentation as demonstrated by their compositions. *Flute 3.2.4.* (1995) was composed in the United States by Adriana Verdie de Vas Romero (b. 1958). Currently on the faculty at the California State University at Long Beach, Verdie explains that the work was inspired by the music of the Andes, in particular the *sicus*, an indigenous instrument consisting of one or two rows of pipes of varying lengths. Very often, *sicus*' players group into small ensembles to create a polyphonic texture by the superposition of different sized instruments. Drawing from this polyphonic inspiration, Verdie has conceived a piece which requires one flutist to play two-voice polyphony on the instrument. *Flute 3.2.4.* received an honorable mention at the 1997 "Newly Published Composition Competition" of the National Flute Association.

In Germany, Juan Maria Solare composed two pieces for unaccompanied flute which make use of extended techniques. *Epiclesis* (1995) was first performed by Thomas Brögger at the School of Music of Cologne on January 26, 1996. The piece was recipient of the second honorable mention at the First National Composition Competition *Juan Carlos Paz* in 1999 organized by the Fondo Nacional de las Artes. *Epiclesis* follows a tripartite form (A-B-A') according to the conventional statement-contrast-return

principle. The careful treatment of themes and motives by their intervallic constructions reflects Solare's serial approach to music composition. The utilization of flutter tonguing, harmonics, multiphonics, tongue-stops and pizzicato-like articulation is reserved for the most part to the middle section (B) adding subtle tone-color change to the fabric of the composition. *Qumar* (1999) was composed in Buenos Aires and premiered by Lars Nilsson, the Dean of the Fine Arts School at the Universidad Nacional de Cuyo, in Mendoza on September 19, 2000. In *Qumar*, Solare experiments with different tone-production techniques indicating the performer to use alternative fingerings for changes in color, breathy-sound qualities, and detaching the mouthpiece from the lips without interrupting the sound.

Residing in the United States since 1992, Marcelo Toledo has contributed to the flute literature with significant compositions. He began composing for flute in 1995 with his flute trio, *Como astros... arde*, and later *Capas Remotas* (1996) for flute and percussion, both premiered at Syracuse University. In his first composition for solo flute, *Aliento/Arrugas* (1998), Toledo utilizes music materials that do not rely on pitch as a fundamental determinant of the composition. Many factors contributed to the significance of this piece (later analyzed in this treatise). On the one hand, Toledo's instrumental noises came to extend the technical and expressive capabilities of the flute. On the other, the musical language became based and structured on these unconventional sonorities thereby exemplifying the evolution observed in the utilization of instrumental techniques in the last few decades.

Works Composed After 2000

Further experimentation is taking place in the compositions of Marcelo Toledo. Drawn from his previous radiophonic work *De qué modo en lo anónimo*, on a text by Juan José Saer, Toledo composed three pieces for flute that continued to explore the peripheral capabilities of the flute: *Nada* (2002) for solo flute; *Nada, nada* (2002) for flute ensemble; and *Bibliographia del Silencio* (2003) for bass flute and pre-recorded sounds. These three pieces share a short poem which Toledo calls *Nada, nada*. Alluding to the idea of emptiness and nothingness, the poem is then recited into the flute and subjected to several mechanisms of dissolution and transfiguration. Toledo's sonic exploration in these three works, was basically initiated by the urge of expressing the meaning of the poem, that is, the idea of *emptiness* and *nothingness*. In the paradox of expressing the inexpressible, Toledo proposes the use of air or toneless sounds as a sonic metaphor of the *nothing*. The absence of pitch-oriented material throughout the piece establishes a landscape of sounds without melodic references.

Sebastián Zubieta (b. 1967) composed *El abigeo* for unaccompanied flute in 2001. The work is a re-elaboration of Zubieta's previous work *Pau que Nasce Torto* (1996-2000) for four flutes. *El Abigeo* explores the polyphonic possibilities of the instrument by exerting the use of the voice and multiphonic sonorities on the constrained sound of the flute. Zubieta includes instrumental resources such as whistle tones, multiphonics, voice, and micro-tones combined into a complex polyphonic texture. *El ladrón de caballos*, composed in 2002, unfolds a simpler approach in reference to texture

and timbric resources. Scored for alto flute and guitar, the work discloses a homophonic and ascetic musical writing with prevailing microtonal inflections.

Technological advances utilized in musical composition have changed the conception of musical performance and perception. The dynamic interaction between real time processed instrumental sounds and computer generated sounds is explored in *FlaX* by Daniel Schachter, currently director of the Electroacoustic Laboratory at the Julian Aguirre Conservatory in Lomas de Zamora, Buenos Aires. *FlaX*, for real time processed flute and electroacoustic sounds, was composed in 2002 and premiered by Saúl Martín at the Sonoimágenes 2002 Festival in Buenos Aires. The work is organized in aleatoric gestures or modules that are superimposed to the prerecorded sounds. These gestures can be freely selected by the performer to be played at any time and combined with the electroacoustic part. The duration of gestures is indicated on the timeline above the score. Further performing references are given by the indication of sonic objects in the electronic part that function as cues for the acoustic part. The instrumental idiom encompasses flutter tonguing, irregular glissandi, multiphonics, key clicks, variations on the speed and wide of vibrato, and the utilization of vocal effects of percussive character. Further extension of the flute tone is achieved by the use of real time digital processing during the performance. In *FlaX*, the real time processing was constructed with the GRM Tools software developed at the Groupe de Recherches Musicales (GRM) in Paris, and facilitated by its current director Daniel Teruggi. Processing modules such as shuffling, pitch shifting, pitch accumulation, Doppler, and delay offer limitless potential for further transformation of the flute's tone.

Spiral Voices (2003) for flute and optional live electronic sounds was composed by Eduardo Moguillansky. The optional electronic sounds add a foundation of reverberance and provide a more complex spectrum of sound by the use of two harmonizers which shift the pitch both by a quarter-tone up and an octave plus a quarter-tone down. The piece features a deconstruction of instrumental gestures. Moguillansky seeks independence between technical actions, hence setting apart fingerings from articulation. Another trademark of this process of deconstruction is sought out on his effort to go against the “normal practice.” For instance, instead of the customary increase of dynamic as a trill goes faster, the composer looks for a trill that goes slower as the dynamic gets louder. These discrepancies in performance practices are constructed in complicated transitions that sometimes involve multiple layers of simultaneous actions. The virtuosistic demands of this piece lie not only in the technical or musical aspects of the performance but also on the performer’s capability to deconstruct his/her musical training.³²

El otro amanecer (2004), by Fernando Maglia, belongs to an incipient trend in Argentine music composition that intends to synthesize indigenous elements with new contemporary instrumental trends. Score for flute and guitar, the work is based on two songs drawn from a compilation of songs by Isabel Aretz in her work: *Síntesis de la Etnomúsica en America Latina* (1980). Glissandi, multiphonics, microtones, and various tone-qualities and articulations are elaborated into a musical aesthetic that seeks to contemporize without sacrificing cultural identity.

³² Notes in score.

Summary

The employment of extended techniques in compositions for flute by Argentine composers is a phenomenon that has occupied music composition in the last four decades. As composers became more familiarized with new instrumental sonorities and techniques an increase on the musical production regarding these practices was observed around 1990. In the first phase of the utilization of extended techniques or contemporary sonorities for flute, composers extend the instrumental palette by incorporating timbral effects within a contemporary musical language. However, a progress and musical re-contextualization of the employment of extended techniques was observed. Nowadays, non-conventional sonorities have often become the basic music materials for composition as exemplified by the works of Marcelo Toledo.

Important contributions were made in the field of electroacoustic music by combining acoustic and electronic sounds as pioneered by Mario Davidovsky. The electronic medium provided a proper vehicle for experimenting with the production of instrumental sounds thereby expanding the instrumental idiom of the flute. Moreover, a new current in music composition, embodied in the works of Leopoldo Martí and Fernando Maglia, strives to assimilate the contemporary instrumental vocabulary within a musical language of indigenous roots.

Table 1 – List of Compositions by Composer

Composer	Composition	Dates	Instrumentation
Bértola, Eduardo	<i>Trópicos</i>	1975	vn, cl, fl (fl, alto, picc)
	<i>Anjos Xifópagos</i>	1976 (1984)	2 fls
	<i>Traslaciones</i>	(1976)	fl
	<i>La Visión de los Vencidos</i>	1978	Vers. 1: 4 fls Vers. 2: 4 fls, bs, 2 perc
Castillo, Graciela*	<i>Ofrenda II</i>	2001	fl, tape
Colautti, Gabriel	<i>A la Flauta</i>	1996 (1997)	fl
Davidovsky, Mario	<i>Synchronisms N°. 1</i>	(1963)	fl, elec
	<i>Synchronisms N°. 2</i>	(1964)	Fl, cl, vn, vc
	<i>Synchronisms N°. 8</i>	(1974)	fl, ob, cl, bn, hr, tape
	<i>Quartetto</i>	1987	fl, vn, va, vc
Di Liscia, Oscar Pablo	<i>Que Sean Dos</i>	1987	fl, gui
Figueroa, Adriana*	<i>Alucitango</i>	2002	fl, str qt
Gieco, Enzo	<i>La Promenade du Chien</i>	1972	fl
González Tapia, Emilio	<i>Zamba Coral</i>	2003	bass fl
Kasulin, Aitana*	<i>La maga</i>	1994 (1997)	fl
	<i>Tan solo murmurando</i>	1990	fl, perc, pn
	<i>Autopista al Sur</i>	1999	4 fls

Lambertini, Marta*	<i>Mocqueur Polyglotte</i>	1995	fl
	<i>La Calandria de Oliverio</i>	1998	fl, cl, vn, vc, pn
Lanza, Alcides	<i>Acúfenos III</i>	(1977)	fl, live elec
Maglia, Fernando	<i>El Otro Amanecer</i>	2004	fl, gt
Martí, Leopoldo	<i>Los Cantos del Viento</i>	1995	fl/alto fl/picc, orch
Moguillansky, Eduardo	<i>Spiral Voices</i>	2003	fl (opt. live elec)
Paraskevaídis, Graciela*	<i>¿Y si fuera cierto?</i>	2003	alto fl, eh, pn
	<i>Pero Están</i>	1994	fl. ob, v
Ranieri, Salvador	<i>Centelleos</i>	(1970)	fl
Sad, Jorge	<i>La ida hacia debajo de la tierra de la tarde</i>	1999	fl, live elec, cptr sounds
	<i>La vuelta hacia arriba del aire de la mañana</i>	2004	fl, tape
Solare, Juan Maria	<i>Epiclesis</i>	1995	fl
	<i>Qumar</i>	1999	fl
Schachter, Daniel	<i>FlaX</i>	2002	fl, live elec, cptr sounds
Tedesco, Diego	<i>Cinco Piezas para Flauta Sola</i>	1999	fl
Terzian, Alicia*	<i>Shantiniketan (Morada de Paz)</i>	1970	fl
Toledo, Marcelo	<i>Como astros...arde</i>	1995	3 fls
	<i>Capas Remotas</i>	1996	fl, perc
	<i>Aliento/Arrugas</i>	1998	fl

Toledo, Marcelo (cont.)	<i>Rezongos</i>	1998	fl, ob, cl, hn, bn, pn, 8 w, bandoneon
	<i>El ir a qué con meta</i>	1999	fl, bass cl, trbn, pn, perc, vn, va, vc, b
	<i>Bocanada elíptica</i>	2000	fl, ob, bass cl, trbn, 2 vn, 2 va, 2 vc, b, pn, perc
	<i>Qué se llama cuando heriza nos?</i>	2001	fl, ob, cl, hn, perc, pn, vn, va, vc, b
	<i>Resplandecencias de la nada</i>	2002	fl, cl, vn, vc, hp, perc
	<i>Nada</i>	2002	alto fl
	<i>Nada, nada</i>	2002	multiple fls
	<i>Bibliografía del Silencio</i>	2003	amplified bass fl, tape
	<i>Para el encuentro en los abismos</i>	2003	24 instruments
Toro, Luis	<i>Aconitum</i>	2001 (2002)	alto fl
Verdié De Vas Romero, Adriana*	<i>Flute 3.2.4.</i>	1995	fl
Zubieta, Sebastián	<i>Pau que Nasce Torto</i>	2000	4 fls
	<i>El Abigeo</i>	2001	fl
	<i>El ladrón de caballos</i>	2002	fl, gt

Dates between parentheses indicate date of publication

*An asterisk indicates a woman composer

Table 2 – List of Compositions by Instrumentation

Composer	Composition	Dates	Instrumentation
Solo Flute			
Bértola, Eduardo	<i>Translaciones</i>	(1976)	fl
Colautti, Gabriel	<i>A la Flauta</i>	1996 (1997)	fl
Gieco, Enzo	<i>La Promenade du Chien</i>	1972	fl
González Tapia, Emilio	<i>Zamba Coral</i>	2003	bass fl
Kasulin, Aitana*	<i>La maga</i>	1994 (1997)	fl
Lambertini, Marta*	<i>Mocqueur Polyglotte</i>	1995	fl
Ranieri, Salvador	<i>Centelleos</i>	(1970)	fl
Solare, Juan Maria	<i>Epiclesis</i>	1995	fl
	<i>Qumar</i>	1999	fl
Tedesco, Diego	<i>Cinco Piezas para Flauta Sola</i>	1999	fl
Terzian, Alicia*	<i>Shantiniketan (Morada de Paz)</i>	1970	fl
Toledo, Marcelo	<i>Nada</i>	2002	alto fl
	<i>Aliento/Arrugas</i>	1998	fl
Toro, Luis	<i>Aconitum</i>	2001 (2002)	alto fl
Verdié De Vas Romero, Adriana*	<i>Flute 3.2.4.</i>	1995	
Zubieta, Sebastián	<i>El Abigeo</i>	2001	fl

Chamber Music

Bértola, Eduardo	<i>Trópicos</i>	1975	vn, cl, fl (C fl/G fl/picc)
	<i>Anjos Xifópagos</i>	1976 (1984)	2 fls
	<i>La Visión de los Vencidos</i>	1978	Vers. 1: 4 fls Vers. 2: 4 fls, bass, perc
Davidovsky, Mario	<i>Synchronisms N°. 2</i>	(1964)	fl, cl, vn, vc
	<i>Quartetto</i>	1987	fl, v, va, vc
Di Liscia, Oscar Pablo	<i>Que Sean Dos</i>	1987	fl, gt
Figueroa, Adriana*	<i>Alucitango</i>	2002	fl, str qt
Kasulin, Aitana*	<i>Tan solo murmurando</i>	1990	fl, perc, pn
	<i>Autopista al Sur</i>	1999	4 fls
	<i>Tan solo murmurando</i>	1990	fl, perc, pn
	<i>Autopista al sur</i>	1999	4 fls
Lambertini, Marta*	<i>La Calandria de Oliverio</i>	1998	fl, cl, vn, vc, pn
Maglia, Fernando	<i>El Otro Amanecer</i>	2004	fl, gt
Paraskevaídis, Graciela*	<i>¿Y si fuera cierto?</i>	2003	alto fl, eh, pn
	<i>Pero Están</i>	1994	fl. ob, v
Toledo, Marcelo	<i>Nada, nada</i>	2002	fl ensemble
	<i>Capas Remotas</i>	1996	fl, perc
	<i>Como astros...arde</i>	1995	3 fls
	<i>El ir a qué con meta</i>	1999	fl, bass cl, trbn, pn, perc, vn, va, vc, b

Toledo, Marcelo (cont.)	<i>Qué se llama cuando heriza nos?</i>	2001	fl, ob, cl, hn, perc, pn, vn, va, vc, b
	<i>Resplandecencias de la nada</i>	2002	fl, cl, vn, vc, hp, perc
Zubieta, Sebastián	<i>Pau que Nasce Torto</i>	2000	4 fls
	<i>El ladrón de caballos</i>	2002	fl, gt

Flute and Electronic Sounds

Castillo, Graciela*	<i>Ofrenda II</i>	2001	fl, tape
Davidovsky, Mario	<i>Synchronisms N°. 1</i>	(1963)	fl, elec
	<i>Sincronismos N°. 8</i>	1974	fl, ob, cl, bn, hr, tape
Lanza, Alcides	<i>Acúfenos III</i>	(1977)	fl, live elec
Moguillansky, Eduardo	<i>Spiral Voices</i>	2003	fl (opt. live elec)
Sad, Jorge	<i>La ida hacia debajo de la tierra de la tarde</i>	1999	fl, live elec, cptr sounds
	<i>La vuelta hacia arriba del aire de la mañana</i>	2004	fl, tape
Schachter, Daniel	<i>FlaX</i>	2002	fl, live elec, cptr sounds
Toledo, Marcelo	<i>Bibliografía del Silencio</i>	2003	amplified bass fl, tape

Chamber Orchestra

Toledo, Marcelo	<i>Rezongos</i>	1998	fl, ob, cl, hn, bn, pn, 8 w, bandoneon
	<i>Bocanada elíptica</i>	2000	fl, ob, bass cl, trbn, 2 vn, 2 va, 2 vc, b, pn, perc
	<i>Para el encuentro en los abismos</i>	2003	24 instruments

Flute and Orchestra

Martí, Leopoldo *Los Cantos del Viento* 1995 fl/alto fl/picc, orch

Dates between parentheses indicate date of publication

*An asterisk indicates a woman composer

Chapter 4: Eduardo Bértola: *Anjos Xifópagos* (1976)

Biography of the Composer

Eduardo Bértola was born in Coronel Moldés, in the province of Córdoba, Argentina, on July 14, 1939. He died tragically in Belo Horizonte, Brazil, on February 20, 1996. A student of Erwing Leuchter, he produced his first well-known compositions in 1966: *Usher II-2005* for two pianos, and *Las doradas manzanas del sol* for piano solo. Since 1963, he was the director of the Resistencia's School of Music in the province of Chaco and became a great influence upon the musical ambiance of the city. He created and conducted the Orquesta de Cámara de la Provincia (1965) and, along with Mariano Etkin and Graciela Paraskevaídis, promoted contemporary music by organizing seminars and expositions on Latin American music in the frame of the newly established Universidad Nacional del Nordeste (UNN).

Between 1967 and 1971, Bértola resided in Paris where he held valuable encounters with Iannis Xenakis and developed his first interests in electroacoustic music joining the studio class of Pierre Schaffer and Emile Leipp. This experience led him to participate in the creation of the *Groupe International de Musique Electro-acoustique de Paris* (International Group of Electroacoustic Music of Paris) which promoted the musical production of its members through the presentation of their works in several cities throughout the continent. In Europe, Bértola presented lectures on contemporary music and explored the cinematic arts assisting the famous film director Luis Tomasello.

Inspired by his musical experience in Europe, he returned to Resistencia in 1971 with the mission of launching an electroacoustic music laboratory supported by the UNN.

The project collapsed in 1972, and Bértola moved to Buenos Aires. There he obtained a fellowship at the Center of Research and Mass Communication, Art and Technology (CIMAT) where he studied electroacoustic music with Francisco Kröpfl. In Buenos Aires he taught several music courses at the Escuela Nacional de Arte Dramático and the Universidad del Salvador. In 1975, along with Jorge Rapp, Graciela Paraskevaïdis, María Esther Cora and Raúl Rodríguez, Bértola co-founded the association of composers, the Núcleo de Música Nueva de Buenos Aires, which promoted the composition of electroacoustic music. While associated with this group, he composed his landmark composition *Tramos* (1975).

Between 1975 and 1976, he participated in the Winter Festivals at Ouro Preto in Brazil. His trips to Brazil became progressively more regular and he established himself there via an offer to teach at the Brasilia School of Music in 1979. During these years, his participation as a professor at the Cursos Latinoamericanos de Música Contemporánea (CLAMC) gave him exposure to Latin America's new trends on contemporary music and composers. This organization collaborated on the edition of his LP *Tramos*, currently available on compact disc (Tacuambé, Uruguay, T/E 33 CD), which includes nine instrumental and/or electroacoustic compositions, among them, two of his compositions for flute, *Translaciones* (1976) for solo flute, and *La visión de los vencidos* (1978) in its first version for four flutes. This recording project was presented by the CLAMC in tribute to the composer on June of 2000 in Montevideo (Uruguay), and in August of the same year at the Centro de Experimentación del Teatro Colón, in Buenos Aires.

Bértola's musical output is distinguished by the fact that he never mixed instrumental and electroacoustic media. In other words, his works are purely instrumental or purely electroacoustic. However, his analog experience as an electroacoustic composer decidedly influenced the conception of his instrumental works. Indeed, the title of a seminar he conducted at the seventh annual CLAMC in 1978, *A experiência eletroacústica na conformação e no enriquecimento da linguagem instrumental* (the Electroacoustic Experience in Conformation and Enrichment of the Instrumental Language), attests to a tentative theorization of his compositional practice.

Freire and Rodriguez observe that Bértola refused any attempt of self-promotion and had clearly defined postures on ethical, technical, and aesthetical problems regarding artistic expression in Latin America. After his return to Argentina in 1971, Bértola commented:

Pienso que para ser compositor es necesario ante todo definirse como ser humano. Enfrentar la realidad sobre la base de una posición política claramente delimitada. Ser compositor en Latinoamérica es emprender una forma de lucha, pues es evidente que las condiciones no están dadas: hay que crearlas a partir de un cambio radical.

I think that to be a composer, it is necessary before anything else, to define oneself as a human being first; to confront the reality on the base of a clearly defined political position. To be a composer in Latin America is to begin a kind of struggle, therefore, it's evident that the conditions are not given: they must be created from a radical change.³³

³³ Composer's Interview. *La Opinión*, Buenos Aires, September 9, 1971. Quoted in Freire and Rodriguez, "A produção musical de Eduardo Bértola (1939-96)," *Revista Opus*, no. 6 (1999).

Anjos Xifópagos (1976)

Overview

Anjos Xifópagos (Twin Angels) for two flutes was composed in 1976 and published later by MusiMed of Brasilia in 1984. This work was inspired by Sérgio Santâna's book *Confissões de Ralfo* (1975) and was dedicated to Rosana Bassi.

According to the periodic division of Bértola's compositional output as defined by Freire and Rodriguez, Bértola developed intense collaborations with instrumentalists throughout the creative process during his compositional period of Buenos Aires/Belo Horizonte (1975-1978).³⁴ Indeed, the score of *Anjos Xifópagos* is accompanied by a special acknowledgment to the Brazilian flutists Artur Andrés and Mauro Rodriguez for their encouragement and technical collaboration on the production of the piece. Furthermore, the fact that the collaboration was with Brazilian musicians may suggest that the piece was actually composed in Brazil.

Musical scoring for two instruments is not an isolated event among Bértola's works. *Anjos Xifópagos* exemplifies his fondness in composing for two identical or similar instruments as represented by his series of comparable compositions: *USHER-II-2005* (1966) was written for two pianos; *Um no Outro* (1984) for two cellos; *Duo dos temperamentos e das cores* (1984, Brasília) for violin and viola; *De Sonhos e Quedas* (1990, Belo Horizonte) for two pianos; *Retornos do Tempo* (1991, Belo Horizonte) for two bassons; and *Caminhos de Sinais* (1992, Belo Horizonte) for two clarinets.

³⁴ Sergio Freire and Avelar Rodriguez. "A produção musical de Eduardo Bértola (1939-96)," *Revista Opus*, no. 6 (1999): 13-17.

Anjos Xifópagos holds the distinction of being the first piece in which Bértola explored a new temporal relationship between the work and its listener. The musical language evolves unhurriedly in a non-discursive manner by juxtaposing structural blocks within which particular processes occur. The work illustrates common aspects of Bértola's style such as the use of timbre as a structural parameter, the persistent use of dissonance, the exploration of spectral sonorities such as harmonics and difference tones, the expressive use of silence, the distortion of sounds, and a deliberate economy in the use and selection of compositional materials. These characteristics were inherent to a generation of Latin American composers during the 1960s and 1970s in which Bértola was one of the most important representatives.³⁵

General Considerations

Economy of Materials

The concise musical language of *Anjos Xifópagos* -as well as that of most of Bértola's compositions- is characterized by a voluntary restriction in the use of musical materials. That restriction is most evident in the composer's selection of limited intervals (minor 2nd, major 2nd, and augmented 4th), the simplification of rhythm through the temporal distribution of suspended attacks, and a marked insistence upon these two axes. About the austerity of his musical style, Bértola expressed:

³⁵ Graciela Paraskevaídis. "Eduardo Bértola: Un retrato del compositor argentino (1939-1996)" Montevideo, (1997-2000).

Todo está concentrado en lo esencial, en un lenguaje de sonoridades duras, ásperas, estridentes y agresivas, en algunos momentos distorsionados por la intensidad extrema y la utilización de texturas insólitas.³⁶

Everything is concentrated in the essential, in a language of hard, rough, shrill and aggressive sonorities; sometimes distorted by extreme intensity and the utilization of unusual textures.

Counterpoint of Sonic Strata

“Contrapunto de estratos sonoros” or counterpoint of sonic strata was a term used by the composer to denote different groups of instruments or sonorities realizing different functions within the musical discourse.³⁷ The concept can be illustrated at the beginning of *Anjos Xifópagos* where each stratum of sound (represented by each flute) has different functions within the textural fabric of the piece. While the second flute sustains a pedal G2 remaining stationary, the first flute conveys abrupt leaps in the melodic contour thus driving the musical narrative forward. The careful treatment of attacks and sustained long tones are Bértola’s tools to convey this counterpoint of sonic materials.

The image shows a musical score for two flutes, fl. 1 and fl. 2, in 4/4 time. Fl. 1 begins with an 'attacco impercettibile' and plays a series of notes with dynamic markings: mf, PP, mf, PP, f, PP, f, PP, mf, PP. Fl. 2 plays a sustained pedal point on G2 with dynamic markings: f, mf, f, f, P, f, f, PP. The score includes various articulation marks such as accents, slurs, and breath marks.

Example 1 – Counterpoint of sonic strata

³⁶ Ibid.

³⁷ Sergio Freire and Avelar Rodriguez. “A produção musical de Eduardo Bértola (1939-96),” *Revista Opus*, no. 6 (1999): 13-17.

Difference Tones

Another trademark of Bértola's style was the exploration of difference tones or those sounds generated by two different frequencies. This difference generates a low-frequency tone that can be perceived additionally. Difference tones are more audible when two sounds are played together in the high register. Because the tone of the flute resembles a sinusoidal wave, this effect is utilized in *Anjos Xifópagos* as demonstrated by the following excerpt. When the E5 and F#5 in *ff* dynamic level are played simultaneously, a low difference tone can be heard which may vary between F#2, E2, D2, and C2 depending upon the small difference of intonation.

The image shows a musical score excerpt for two staves, labeled 1 and 2. The first part of the score is marked *pp* and contains several notes with slurs. This is followed by a 3-second pause, indicated by "pausa 3''". The second part of the score is marked *ff* and contains notes that are circled. A dashed line labeled "8va" indicates the difference tone. The section ends with the instruction "attacca subito in loco".

Example 2 – Difference tones

First Level of Analysis

Form

In general terms, the structure of a musical work can be conceived through two basic formal procedures: it could follow a predetermined structure or it could be created as the compositional process evolves. *Anjos Xifópagos* was composed according to a non-repetitive principle in which ideas progress along a linear timeframe without direct references to previous material. Therefore, a traditional formal analysis of structures

according to principles of contrast and repetition would be inadequate. However, Bértola determines the structure of the piece (intentionally or not) by the meticulous selection and organization of sound objects or sonic events within the musical discourse. These sound objects are established by a systematic selection of parameters such as timbre, attacks, dynamics, register, intervallic relationships, and tone production techniques. “The form,” explains Bértola, “is obtained through the utilization of extraordinary textures. Sometimes it appears suddenly and brutally through the strong expressive content of its material.”³⁸

According to these principles, the structural organization of *Anjos Xifópagos* could be divided into three main sections. To facilitate this analysis, a resized copy of the entire score is provided in Appendix A. The first section spans from the opening gesture to the end of the last system in page one. At the end of the first section, two contrasting sound objects (denoted in the score as T1 and T2) articulate the transition to the second section which encompasses the entire second page. The third section consists of pages three and four and is further subdivided into four contrasting segments. The first two systems of page three comprise segment 1, characterized by sustained *ff* dynamics, *marcato* articulation, and angular motion of the melodic contour. Separated by a pause of five seconds, segment 2 introduces an abrupt contrast by means of *pp* dynamics, *legato* articulation, and more stable pitch content. Segment 3 begins with the high-range flutter tonguing effect at the end of the third page to the end of the second system on page four.

³⁸ Paraskevaïdis, “Eduardo Bértola” (2000).

Segment 4, comprising of the last two systems, appears after a six seconds pause, the longest in the entire piece. The reduction of materials (such as dynamics, pitch variations, and attacks) conveys a progressive decay of the musical narrative at the end of the piece.

Intervals

The economy of materials is also evident in the limited use of intervals to only six interval classes: unison, minor 2nd, major 2nd, augmented 4th, minor 7th, and major 7th. According to the number of appearances of harmonic intervals, the prominence of the minor 2nd, major 2nd, and augmented 4th (tritone) can be established. In addition, further synthesis can be obtained by interpreting the minor 7th and major 7th as the direct inversions of major 2nd and minor 2nd respectively. The recurrence of these pitch-class elements attests to Bértola’s fondness for such intervallic contents – a trade mark throughout his musical output. The restriction on the selection of these intervals functions as structural basis in his compositional process. Table 3 shows interval-classes and the number of appearances throughout the piece.

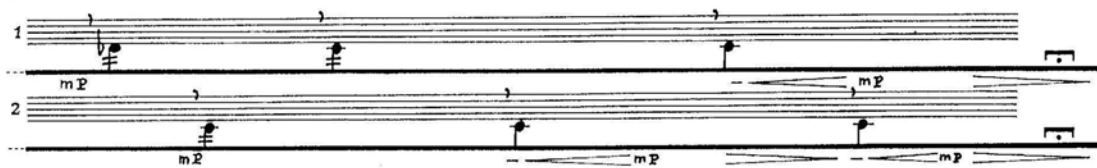
Table 3 – Number of appearances of harmonic intervals

unison	m2	M2	T	m7	M7
2	69	24	15	2	6

Melodic Motion

Motion of melodic intervals varies upon sections. The first section presents an angular melodic motion with the greater activity in the top line while a pedal G2 is

sustained on the bottom line. The overall melodic motion in the second section (on page 2) is constrained to a smaller range encompassing a major 6th (C2 to A2). Between the two melodic lines, superposed minor and major seconds interweave creating incisive dissonances. The sporadic appearance of tritones enriches the texture by incorporating some element of contrast. The ending of this section is articulated by the convergence of the lines in a sustained unison C2 which is the second and last instance of unison in the entire piece (Example 3).



Example 3 – Sustained unison C2 at end of section 2

The third section of the piece includes the greatest variety of intervallic content comprising the majority of harmonic interval classes used in this piece (m2, M2, T, m7, and M7). Both melodic lines display greater activity and a wider range in a prevailing contrary motion.

Silence

Silence obtains an expressive treatment in most of Bértola's compositions. In *Anjos Xifópagos*, Bértola writes out pauses and indicates that the performers remain still as if they were playing thus avoiding an interpretative break. The gesticulation or acting of the silence pursues a dramatic element in the performance of pauses. Silence thus is incorporated as an expressive element in the composition. Rather than a gap in the

musical narrative, it becomes a “played silence” adding suspense and highlighting the course of time.

Furthermore, silence separates contrasting sonic events. Throughout the piece, there are three instances of indicated pauses. They increase in seconds as the piece progresses, calling for a 3-second, 5-second, and 6-second pause subsequently. The first pause articulates the two transitional sound objects on the third system of the first page (refer to example 2). The expectation created by silence creates a transitional process between two sound objects of contrasting characters.³⁹ The first sound object introduces *pp* dynamics in the medium register with stationary melodic motion. The second sound object attacks in the upper-high register with *ff* dynamics and flutter-tongue distortions, increasing the temporal pace and melodic motion.

Similarly, the second pause (5”) differentiates contrasting elements comprised in segment-1 and segment-2 of the third section (on page 3 in score). The angular melodic contour of segment-1 with accented attacks and loud dynamics gives way to a more stationary and legato passage in segment-2. The last instance of written silence articulates the transition from segment-3 to segment-4, also modulating contrasting sonic events.

³⁹ The term “transitional” for those two sound objects has been established with regard to their short duration in relation to the previous and subsequent longer sections on page one and two.

Notation

Bértola employs proportional notation in *Anjos Xifópagos*. This practice is observed in several of his compositions for instrumental sounds. *Tranlaciones* (1976) for solo flute and *Trópicos* (1975) for flute, clarinet and violin are notated in a similar way. Only in his later work, *La vision de los vencidos* (1978) for four flutes does the composer return to traditional notation.

In the score of *Anjos Xifópagos*, a segment of one centimeter in length is equal to one second. The temporal course of the piece is then established by the visual reference of the centimeter. The total length of the beams under the staff denotes the duration of the note. While in the rhythmic organization Bértola resorts to an unconventional notation, the determinacy of pitch is specific and traditional.

Rhythm

The temporal continuity of the piece progresses in a slow pace. The concept of rhythm is reduced to the mere appearance and disappearance of pitches in a temporal frame. Rhythm does not follow a metric organization, that is, a regular recurrence of the beat. The irregular succession of tones within a space generates a non-metric approach in which the duration of notes is defined by visual, proportional and performing parameters. Rhythmic events progress loosely within the temporal frame of the piece. Therefore, rhythmic complexity is explicitly avoided favoring the stylistic concision that characterizes Bértola's works.

Second Level of Analysis

The Instrumental Idiom

The instrumental idiom moves away from the traditional repertoire of the flute by exploring timbral effects and sudden register and dynamics changes. Bértola deliberately avoids any virtuoso display. His instrumental language advocates simple and clean melodic lines shaped by clear attacks and sustained long tones. Perhaps the influence of his experience as an electroacoustic composer can be best observed in a meticulous concern upon the elements of the sound –that is, its attack, prolongation, decay, texture, and dynamic changes. The control over the instrumental sound thus gains great significance over a minimized dexterity. The absence of vibrato contributes an additional severity in the treatment of the sound.

Performance Instructions and Recommendations

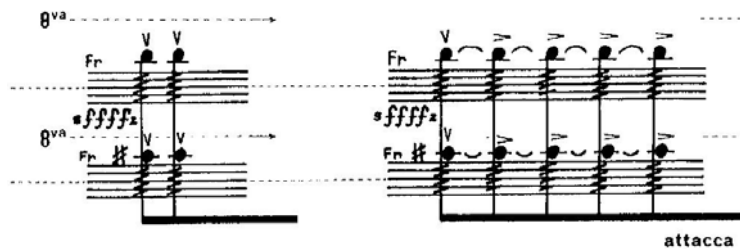
Bértola includes performance instructions which recommend that the flutists stand about three feet apart facing each other with the profile to the audience. During the pauses, performers should remain in playing position without acknowledging an interpretative break, thus incorporating the silence as a dramatic element in the performance. At the end of the piece, the players are instructed to turn and face the audience.

Breath marks are explicitly indicated to ensure the coordinated alternation of breaths and the continuation of the musical discourse. In light of the textural continuity pursued by the composer, it is important to take barely audible short breaths or ‘gasps.’

Dynamic markings are different and specific to each line. They should be carefully followed, for they convey a web of textural and timbric interrelation between the two flutes. Since the succession of attacks define the irregular rhythmic pace of the composition, articulation is regarded as a major parameter in the structural organization. An extended gamut of attacks from *pp* to *ff* and *attacca impercettibile* is used to add expressive nuances to the sound. Attacks should be clear and well defined as well as carefully coordinated between both instruments.

Extended Instrumental Techniques

In his compositions, Bértola denotes an increasing interest in the role played by timbral and textural contrast. The employment of extended instrumental techniques such as flutter tonguing and key-slaps in *Anjos Xifópagos* reflects the composer's interest in exploring acoustic effects. Flutter tonguing in the high register of the flute (as often employed in the composition) provides the composer a mean for gaining timbric contrast and differentiating entire blocks of sound objects.

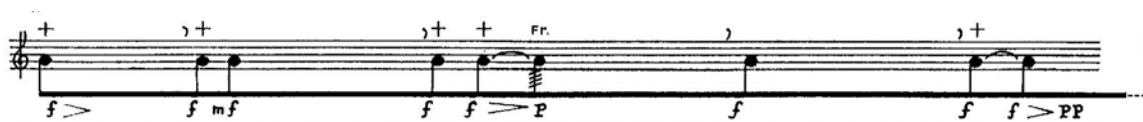


Example 4 – Flutter tonguing

In Example 4, the beating of the minor second relationship between the two lines (B5 and A#5) along with the roughness created by the flutter tonguing effect adds a

textural dimension to the sum of the sounds. The acoustical effect gains extra interest by the addition of the resulting difference tone.

A less audible and more subtle resource is the employment of key-slaps used at the beginning of the composition as shown in Example 5. Key-slaps are obtained by slapping the finger on the G key. They accompany some of the attacks on G2 throughout the first system adding a percussive character to the utterance of each note.



Example 5 – Key-slaps

In sum, the utilization of extended instrumental techniques in *Anjos Xifópagos* corresponds to a compositional preoccupation with timbric and textural expansion rather than instrumental experimentation per se. In line with the composer's ideas on the economy of compositional materials, these sonorities are indeed limited to two and used with complete discretion. Bértola integrates these sonorities into a concise and non-elaborated musical language.

Chapter 5: Marcelo Toledo: *Aliento/Arrugas* (1998)

Biography of Composer

Marcelo Toledo began his musical career in Argentina as a composer and guitarist interested in the convergence of popular, experimental, jazz, and folk musical styles. After studying composition with Dante Grela at the Universidad Nacional del Litoral (UNL), Toledo moved to the United States in 1992 and continued his graduate education at Syracuse and Columbia Universities.

While at Columbia, Toledo studied theory and analysis with Fred Lerdahl and Jonathan Kramer and composition with the spectralist Tristan Murail. He further honed his compositional ideas through the presentation of several works at seminars and workshops conducted by Luciano Berio, Helmut Lachenmann, Julio Estrada, Jonathan Harvey, Franco Donatoni, and Salvatore Sciarrino. In addition, Toledo's compositional stance has been constantly inspired by the works of several Latin American composers from Villa Lobos to Silvestre Revueltas, who integrated the wealth of popular and ethnic Latin American music into a personal and imaginative musical expression.

As a composer, Marcelo Toledo's works have been performed in academic and professional venues through commissions of distinguished musical institutions and ensembles. He has written pieces for the Society for New Music-New York, the Americas Vocal Ensemble, and the Quintet of the Americas. His works have been performed by important contemporary music ensembles such as Speculum Musicae (New York), Continuum (New York), Ergo Ensemble (Canada), Quinteto de Alientos de la Ciudad de Mexico, and the Orchestre Lyrique de Région Avignon-Provence (France) in

contemporary music concerts in the United States, Mexico, Canada, Finland, Uruguay, Mongolia, France, and Argentina.

His recent achievements include the Columbia University Dr. Boris and Eda Rapaport Prize (2001) for his composition *Qué se llama cuando heriza nos* and the 2002 Ensemble Intercontemporain Commission (EIC) for his large ensemble composition, *Para el encuentro en los abismos*, which was premiered at the Centre Pompidou in Paris in December 2003. In addition, the Center for the Diffusion of Contemporary Music (CDMC) and National Spanish Radio (RNE) commissioned his radio opera *De qué modo en lo anónimo* to premier in October 2002 at the XVIII International Festival of Contemporary music in Alicante, Spain.

Toledo's musical output is comprised of solo pieces, large ensemble works, electroacoustic works, and a great number of chamber music works in which the composer uses purely instrumental resources or instrumental sounds processed by electronic means. He continues to be active in lectures, seminars, and composition workshops at several Latin American universities and music institutions. Recently, he has been elected to give a composition workshop, Global Interplay, organized by the German institution for contemporary music, "Musik der Jahrhunderte," and the International Society for Contemporary Music (ISCM) festival 2006 in New York City.

Aliento/Arrugas (1998)

Overview

Aliento/Arrugas (Breath/Furrows) was premiered in 1998 by flutist Ulla Suokko, to whom the piece is dedicated. It was intended as “a sonic exploration of the instrument using the performer’s breathing as an element of organic expression.”⁴⁰ The process of inhaling and exhaling through the instrument is integrated in the composition generating a continuum of sounds and textures obtained through an intense combination of different tone production techniques. Wind sounds, breathing sounds, whispering, groaning, hissing, slurping, and gasping are some of the resources that depict the musical language. *Aliento/Arrugas* includes a vast array of novel sonorities and many instrumental extended techniques which are employed as the primary musical materials of the piece. Such techniques include flutter tonguing, tongue noises, percussive sounds, microtonal inflections, and multiphonic sounds (obtained by singing and playing simultaneously) and will be further analyzed and discussed in this study.

General Considerations

The Creative Process

A noise is by nature a mysterious, unrecognizable entity, a piece of uncodified information. –Marcelo Toledo

As a composer, Marcelo Toledo has developed personal ideas on the subject of noise, complex sounds, perception, music materials, and structure. His compositional

⁴⁰ Program notes by the composer.

approach in the past years has evolved progressively to an aesthetic in which the musical narrative is created almost exclusively by noises and complex sounds. Since the composition of his first solo piece for flute, *Aliento/Arrugas*, Toledo recognized an aesthetic breakthrough that led him to discover a plethora of instrumental noises which he has since explored as primary musical materials.

The process started in 1998 in a solo flute piece, *Aliento/Arrugas*, where I not only explored a gamut of noise-oriented sounds from toneless to distorted sounds, but also defined a way of approaching composition based on the actual experience of those sounds. I produced the sounds myself with a flute and learned to perceive subtle nuances inside noises that we generalize as, for example, toneless sounds.⁴¹

To extend and explore the perceptual aspects of sounds, Toledo relies on the aural study of sonic materials rather than technological control of sounds as employed by electroacoustic music and spectrogram analysis. He proposes an empirical approach based on his personal experimentation with sounds and noises: by playing them, listening to them, and discovering their expressive potential. Toledo claims that the delineation of sounds and noises is a matter of controversy and –paraphrasing Arnold Schoenberg’s ideas on consonance and dissonance –emphasizes that the criteria of “the acceptance or rejection of noises is not that of their beauty, but rather only their perceptibility.”⁴² Toledo further remarks that there is a “lack of exposure and training” in perceiving differences between noises. He elaborates by declaring that due to this deficiency, the

⁴¹ Marcelo Toledo, “Composing with Fluid Noises, a Personal Approach: History, Techniques, and Aesthetics of Complex Fluid Sounds.” (D.M.A. diss., Columbia University, 2005) p. 35.

⁴² *Ibid.*, p. 35.

untrained ear “cannot appreciate [such] differences... of colors, frequency bands, internal texture, and dynamic fluctuation in each one of these toneless sounds.”⁴³

Fluid Noises

The interrelation of complex sounds and their transformation in time has been one of Toledo’s major areas of research. In the last few years, Toledo’s aesthetic of noises has evolved from the discovery of such materials to the creation of a fluid musical narrative in permanent transformation. His doctoral dissertation, “Composing with Fluid Noises: A Personal Approach,” is a veritable essay on the study, history, and aesthetic of noises. The idea of the fluid continuity of noises is elaborated in this text, adding a new dimension to Toledo’s musical expression. He remarks that it was important “to find and define connections among all complex sounds and noises as well as pitch-oriented sounds in order to avoid a catalogue of isolated effects without essential consequences, a common problem found in works by composers who try to incorporate noises and complex sounds into a traditional musical discourse without considering their real implications.”⁴⁴

Instrumental Experimentation

Toledo’s exploration of the instrumental acoustic possibilities was later expanded to all instruments in the orchestra. His composition, *Para el encuentro en los abismos*

⁴³ Marcelo Toledo, interview by the author, tape recording, New York City, 23 February 2005.

⁴⁴ Toledo, “Composing with Fluid Noises,” p. 37.

(For the Encounter in the Abyss) written in 2003, illustrates this instrumental experimentation applied to the 24 instruments for which the piece is written. In the strings, Toledo explores bowing techniques using different angles and bow pressures. Wind instruments make extensive use of various tone production techniques such as buzzing, flutter tonguing and an extended palette of articulations subjected to inhale/exhale techniques. Special consideration was taken in regard to the percussion idiom. Toledo explains that most percussive sounds involve a certain degree of indeterminacy and that these sounds have been incorporated into the percussion vocabulary. His intention was then to invent unrecognizable percussion sounds based on “the idea that a sound produced with a percussion instrument should not reveal its source.”⁴⁵

Further insight from discussions held with the composer during an interview in New York City conveys that “in order to avoid the commonplace, a sound should not leave a trace of its origin.” Moreover, the exploration of instrumental peripheries, he continues, leads to the creation of “new sounds or noises in which I try to erase their instrumental references.” This erasure of instrumental references is implemented throughout *Aliento/Arrugas* by the production of unpitched sounds, articulation devices, pitch inflections, and vocalizations that constrain the traditional sound of the flute.

⁴⁵ Ibid.

Instrumental Techniques

The production of the aforementioned instrumental noises demands proficiency in new techniques of varying levels of difficulty. For example, to succeed in performing one of Toledo's works, the performer must familiarize him/herself with a new vocabulary of sounds and musical terms particular to his compositional approach. In addition, the creation of new sonorities for *Aliento/Arrugas* encompassed the establishment of new instrumental techniques much easier to comprehend when explained directly from the composer. Therefore, based on the author's intensive work with the composer in several interviews and work sessions on the performance of Toledo's music, a thorough analysis, discussion, and explanation of these instrumental techniques will be included in the second level of analysis.

Musical Notation

Traditional notation offers a means to establish a specific configuration of sounds in terms of their duration, pitch, and dynamic content. The notation of noises, however, requires the development of a more intricate system. Since noises and complex sounds could involve indeterminacy (they are unpitched and undetermined materials), their notation encompasses the development of specific signs and symbols to determine aspects related to timbre, texture, register, duration and internal transformation.

Analogous to his research for new instrumental sonorities, Toledo has undertaken the difficult task of finding a suitable notation to convey his personal vocabulary of instrumental noises and sounds into the music score. He regards musical notation not

only as a means for communicating sounds but also as an image that impacts the performer, and therefore, the way the piece is performed.⁴⁶

Musical notation is not just a document that communicates the actions that players need to follow in order to produce the sounds in a piece of music. Before becoming that fixed document, notation is, in my opinion, the active field where sounds, noises, ideas, processes, and the imagination struggle to define every single aspect of a composition.⁴⁷

He stresses the importance of finding a personal solution to ensure the creation of a unique aesthetic by stating that he did not want to utilize an already-existing notation so as not “to be conditioned, shaped and limited by the imposed notation system of other composers.” He further elaborates on his relationship with Julio Estrada who revealed to him “that precise musical notation reflects real perception and consequently the clear understanding of a complex musical object.”⁴⁸

In Toledo’s case, musical notation was a parallel development to his compositional process by searching for suitable graphs and symbols to convey a personal vocabulary of sounds. As there is no computer program yet invented to convey this assortment of sonic materials, Toledo relies on his fondness for drawing meticulous manuscripts. Furthermore, he recognizes that the process of writing music by hand brings to mind particular ideas and ways to think about the music that could not be attained with a computer program. Toledo recalls his previous studies in architecture,

⁴⁶ Marcelo Toledo, *Sound Object*, interview by George Parker, video documentary, School of the Arts at Columbia University, January, 2004.

⁴⁷ Ibid.

⁴⁸ Marcelo Toledo, “Composing with Fluid Noises, a Personal Approach: History, Techniques, and Aesthetics of Complex Fluid Sounds.” (D.M.A. diss., Columbia University, 2005) p. 40.

working nights on drafting projects, and continues to be inspired by this craft in his musical production.⁴⁹

Upon seeing Toledo's work, Dean Bruce Ferguson of Columbia University's School of the Arts invited the composer to display his work, *Para el Encuentro en los Abismos*, at an art exhibit at the LeRoy Neiman gallery in New York City. In the video documentary, Dean Ferguson comments that he views Toledo's musical notation as a visual art that can be appreciated and understood by even those who cannot read traditional music notation.

First Level of Analysis

Form

Aliento/Arrugas has four sections integrated into one movement. Since the notation of the piece does not include measures or any type of metric reference, a subdivision into units facilitates the study and reference to particular sections. The first page of the piece is provided in Appendix B.⁵⁰ Section one is comprised of the first nine units. The second section spans from unit 10 to 15. The third section comprises units 16 to 23. And the last section of the piece consists of units 24 to 29. This definition of sections was based on parameters related to sound, texture, timbre, phrases, motivic content, and tone production techniques.

⁴⁹ Conversation held with the author, New York City, February 2005.

⁵⁰ At composer's discretion, only the first page is provided.

In the first section, there is a great range of unpitched sounds articulated into the instrument with different tone production techniques. The dearth of explicit pitch references in the majority of this section functions as a unifying factor. The section is comprised of two parts. The first part (units 1-4) has an introductory function of presenting several sonic materials which are exploited throughout the course of the composition including toneless sounds,⁵¹ tongue noise, exhale gestures, and unpitched vocal exclamations (Example 6).

ALIENTO/ARRUGAS solo flute (1998)
 for Ulla (BREATH/FURROWS) MARCELO TOLEDO

INTEN CON FORZA 1 2 PESANTE 3 LENTO 4

flute
 voice

Exhale
 Toneless *
 High freq
 low freq

Tongue Noise
 Tongue Noise
 Inhale
 Tongue

Exhale
 Tongue

wind like sound
 blow hole covert

(sh) (sh)

Example 6 – Opening phrase

A brief melody unfolds at the beginning of the second part (Example 7- unit 5), introducing the first pitch references in the piece. However, this first melodic motive appears to be blurred by a ‘breathy’ sound quality (unit 5). Musical ideas are organized and differentiated by sound materials that fluctuate between breathing-like sounds to phonetic attacks.

⁵¹ A term utilized by the composer to denote sounds similar to white-noise with narrow frequency bands (see production of “toneless” sounds in Appendix C).

The image shows a musical score for Example 7, divided into five units (5, 6, 7, 8, 9). Each unit consists of a flute part and a voice part. The flute part is written in treble clef with a key signature of one flat and a 4/4 time signature. The voice part is written in bass clef. The score includes various dynamic markings such as *ff*, *sfz/p*, *mf*, *f*, and *ppp*. Performance instructions like "breathy", "bhc", "Ex/inhale", "slowly", and "staccato" are present. The voice part includes phonetic notations: Unit 5: *Ksh - K*; Unit 6: *Ksh - K*; Unit 7: *sh Ksh - Ks ts Kts Ks*; Unit 8: *Ksh - ts Ksh - K sh Ks ts Ks ts Ksh - t K*; Unit 9: *sh - ts Kts Kts Kts Ksh - Ks ts Kts Kts Kts Kts Ksh - sh*.

Example 7 – Second part of the first section

In the beginning of the second section (unit 10) a drastic change in thematic material, timbre, and character unfolds. This section introduces the first clear flute tone, the G2 in the flute at the beginning of unit 10 (Example 8). Further timbric variety is acquired by singing and playing simultaneously. The voice is thus incorporated as an element of resonance and distortion of the flute's sound. A new tempo and character, *lento, delicato e lontano*, accompany the beginning of a new thematic material rich in microtonal inflections and extreme dynamics. Unpitched sounds are excluded for the most part of this section thus favoring the concretion of a clear and defined textural fabric.

Example 8 – Beginning of second section

A distinct thematic idea characterized by the utilization of instrumental and vocal glissandi is introduced in the third section (unit 16 to 23). The emergence of a new melody in unit 16 opens the section with striking effectiveness (Example 9). Pitch inflections generated by prolonged glissandos along with short appoggiaturas create a theme of intense grief and expression.

Example 9 – Introductory melody at section three

In Example 10, subsequent interweaving of melodic motives between the flute and voice in unit 18 is elaborated upon motivic content derived from the previous melody. Unit 19 incorporates a new mournful theme that discursively moves the musical narrative toward the restatement of thematic material (analogous to unit 18) in unit 21.

An accelerando from unit 21 to unit 22 builds up a region of great intensity that collapses at the end of unit 22. Since its sonic material (double tonguing/breathy sounds) is a direct extension of the previous unit, unit 23 is considered a tag referring to the third section.

The image displays a musical score for units 17 through 24, consisting of flute and voice staves. The score is annotated with various performance instructions and dynamics. Key annotations include:

- Unit 17:** "breathy", "mf", "p", "trapped embouchure", "Pro Mosso".
- Unit 18:** "lip gliss", "Inside blow hole", "mf".
- Unit 19:** "MISTERIOSO", "pp", "p", "mf", "No interruption between flute and voice".
- Unit 20:** "f", "mp", "pp", "mp", "mf", "flz".
- Unit 21:** "accel", "sfz/p", "mf", "pp", "pp", "mf", "f", "f+", "mf".
- Unit 22:** "Voice resonates on flute", "flz", "mf", "f", "ff", "ffz".
- Unit 23:** "breathy", "D.t. tongue", "D.t.", "f", "ff".
- Unit 24:** "breathy", "lhc", "Very fast!", "f", "sfz", "D.t.", "fingering speed independent of tongue speed/boards", "Irregular rotation of the flute in/outwards".

Example 10 – Units 17 through 24

The last and fourth section of the piece starts in unit 24. Sonic materials introduced in the first section (including unpitched sounds, phonetic attacks, tongue-noise, flutter tonguing, and inhale-exhale gestures among others) are now re-exposed and re-elaborated into a more continuous musical narrative. This continuity can be observed

by the lack of pauses or breaks within the textural fabric in Example 11. The kaleidoscopic texture of this passage incorporates a variety of noises and effects weaved tightly in an ever-increasing musical drive. The last section conveys the climactic arrival of the entire piece. Its frenzied energy and virtuoso technical demands impel the performer to his/her limits.

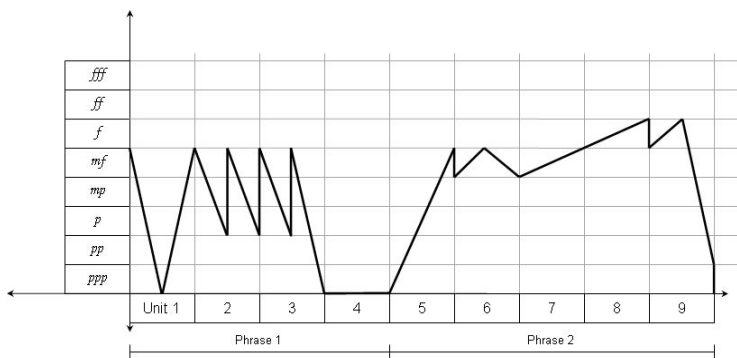
The image displays a musical score for Example 11, consisting of three systems of music. Each system features a flute part on the upper staff and a voice part on the lower staff. The systems are numbered 28, 29, and 30. The flute parts are characterized by dense, rhythmic patterns of notes and rests, often with 'x' marks indicating specific articulation or breath marks. The voice parts consist of vocal lines with various dynamics and performance instructions such as 'breathily', 'normal', and 'pp'. Syllables like 'ts Ks Ksh' and 'ts Ks ts Ks' are written below the voice lines. The score includes a variety of dynamic markings: *p*, *f*, *ff*, *mf*, *mp*, and *pp*. Performance instructions like 'longer note', 't.n.', 'exhale', 'lip slits', and 'lip flaps' are also present. The score is signed 'NYC Feb 98' in the bottom right corner.

Example 11 – Continuous textural fabric

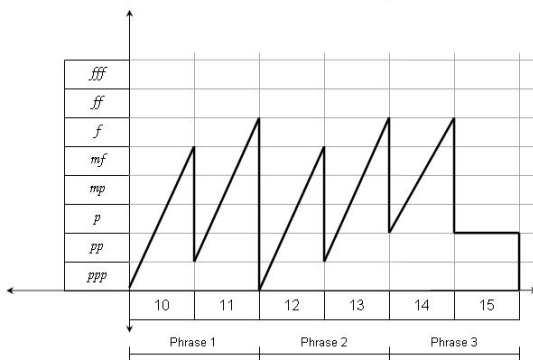
Dynamics

The analysis of dynamics intends to shed some light onto the evolution of the musical narrative and the structural organization of the piece. Example 12 shows one graph for each of the four parts of the piece. Each graph shows dynamics ranges on the left side and units underneath.

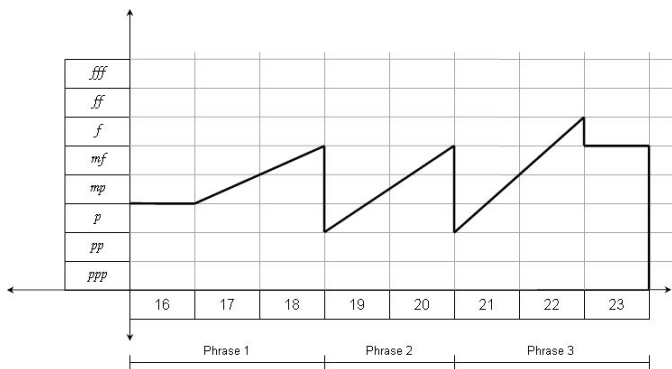
Graph 1 – Section I



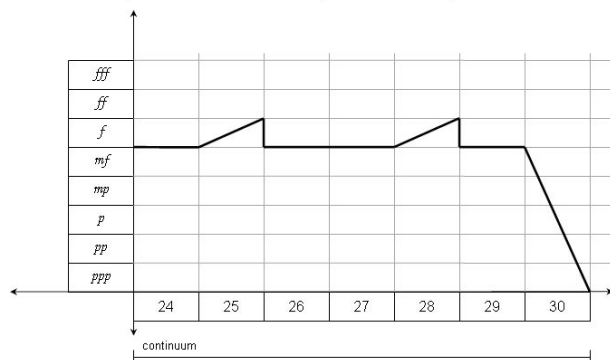
Graph 2 – Section II



Graph 3 – Section III



Graph 4 – Section IV



Example 12 – Dynamic profile

The overall dynamic profile of the piece portrays abrupt changes encompassing the entire range from *ppp* to *fff*. In the first graph (section I), the dynamic range moves angularly. Extreme drops of dynamic levels usually indicate ends of phrases. For instance, the dynamic depression in unit 4 is coincidental with the end of the first phrase (graph 1). From units 5 to 9 dynamics increase and drop suddenly at the beginning and end of the section. The second graph (section II) shows a pattern in the dynamic activity that progresses from softer to louder dynamics recurrently. Although, the dynamic changes are also severe, the establishment of these equivalent and regular patterns accounts for a section of more predicable and ordered sonic materials. Indeed, this dynamic profile corresponds to the two parallel phrases starting at units 10 and 12 respectively (refer to example 8). The third graph (section III) introduces some elements of contrast in dynamic. Changes are softened by gradual transformations and remain on average in the *mf* range. Dynamic drops at the end of units 18 and 20 indicate ends of phrases. The crescendo from units 21 to 23 denotes the building up of a climax that leads to the beginning of the last section. The fourth graph (section IV) shows a plateau dynamic profile encompassing a greater dynamic stability. Within this average loud dynamic level the greatest dynamic activity of the piece takes place. Numerous nuances and irregular variations of rather loud dynamic levels sustained for an extended period of time, attest to the turbulence and disorder attributed to this section in the formal overview previously mentioned. Unit 30 (graph 4) shows an abrupt decay in the dynamic level encompassing the ending gesture of section IV. As it could be observed back in example

11 (unit 30), the final gesture of the flute features a short attack and a long gradual decay anticipating the end of the composition.

Melodic Motion

In spite of the prevalence of noise oriented materials within the composition, an overall melodic motion can be observed through the emergence of focal point pitches. These notes generate zones or areas from where the musical narrative departs or arrives. In addition, the predominance of these pitches was based on their: 1) function as beginnings or ends of gestures, phrases, or sections; 2) longer duration in reference to other notes; and 3) recurrence throughout the piece. The overall motion of the piece is illustrated in Table 4.

Each table describes one section of the piece according to the formal overview previously described on this analysis. Each row describes the section, units, pitch motion and focal pitch within these units. The overall melodic motion of the piece is shown in the focal pitch on the bottom row. From the evaluation of these tables a melodic centralization on G is evident, functioning as an overall focal pitch from which musical materials depart and converge. Toledo also hierarchizes this pitch by utilizing the upper and lower neighbor notes (F# and Ab) within brief melodic gestures converging to G. Observe the descending conjunct motion Ab-G between units 5 and 6, and the ascending motion F#-G between units 7 and 8 as shown in Table 4- section I.

Table 4 – Melodic Motion

Section I				
Unit	1-4	5	6-7	8-9
Pitch motion	D----Eb	D-G-Ab	G-F#	G
Focal pitch	D			G

Section II				
Unit	10-11	12-13	14	15
Pitch motion	G	G	C	C#
Focal pitch	G		C	C#

Section III						
Unit	16	17-18	19-20	21	22	23
Pitch motion	G	G	Db-G	G	C	E
Focal pitch	G					

Section IV					
Unit	24-25	26-27	28	29	30
Pitch motion	G	D	D-Eb-G	G	G
Focal pitch	G				G

Other pitch classes that gain importance in the course of the composition are C, C# (or Db), and D. The relationship of these pitch classes with regard to G may be taken here into account to understand Toledo's selection and discrimination of pitch oriented materials. While C and D are related to G by a perfect 4th and a perfect 5th respectively; the C# produces a tritone relationship that, by the sum of its three whole tones, becomes the exact middle of the octave in the G scale. The selection of the subdominant, dominant scale degrees along with the tritone interval, serve the composer to emphasize the melodic centralization on G.

Notation

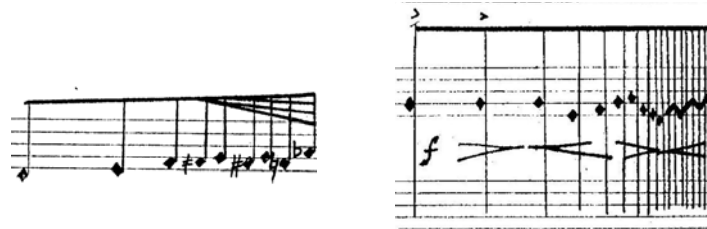
In *Aliento/Arrugas*, the writing is divided into two separate staves: one staff for the flute (top) and one for the voice (bottom), to specify separate indications for the flute and voice and to better show the interrelation between these two parts. Musical gestures proceed on a linear manner as sonic events are temporally organized and separated by breath-marks. There is, however, a vertical hierarchy on the organization of the notation. Different layers of notation provide the performer information related to actions, pitch-content, timbre, articulations, dynamics, and phonetic expressions in both, flute and voice spectra. The following table (Table 5) shows the vertical organization of notation in *Aliento/Arrugas*.

Table 5 – Vertical organization of notation

Flute	1st level	Actions
	2 nd level	Pitch-timbre-articulation
	3 rd level	Dynamics
Voice	4 th level	Pitch
	5 th level	Dynamics
	6 th level	Phonetic articulation

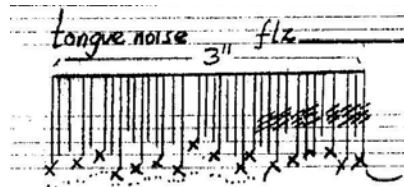
Because the score of *Aliento/Arrugas* does not include preliminary instructions on notation, an exhaustive analysis of the signs and symbols utilized is offered in this study. Throughout the score of the piece, Toledo makes use of different notational tools including proportional, graphic, neumatic, and action notation. With the exception of small passages written in metric notation, the majority of the piece makes use of proportional notation. This type of notation does not rely on the traditional division of the time in equal parts. Instead, it intends to liberate the musical discourse from the strict

pattern of a metrical time-arrangement by allowing the performer to feel the ‘qualitative’ proportions of durations rather than a strict count. Indeed, proportional writing implies a somehow proportional performance and understanding of the temporal organization of events. In *Aliento/Arrugas*, the proportional duration of sounds is given by obliquely increasing the number of beams or by the spatial distribution of the stems (Example 13).



Example 13 – Proportional duration of sounds

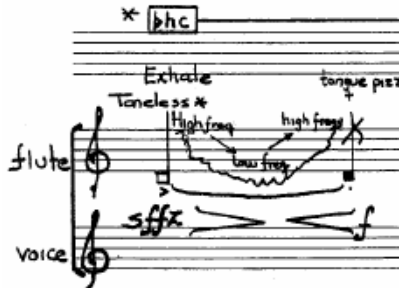
Tone production techniques and articulations observe specific signs. An effect the composer has called “tongue noise” uses small ‘x’ note-heads to signify approximate pitches and double tonguing as shown in Example 14. Flutter-tonguing follows the conventional usage of three oblique lines over the stem. Durations of sonic events are given in seconds above the beams of each grouping of notes.



Example 14 – Tongue noise and flutter tonguing

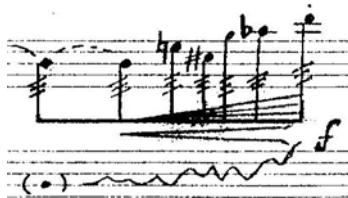
In the context of this piece, diamond-shaped note-heads are used to indicate ‘breathy’ or ‘toneless’ sounds. Breathy sounds are pitch-oriented sounds with an airy quality represented in the score by black diamond shaped note heads (refer to Ex. 13). When the composer indicates “toneless sounds” (Example 15), he refers to unpitched

sounds of a wind-like quality that are obtained by blowing inside the flute’s embouchure hole and indicated by white square note heads.



Example 15 – Toneless sound

Toledo has created specific graphics to represent novel sounds and practices in *Aliento/Arrugas*. The opening gesture of the piece requires a toneless sound that starts with a high frequency noise that curves down to a low frequency noise and then returns to its initiating frequency. To explain this process, Toledo draws a wavy descending and then ascending line indicating the desire change in pitch (refer to Ex. 15). Another use of graphic notation suggests a vocal pitch-oriented accompaniment, similar in melodic contour to the gesture played by the flute line. In this instance, the vocal part is also marked as a wavy line under the flute staff (Example 16).



Example 16 – Vocal accompaniment

Action notations used in *Aliento/Arrugas* indicate procedures such as changes in blowing angles and mouth piece positions as well as breathing techniques. These performance indications are notated on top of the score. The abbreviation “bhc” (blow

hole covered) indicates that the player needs to blow inside the embouchure hole of the instrument (refer to Ex. 15). When a regular position of the mouth piece and embouchure is desired, the composer indicates that by writing out the words “normal embouchure.” In many instances throughout the piece, a transitional change between “bhc” and “normal embouchure” occurs, which is indicated as “toward normal embouchure.” Toledo also specifies the production of sound through the action of inhaling and exhaling by writing the entire words or by “in.” or “ex.”

Second Level of Analysis

An Analysis of Extended Techniques with Performance Recommendations

Toledo’s aesthetic on noise as a primary sonic material for composing has moved far beyond the mere utilization of extended techniques as a means for timbric variation of the flute’s tone. In *Aliento/Arrugas*, the actual sound of the flute is expanded to such an extent that often becomes unrecognizable. The utilization of complex sounds and noises produced by and into the flute intends to deliberately depart and break away from the traditional tone of the instrument, redefining its concept and scope.

Rather than solely concerned with a technical expansion, Toledo’s utilization of unconventional sonorities in *Aliento/Arrugas* seems to obey principles that are directly related to the expressive intention of the piece. Therefore, the utilization of extended techniques in *Aliento/Arrugas* becomes not an end but a means of expressing the composer’s musical ideas. They are employed as a consequence of a musical aesthetic based on the exploration of noises and their interrelation. Moreover, they go beyond the

traditional concept of the instrument, redefining its potential for tone production and expression.

While working on [*Aliento/Arrugas*], I also realized that it was not the use of extended techniques per se that I was looking for, but rather the interaction and/or struggle between the peripheral possibilities of the instrument and the player...⁵²

As noises and complex sounds are considered Toledo's basic compositional materials, he has created a truly new and personal music style which demands an exhaustive utilization of unconventional techniques to produce such instrumental noises. In order to facilitate the study of the different sonorities and/or extended techniques in *Aliento/Arrugas* and to further comprehend how these sounds were employed in the compositional procedure, a categorization of such sonorities will be provided. Such categories were divided on the basis of tone production techniques and include 1) air devices, 2) articulation devices, 3) pitch related devices, 4) vocalizations, and 5) coordination of multiple techniques.

1) Air Devices

Toledo explains the work "is a metaphor of breathing,"⁵³ alluding to the extensive palette of breathing techniques and airy sonorities that are called for in *Aliento/Arrugas*. The method by which the performer blows inside or outside the instrument generates a variety of sounds of different effect. In many instances, Toledo abandons the conventional sound of the flute and transforms it into evocative references to ethnic

⁵² Marcelo Toledo, "Composing with Fluid Noises, a Personal Approach: History, Techniques, and Aesthetics of Complex Fluid Sounds." (D.M.A. diss., Columbia University, 2005) p. 36.

⁵³ Marcelo Toledo, interview by author, tape recording, Buenos Aires, Argentina, June 2004.

instruments and microtonal vocal music. In others, the sound becomes air-like noise in various frequencies and colors. Inhaling/exhaling techniques, unpitched sounds, breathy sounds, and gasping sounds are the air devices discussed in the following section.

A clear compositional goal in *Aliento/Arrugas* was Toledo's determinacy to create a continuous musical narrative. By making the process of inhaling and exhaling through the flute's embouchure audible, the composer was able to conceive a continuity of sounds that did not depend upon the performer's need for breathing. The **inhaling/exhaling technique** requires the performer to cover the blowhole tightly with the lips and breathe air through the embouchure hole of the instrument. The resultant sonority is a breathing-like sound amplified by the flute, which may contain some reference to approximated pitches when combined with different fingerings. Changes in the position of the mouth cavity, the location of the lips over the flute's lip plate, as well as the speeds of the air stream going into the instrument generate complex sounds of endless variations.

In *Aliento/Arrugas*, this practice is used several times throughout the piece in small gestures or throughout extended sections. When applied to small gestures the fluctuation of the air in and out of the flute produces color shifts.

The image shows a musical score for a flute, consisting of a staff with notes and a lower staff with dynamics and articulation. The upper staff has a box labeled 'bhc' above the first measure and another box labeled 'to very normal embouchure' above the last measure. The notes are mostly quarter and eighth notes. The lower staff has dynamics: 'mf' at the start, followed by a wedge-shaped crescendo to 'f', then a wedge-shaped decrescendo back to 'mf', and finally 'sfz/p' and 'f'. There are also some handwritten notes below the staff: 'sh', 'ksh', and 'ks ts kstks'.

Example 17 – Inhaling/exhaling technique in small gestures

In Example 17, each pitch of this passage is subjected to either inhalation or exhalation thus creating a breathing effect of various colors. A remarkable effect is obtained when this technique is applied to larger sections. In the last section of the piece, the flutist is told to continue breathing in and out of the flute while allowing a continuum of sounds for a greater timeframe than the customary maximum duration of phrases. Thus, a continuum of sounds is produced in spite of the performer's need to breathe (refer to Ex. 11).

Other types of air devices are those related to the quality of the produced sound. In *Aliento/Arrugas*, Toledo calls for three types of undefined or 'airy' sounds. **Toneless sounds** (or unpitched sounds) are wind-like sounds produced by covering the embouchure with the lips while blowing air into the flute (refer to Ex. 15). When the composer indicates a **breathy sound**, he makes reference to a pitched sound that is not pure and has a great deal of air evoking a primitive instrument. A **gaspng sound** is used at the end of the composition to depict a fading gesture produced by expelling the air directly from the lungs while vocalizing a gasping expression "jh" (Example 18).

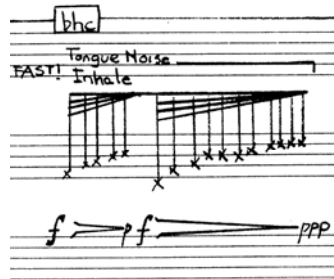
The musical score for Example 18 is written on a single staff with a 3/25 time signature. The notes are marked with dynamics: *sfz/f*, *p*, *f*, *f*, *mf*, and *niente*. Above the staff, there are labels for 'Ex' and 'In' indicating exhalation and inhalation. A circled 'jh' is written above the final note. The score is signed 'Ksk' and dated 'NYC Feb 98'.

Example 18 – Gaspng sound

2) Articulation Devices

Toledo's exploration of articulations is also original and varied. Several consonants, tonguing and fluttering styles are combined with breathing and tone-producing techniques to expand the variety of attacks. Hence, the very same double tonguing technique produces a very different effect when it is implemented with inhaling, exhaling, or flutter tonguing techniques. Among the articulation devices used in *Aliento/Arrugas* are tongue-noises, tongue-pizzicati, flutter tonguing, and phonetic attacks.

In some instances, the composer indicates **tongue-noise** while covering the flute's lip plate.⁵⁴ This effect is produced by double-tonguing while covering the embouchure hole with the lips and sucking air through the flute (Example 19).



Example 19 – Tongue noise with “bhc”

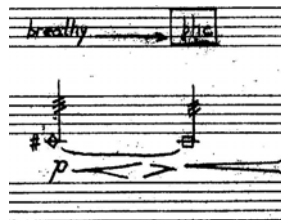
Tongue-noise is also indicated with normal embouchure and articulated into the instrument without fingering specific pitches. There is one instance of **tongue-pizzicato** at the end of the opening gesture of the piece. Tongue-pizzicati, also referred as “tongue-rams” or “tongue-slap,” is a “smacking” sound produced by the quick movement of the

⁵⁴ Indicated in the score bhc (blow-hole-covered).

tongue against the mouthpiece outlet accompanied by a sudden increase of the air stream from the abdominal muscles (refer to Ex. 15).

Flutter tonguing is used extensively in *Aliento/Arrugas*. Its timbral application creates distortions of sounds of great interest and intensity. Flutter tonguing is achieved by trilling the tongue while supporting a steady air stream. When performers have a physical difficulty to produce a trill with the tongue, a fluttering effect can also be obtained by a throat growl. Since the trill is produced by the lower muscles of the throat without disturbing the air stream as directed to the lips, throat growling can produce a more clear and defined pitch than regular fluttering.

In *Aliento/Arrugas*, flutter tonguing is also subjected to drastic changes in color and tone production techniques. In a similar fashion to the treatment of tongue-noise, flutter tonguing can be indicated with different tone production techniques such as blowing inside the embouchure hole or with a regular embouchure position. The resulting effect is a remarkable growling sound which Toledo exploits effectively throughout the piece. Example 20 shows both applications of flutter tonguing.



Example 20 – Flutter tonguing from breathy sound to blow-hole-covered

Tonguing shifts are very frequent; enhancing the textural fabric of the composition. Gradual changes from a sustained note to fluttering, or vice versa, occur several times in the work. Sudden shifts from tongue-noise to flutter tonguing are

common in the last section of the piece. Even though flutter tonguing is not a complicated technique, these changes - easier in theory than in the actual realization - demand some practice and relaxation of the tongue.

Phonetic attacks include a variety of consonants sounds (ksh, k, ts, and sh) that are articulated into the instrument with a strong and noticeable pronunciation. These attacks offer a timbric variety and an extended approach to articulation. Example 21 shows an entire gesture comprised of phonetics attacks. Accompanied by a ‘breathy sound,’ the attacks should encompass not only the clear pronunciation of consonants but also pitch-references by changing fingering to the notes suggested on the top line.

The image shows a musical score for Example 21, titled 'Phonetic attacks'. It consists of two staves: a flute staff on top and a voice staff on the bottom. The flute staff is marked '(breathy)' and contains a series of notes with various dynamic markings: sf/p, f, mf, ff, and ppp. The voice staff contains phonetic syllables: Ksh - ts, Ksh - K, sh, Ks ts Ks ts, Ksh, t K, sh, ts Kts Kts Kts, Ksh, Ks ts Kts Kts Kts Kts, Ksh, and sh. The score is written in a single system with a common time signature.

Example 21 – Phonetic attacks

3) Pitch-related Devices

The employment of microtonal pitch-inflections is frequent in both the flute and voice parts. These pitch variations add great expressiveness to the melodic line. Toledo uses lip glissandi and quarter-tones to generate expressive inflections and timbric distortions between the flute and voice.

Quarter-tones in *Aliento/Arrugas* add subtle melodic nuances to an extended palette of sound qualities that vary from normal tone and breathy sound to toneless sound. In the flute, chromatic successions of quarter-tones can be obtained throughout

the whole compass of the instrument by sub-dividing the chromatic scale into twenty-four quarter-tones. These are not obtained through the approximated method of lip adjustment but through a well-defined order of fingerings.

When quarter-tones are not indicated with a suggested fingering under the staff, the performer should seek reference literature in order to determine the proper fingerings.⁵⁵ The following table includes all quarter-tones required in *Aliento/Arrugas*, and the suggested fingerings were extracted from Robert Dick's *The Other Flute: A Performance Manual of Contemporary Techniques*. An open flute has been assumed in Table 6.⁵⁶

Table 6 – Suggested quarter-tones fingering in *Aliento/Arrugas*

⁵⁵ See recommended literature for the performance of extended techniques in chapter II.

⁵⁶ In addition, Robert Dick's manual, *The Other Flute*, also offers a quarter-tone scale for closed-hole flutes. p. 57.

The superposition of quarter-tones between the voice and flute parts produces timbric variations of strong dissonance. In Example 22, small intonation differences between the flute and voice create an effect of extreme beating and sonic distortion.⁵⁷

The image shows a musical score for Example 22, featuring two staves: flute and voice. The flute staff is marked with dynamics *pp*, *p*, *mf*, *f*, and *ff*. The voice staff is marked with dynamics *pp*, *mp*, *mf*, *f*, and *ff*. Performance instructions include *LENTO, DELICATO E LONTANO*, *AGITATO*, *accel*, and *COR FORZA!*. The score includes various musical notations such as slurs, accents, and dynamic hairpins.

Example 22 – Quarter-tone beating between flute and voice

Unlike quarter-tones, **lip glissandi** or “bending,” is achieved by small adjustments in the embouchure. To achieve a descending lip glissando, the flute is rolled inwards while pulling the jaw and lips downwards. On the other hand, in an ascending glissando, the flute is rolled outward away from the lips while pushing the jaw forward. These motions slightly affect the degree and angle of the air flow directed into the mouthpiece thus causing a change in the intonation of the pitch (Example 23).

The image shows a musical notation for Example 23, consisting of a single staff with a treble clef and a key signature of one flat. It features a descending glissando indicated by a wavy line under the notes. The dynamic marking *mf* is placed below the staff.

Example 23 – Lip glissando

⁵⁷ Beating is an acoustical phenomenon resulting from the interference of two sound waves of slightly different frequencies.

4) Vocalizations

The use of the voice in *Aliento/Arrugas* as a resource for timbral expansion of the flute's sound is an integral part of the composition with numerous functions. At times, the voice is joined simultaneously with the flute line forming a complex, sonically distorted, texture. Other times, the voice becomes a source of timbral resonance by playing an incantatory dialogue with the flute. In other instances, vocalizations are used as exclamations implying an extra-musical interference in the instrumental texture. Altogether, the result is a colorful and pliant vocabulary of textures and timbres adding emotional intensity to the musical narrative.

Toledo gives the voice an independent configuration from the flute part. This notational practice not only facilitates the reading and performance of both parts but also sheds light onto the interweaving of contrary, oblique, and cascade-like motions in the microtonal inflections of each line.

Back in Example 22, both parts are shown with their respective pitch motions. Starting on the same pitch, G₂, the voice rises a quarter-tone thus creating the emergence of strong beating between the notes. The passage is continued by a cascade-like effect achieved by the stretching and delaying of downwards and upwards pitch movements in both parts. The descending glissando in the flute is continued by a somehow slower glissando in the voice. The procedure is later inverted in its ascending gesture with the voice moving ahead in relation to the flute.

An example of contrary motion between the flute and voice parts is shown in Example 24. While the voice ascends from F#₂ to G₂, the flute moves in a descending

direction from Ab2 to converge into the same pitch G2. Sonic tensions and distortions resulting from the interplaying of pitch inflections between both lines create a dramatic effect.

Example 24 – Contrary motion

Sometimes, the voice follows the contour of the flute line. In this case, the voice does not have predetermined pitch material and only a similar movement in the voice is suggested by means of graphic notation (refer to the end of the passage in Example 24). Coordinated dynamic changes in both parts add extra timbral contrast and create a texture rich in harmonic content.

Another interesting sonic effect exploited in *Aliento/Arrugas* is the **amalgamation of timbres** between the flute and voice. In Example 22, the composer adds the color of the voice to the previous entrance of the flute. A gradual change from the open sonority “a” to the darker “o” amplifies this sonic transformation. This effect creates an amalgamation of timbres in which it is difficult to realize where the flute and the voice sounds merge.

A relatively close acoustic effect is achieved by the **interweaving of the flute and voice** in an active and continual dialogue. In Example 24, lip glissandi in the flute part are being immediately continued by the voice part. This interplay of instrumental

and vocal parts creates a sonic web that requires the coordination of complex tone production procedures such as humming while covering the flute's blowhole and immediately adjusting to normal embouchure to proceed playing. It is important to maintain the continuity of the melodic line in spite of the switches between the voice and flute. Interruption or breathing during this passage should be avoided to convey a greater interrelation between both lines.

A variant of this effect is the use of the flute as a **sympathetic resonance** of the voice. In Example 25, the voice is indicated to resonate into the flute. In order to create an audible resonance, the performer is advised to articulate some air into the flute while singing and to finger along the same pitches that are being sung. The short appoggiaturas add emotional intensity to the melodic contour of this passage.

The image shows a musical score for a flute part. It consists of two staves. The top staff contains the main melodic line with various dynamic markings: *sfz/p*, *mf*, *pp*, *sfz/p*, *pp*, *mf*, *f*, and *f+*. There are also markings for *accell* and *mf+*. The bottom staff contains a box labeled "Voice resonates on flute" with a double asterisk (**). The score includes various musical notations such as slurs, accents, and dynamic hairpins.

Example 25 – Sympathetic resonance

Contemporary composers are very specific on the employment of different vibratos by indicating amplitudes, frequencies, and gradual or sudden shifts on the production of vibrato. Toledo calls for a *chevre* vibrato, or nanny-goat-like vibrato of

narrow amplitude and fast frequency. Its application to voice and flute lines reinforces a passage of intense expressiveness with *febrile* character.⁵⁸

The image shows a musical score for Example 26, featuring a flute and voice line. The score is written in treble clef for the flute and bass clef for the voice. The flute part includes dynamics such as *ppp*, *mp*, *f*, and *ff*, along with performance instructions like "chevre vib (fl and voice)" and "breathy". The voice part includes dynamics like *sfz/pp*, *mp*, *f*, and *mf*, and includes the exclamation "jhh". The score is marked with "FEBRILE" and "f. 53-60".

Example 26 – Nanny-goat-like vibrato

The last aspect of vocalizations employed in *Aliento/Arrugas* is the use of **vocal exclamations**. Throughout the first and middle section of the piece, the appearances of unpitched exclamations, “jhh,” are isolated events that function as elements of both connection or separation of bigger sonic events. In Example 26, the exclamation “jhh” in the voice line, functions as an interpolation separating the previous phrase from the closing gesture at the end of the system.

In the last section of the piece, vocal exclamations occur with pitch-oriented material and are indicated to be sung inside of the flute’s embouchure hole. Pitched-exclamations obtain a distinctive quality within the prevailing unpitched material in the textural fabric. Among the chaotic and hurried noise-oriented materials in the passage in Example 27 below, the vocal sound acquires a remarkable effect with the clear utterance of the G2 in the voice line.

⁵⁸ Nanny-goat-like vibrato is indicated as “chevre vib.” in the manuscript.

Example 27 – Pitched exclamations

5) Coordination of Multiple Techniques

Written in a truly extended instrumental language, *Aliento/Arrugas* conveys not only several procedures of techniques of varying complexities, but also the simultaneous coordination of several layers of actions. As seen in Example 22, the coordination of three layers of diverse techniques such as singing, playing, and flutter-tonguing at the same time is one of moderate difficulty to the contemporary-trained flutist.

Perhaps the greatest technical challenge of *Aliento/Arrugas* is presented at the end of the piece. Several layers of extended techniques are combined to create a frenetic disengagement including inhaling-exhaling techniques, blow-hole-covered to normal embouchure changes, tongue-noises, flutter tonguing, pitched vocal exclamations, phonetic attacks, and lip glissandi (Example 28).

The image displays a musical score for flute and voice, labeled as Example 28. It consists of two systems of staves. Each system has a flute staff on top and a voice staff on the bottom. The flute staff contains complex rhythmic patterns with various articulations and dynamics. The voice staff contains phonetic syllables and dynamics. The score is annotated with numerous performance instructions such as 'bhc', 'breathy', 't.n.', 'fle', 'ts', 'Ks', 'ksh', 'lip slurs', and 'normal/breathy'. Dynamics like 'f', 'ff', 'mf', and 'fz' are also indicated throughout the piece.

Example 28 – Coordination of multiple techniques

Final comments on the performance of *Aliento/Arrugas*

The employment of instrumental noises as a basic material for music composition along with the reduced references to pitched materials in *Aliento/Arrugas* implies a technical approach that concentrates mainly upon tone-production techniques. Since the prevailing texture of the piece comprises a great number of undetermined pitches, the technical dexterity once needed to define and differentiate particular pitches, has been relegated to a secondary level. In producing instrumental noises, tone-production techniques acquire a new level of proficiency exhorting the performer to gain technical flexibility for alternating different practices such as covering the embouchure hole with the lips and returning to the regular playing position with grace and seamless proficiency. Additionally, this coordination of unconventional practices is articulated into the instrument by particular tone-production techniques such as flutter-tonguing, toneless sounds, glissandi, and phonetic articulations among others.

In the performance and practice of *Aliento/Arrugas*, the instrumentalist is urged to break away from conventional practices by implementing new stylistic, technical and aesthetical principles. A sound that could have been considered mistaken or unpleasant in the traditional repertoire for flute is now included in the composition encompassing a new musical connotation and emotional significance. The production of sounds or noises, understood as sonic materials for conceiving musical ideas, also provides interpretative and technical challenges. Not only does the performer need to broaden his/her technical skills to produce different nuances and colors among the multiple sonic resources, but he/she must also develop a new sensibility to distinguish subtle differences in texture, color, character, manageability, smoothness or harshness, dryness or wetness, flexibility or resistance of these materials.

In addition, the management and execution of these new sonic materials introduces new principles of interpretation and musical meaning. Integrating these sounds into a coherent musical narrative is a complex process ingrained in gestural and instinctive premises. Beyond conventional and technical parameters, Marcelo Toledo explains that performers need “a certain kind of energy to perform some sounds. It is not only about their parameters, it is an attitude with the instrument and it is an attitude with themselves.”⁵⁹ *Aliento/Arrugas* explores an extraordinary wealthy sonic world full of presence and meaning; unfolding the visceral, the instinctive, the primitive, and recovering the magical power of music.

⁵⁹ Marcelo Toledo, *Sound Object*, interview by George Parker, video documentary, School of the Arts at Columbia University, January, 2004.

Chapter 6: Conclusions

The development of new instrumental techniques has been a remarkable phenomenon in contemporary music. Many factors have contributed to the technical and sonic expansion of instrumental music. As music composition became increasingly concerned with timbre as a structural parameter of the work of music, the concept of instrumental sound has been explored and expanded in an unprecedented manner. In addition, the advent and implementation of technology in musical composition exerted a significant impact upon the instrumental arena affecting the way sound is conceived, controlled, perceived, and produced.

In order to study recent application and evolution of extended instrumental techniques in a particular music composition repertoire, an anthology of works by Argentine composers has been compiled. In addition, these findings are intended to serve as a future reference-point for further research on contemporary Argentine composition. Evaluating the present extended techniques repertoire for flute in Argentina, one arrives to some relevant conclusions.

The first compositions by Argentine composers to employ instrumental extended techniques were composed between the 1960s and 1970s. The few works compiled from this period were conceived by composers living abroad or those who had the opportunity to further their education outside the country. Moreover, within the country, extended techniques were first employed at the beginning of the 1970s. Only in the 1990s did a considerable increase of compositions for flute exploring contemporary instrumental resources take place.

Through the study and analysis of the findings, a veritable evolution in the usage of extended techniques was observed. This evolution denoted an increasing transformation of the instrumental idiom by modifying its technical and expressive resources and scope. The analysis of works by Eduardo Bértola and Marcelo Toledo illustrates the different extents to which these techniques are applied in music composition. While the former expands the timbral spectra of the flute by the austere usage of sonic materials and instrumental resources, the latter creates a musical narrative by unfolding a wealth of sonic materials and redefining the conceptual paradigms of sound.

A new connotation and increase in the usage of extended techniques could also be noted in the field of electroacoustic music. As the use of pre-recorded and computer-processed sounds provide an even-greater vehicle for experimenting with instrumental sounds, a progressive inclusion of extended techniques is clear from the discussions of electroacoustic works.

Moreover, a new tendency in Argentine contemporary music for flute is emerging. In the last decade, a small number of composers began to lean toward the inclusion of extended techniques into a musical language ingrained in folk-music roots. These composers claim avant-gardism should not necessarily forgo cultural identity and they stress the need to integrate tradition and music development.

Whereas in Europe and the United States, music composition for flute began to explore unconventional sonorities as early as the 1940s and 1950s; the first compositions written in Argentina took place in the 1970s. Moreover, these techniques and sonorities

were only widely accepted after 1990. This chronological difference with regard to musical outputs conceived overseas attests for a certain delay in the assimilation of new trends and aesthetics, possibly attributed to the socio-economical and cultural realities of the country.

The research, study, evaluation, and detailed analysis of the musical application and stylistic premises in the employment of extended techniques have enabled the author to evaluate aspects that surpass the mere technical implications of the subject here discussed. On one hand, the so-called 'extended techniques' denote only the practical means to produce particular sonorities. On the other, sounds make music; techniques only help. Often times, instrumentalists seem to be preoccupied by the technical novelty of a sound overlooking its musical outcome. This treatise pursues a deeper understanding of the usage of extended techniques by contextualizing them into a musical framework. The author believes that only by appreciating their musical significance may performers and composers begin to develop a deeper connection with the contemporary flute vocabulary and to conceive works of true artistic value.

Appendix A – Anjos Xifópagos

anjos xifópagos ¹⁹⁷⁶ 1 e. bértola

Section I

The score for Section I consists of two systems of staves. The first system includes two flutes (fl. 1 and fl. 2) and two strings (1 and 2). Flute 1 has a dynamic marking of *mf* and *pp*. Flute 2 has a dynamic marking of *f*. The strings have dynamic markings of *mf* and *pp*. The second system includes two strings (1 and 2) with dynamic markings of *mp*, *ff*, *f*, *pp*, and *mf*. The score includes various musical notations such as slurs, accents, and dynamic markings. A *pausa 3"* is indicated between the two systems. The score concludes with the instruction *attacca subito in loco*.

T1 **T2**

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Section II 2

The score for Section II consists of four systems of staves, each with two staves (1 and 2). The dynamics are consistently marked as *mp* throughout the section. The score includes various musical notations such as slurs and accents.

Section III

S1 3

1 *ff* *ff* sempre

2 *ff* *ff* sempre

(*ff*) pausa 5"

S2 *legatissimo*

1 *pp* sempre

2 *pp* sempre

S3

1 *pp* *ffff* *ffff* *attacca*

2 *pp* *ffff* *ffff* *attacca*

4

1 *ff* *ff* sempre

2 *ff* *ff* sempre

(*ff*) pausa 6"

S4

1 *mf* *pp*

2 *mf* *mp*

Appendix B – Aliento/Arrugas

ALIENTO/ARRUGAS solo flute

for Ulla MARCELO TOLEDO

INTENSO E CON FORZA **PESANTE** **LENTO**

flute
Extreme Tactless * High/rag high/rag low/frog
Tongue Noise FAST! Inhale
Exhale 2. tongue
Wind like sound
blow hole covered

voice
ffz f f ppp sfz f sfz
Koh K Ksh K sh Ksh Kts Kts Kts
sh Ksh Kts Kts Kts
sh Ksh Kts Kts Kts Kts Kts

flute
breathy
Ex/inhale
tongue normal
breathe

voice
ff sfz p mf f f sfz/p
Ksh ts Koh K sh Kts Kts Koh E K sh ts Kts Kts Kts Kts Kts Kts Kts Kts Kts Kts

flute
(breathy) staccato!
winter tone
15°
ppp

voice
sfz/p f sfz/p mf sfz/p ff mf sfz/p f sfz
Ksh ts Koh K sh Kts Kts Koh E K sh ts Kts Kts Kts Kts Kts Kts Kts Kts Kts Kts

Appendix C – Glossary of Extended Techniques in Aliento/Arrugas

Nanny-goat vibrato:	exaggerated vibrato of narrow amplitude and very fast frequency
Blow-hole-covered:	blowing air into the instrument while covering the blowhole with the lips
Breathy sound	is a flute sound that is not very pure and has an airy quality
Coordination of multiple techniques:	refers to the simultaneous coordination of two or more extended techniques
Flutter tonguing:	achieved by trilling the tongue while supporting the exit of a steady air stream
Gasping sound:	expelling the air directly from the lungs while vocalizing a gasping expression (ha...)
Inhale-exhale technique:	requires the performer to breathe in and out through the embouchure's hole. This procedure permits the performance of extended musical passages
Lip glissandi:	a.k.a. "bending" - is achieved in the flute by small changes in the embouchure
Micro-tones:	quarter-tones and even smaller subdivisions of the half steps are obtained by the use of specific fingering (See table 4)
Sympathetic resonance:	singing while holding the flute very close to the lips creates a sympathetic resonance
Toneless sound:	a wind-like noise produced by covering the embouchure hole with the lips while blowing air into the flute
Tongue pizzicato:	a 'smacking' sound produced by the quick movement of the tongue against the embouchure outlet, accompanied by a sudden increase of the air stream
Vocalizations:	refers to vocal sounds with or without pitch-oriented material that are sung or exclaimed without words

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Vita

Mariana Stratta Gariazzo was born in Santa Fe, Argentina on June 26 1972 to Inés and Jorge Stratta. After completing her secondary school education, she attended the Universidad Nacional de Cuyo in Mendoza where she received her Bachelor of Fine Arts degree in April 1997. In pursuit of her graduate studies, she moved to the United States where she earned a Master's of Music degree at the Yale University School of Music in 2001. Immediately, she continued with her doctoral studies at the University of Texas at Austin. As an active flutist, she has performed as a member of several orchestras and chamber music groups in South America, North America, and Europe. Throughout her musical education, Mrs. Gariazzo has developed an interest in teaching. She was a teaching assistant at Yale University and at the University of Texas and has taught privately since 1993. In addition to her performing and teaching activities, Mrs. Gariazzo has coordinated several flute seminars and educational exchange endeavors in Latin America. Currently, she is a member of the Oak Ridge Symphony Orchestra and the National Flute Association.

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