

ELECTRIFYING MUSIC: The Untold Story of Remi Gassmann



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In an homage to 20th-century electronic music, *Electrifying Music* celebrates the life and contributions of Remi Gassmann, an American composer and pioneer in electronic sound and music. Best known for his innovative ballet scores and his soundtrack to Alfred Hitchcock's film *The Birds*, Gassmann introduced 20th-century audiences to new musical aesthetics and compositional styles.

Through photos, artifacts, and personal correspondence, this exhibit explores how Gassmann championed the emerging works of his contemporaries and the types of musical notation made possible by technological advances.

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GRAPHIC SCORES

Sound is transient and difficult to capture in any medium other than audio recordings. Documenting sound on a 2D page has thus been a priority for centuries of composers. *Graphic scores* arose between the 1950s and 1970s; this was partially a response to the emergence of electronic music, which traditional notation was poorly suited to represent. Whereas conventional western notation includes common elements such as the five-line *staff*, black *noteheads*, and upright *stems*, graphic scores might include diagrams, iconography, and other elements to instruct performers. The variety of graphic scores in this exhibit demonstrate the different approaches developed by composers to convey their musical ideas. Unless otherwise noted, all scores in this exhibit were sourced from the Langson Library circulating collection.

1. **Excerpt from *Billy Sunday, or Giving the Devil His Due***, by Remi Gassmann, 1945. Remi Gassmann Papers. UCI Libraries Special Collections and Archives.

Staff: Five horizontal lines and four spaces that each represent the pitch

Notehead: Circles on the staff to indicate which pitch should be played. In some circumstances, they also indicate rhythm.

Stem: Lines attached to noteheads that indicate rhythms.

Rest: Notation that represents silence.

Clef: In conjunction with a staff, indicates which pitches align with various lines and spaces

Tempo: Speed of the music.

Dynamics: Volume of the music.

Accidentals: Used in conjunction with staves and noteheads to indicate if a pitch should be *sharp* (higher) or *flat* (lower).

2. **EXCERPT FROM STUDIE II**, by Karlheinz Stockhausen, 1954.

This early piece by electronic music pioneer Stockhausen was an important development in his own compositional style. The *realization* (how another musician visualizes the music for better understanding) for *Studie II* was made by James Ingram who needed to create new methods of notation for this type of composition. To provide all the necessary information needed to perform this piece, this score is accompanied by a five-page introduction.

3. **LISTENING SCORE OF ARTIKULATION**, by Rainer Wehinger, 1970. Original score by György Ligeti, 1958

Graphic designer Wehinger developed a listening score (an item that represents the music but cannot be used to literally recreate it) of Ligeti's highly technical score for *Artikulation*. In this visually pleasing listening score, the shapes and colors represent different *timbres* (sounds) and pitches set against the timeline showing the continual forward pulse of the music.

4. **ANAGRAM FOR STRINGS**, by Yasunao Tone, 1961.

The Japanese performer and composer Tone was highly influenced by avant-garde artist Jackson Pollock. *Anagram for Strings* consists of small white and black circles and dots, with numbers along the top and left edges. To perform this piece, the string player will need to draw a line across the score and use the numbers to perform basic calculations to determine how they should perform downward *glissandi* (sliding between two notes).

5. **EXCERPT FROM PROJECTION 1**, by Morton Feldman, 1961.

In *Projection 1* for solo cello, each box represents a standard bar of music comprising beats, with additional information indicating approximately what the performer should play. The first box is marked with a P (for pizzicato, when the performer plucks the string with their finger). The square in the middle shows that the performer should choose a note that's not too high or low, and its relative size indicates that it should only be one beat.

6. **EXCERPT FROM FAUST: ELECTRONIC MUSIC**, by Else Marie Pade, 1962.

Commissioned to accompany a Danish radio play based on Goethe's classic play *Faust*, all sounds in this piece were electronically generated. This score gives the listener an idea of what the music will sound like, but it's more an artistic representation of the sound than a direct roadmap to reproduce it. To our knowledge, there's no remaining documentation on how to interpret this.

7. **ELEGANT JOURNEY WITH STOPPING POINTS OF INTEREST**, by Robert Moran, 1967.

Elegant Journey is for any sized ensemble comprised of any instruments desired. Unlike other scores in this exhibit, it doesn't include any instructions from the composer on how to interpret the work, which could be both liberating and frustrating for the performer. How would you interpret this score?

8. **EXCERPT FROM STRIPSODY**, by Cathy Berberian, 1966.

Berberian's score, which is comprised almost entirely of comic-like graphics and written onomatopoeia, "should be performed as if by a radio sound man, without any props, who must provide all the sound effects with his voice." With these and a few other simple instructions, a vocalist would surely have fun exploring the creation of sounds that aren't traditionally called for by composers.

9. **CYCLE**, by Richard Orton, 1967.

To perform this piece, the musician is instructed to "align a line of the outer ring with a line of the inner ring." Different players will play the inner and outer rings, and each player will interpret their section while listening to the other to decide when to jointly move forward in the piece. Because the score is a wheel that allows for various alignments, different sections might be played at the same time in different performances.

10. **EXCERPTS FROM SYMFONIA: MUZYKA ELEKTRONICZNA**, by Bogusław Schaeffer, 1968.

Schaeffer provides extensive instructions on how to interpret the piece: The score “should be read with a certain degree of freedom” because the music is “represented by a system of signs which are not considered an exact graphical representation, but rather an approximation to the musical intention.” For example, the circle comprised of dots in measures 153 and 154 should be “a constellation of very numerous soft and minute impulses within a broad range of pitch—very dense.”

11. **EDGES**, by Christian Wolff, 1969.

The score for *Edges* is sparse, and here, you can see both the score and the composer’s instructions on how to interpret the work. Wolff describes many of his works as “parliamentary participation” because the performers have the power to interpret the music and react to one another, rather than having to follow the lead of a conductor.

12. **EXCERPT FROM TREATISE**, by Cornelius Cardew, 1970.

Cardew’s *Treatise* is a massive 193-page graphic score. The composer doesn’t provide any instructions, but he encouraged performers to spend time working out their own rules and interpretations prior to a performance, rather than improvising them on the spot. With a vast range of performance material, performers might spend hours flipping through this vast score to find a piece that truly resonates with them.

13. **EXCERPT FROM PENETRATIONS V**, by Alcides Lanza, 1970.

This score has two groups of performers playing at the same time. Much of this is notated in the sections labeled G.I and G.II (Group I and Group II) with symbols like dots and triangles meaning short sounds, alongside unique notation, like the parallel vertical lines after other symbols that indicate the volume for electronically created feedback.

14. **SOUND PATTERNS 4**, by Bernard Rands, 1970.

For those with no musical experience or wanting to dip their toes into nontraditional notation, Rands' *Sound Pattern* series is a good starting point. Its stated aim is to provide practical material for a class to perform, including those "with no knowledge of conventional music notation." Three separate groups (A, B, and C) perform simultaneously and interpret the symbols according to some basic instructions provided by the composer.

15. **EXCERPT FROM MINIWANKA**, by R. Murray Schafer, 1971.

Miniwanka is an example of music notation that draws upon traditional elements while transforming them into something new that represents the work's subject matter. This is an "imitative piece describing the various states of water," and "the effect of the total piece should be to chronicle the transformation of water, from rain... to streams... to quiet lakes... to broad rivers... to the ocean." The text consists of words for water, rain, stream, river, fog, and ocean in Native American languages, such as Dakota, Wappo, Crow, and Chinook.

16. **EXCERPT FROM GRAPHIK IV**, by Dubravko Detoni, 1972.

Detoni provided few performance instructions for *Graphik IV*. Its 22 pages can last between 3–60 seconds and may be shuffled, omitted, or repeated. One of the few stipulations is that "silence is an essential part of this work: the ratio between silence and sound is approximately 60:40." This emphasis on silence is reflected by this largely empty page. Dots closer to the bottom represent lower notes. How would you perform the lines radiating out from this large oval?

17. **EXCERPT FROM SCRATCH MUSIC**, by Scratch Orchestra, 1972.

An ensemble of composers and musicians, the Scratch Orchestra was active in the United Kingdom between 1969 and 1974. The group produced collaborative, experimental works that often blurred distinctions between music and performance art. This excerpt combines conventional western notation with cartoons, diagrams, and text. Incorporating everyday, even impolite sounds into musical performance was a hallmark of the orchestra's absurd, ironic style.

18. **EXCERPT FROM NEW PIECE LOOPS**, by Earle Brown, 1972.

Brown was a member of the influential New York School of composers. Throughout the 1960s, these composers experimented with everyday, noninstrumental sounds and indeterminate, open-ended compositions. A decade later Brown decided that “random sound (as beautiful as it can be) is as boring and academic in 1972 as neo-classicism was in 1952.” *New Piece Loops* therefore comprises only a limited set of instrumental notes, using graphic notation to achieve what Brown called a “simplification of the materials in the work.”

19. **MAKROKOSMOS: SPIRAL GALAXY**, by George Crumb, 1972.

Spiral Galaxy is one movement in Crumb’s vast *Makrokosmos* project. Each movement is associated with a different zodiac sign; *Spiral Galaxy* is assigned to Aquarius. The notation itself is conventional, albeit complex, with five-line staves and traditional note figures. Crumb explained that the spiral formation of this movement, which evokes the awe-inspiring enormity of the cosmos, was influenced by the words of French philosopher Blaise Pascal: “The eternal silence of infinite space terrifies me.”

20. **HARMONIC CHART**, by Michael Smither, 1981. In **STRANGE TERRAIN: A NEW ANTHOLOGY OF NEW ZEALAND GRAPHIC SCORES** 1965–2012, edited by Jack Body, 2012.

Known primarily as a painter, Smither produced musical scores that “visualize” a musical idea. When we hear an instrument play a note, we hear a combination of frequencies. Different combinations give different *timbres* (sonic “textures”), which is why we can hear the difference between, for example, a violin and a saxophone. *Harmonic Chart* is a technicolor interpretation of the relationship between sound and color, illustrating a “cross-reference of each note’s harmonic make-up.”

21. **THIS SLOWLY DRIFTING CLOUD**, by Netty Simons, 1984.

Simons outlines a series of musical snippets on the left of the score, each with an assigned visual texture (stars, dots, blank, pebbles, filled). On the right, a series of shapes with the same patterns are spread out like a map for performers. Performers move through the network of shapes, playing the snippet that corresponds to a given shape’s pattern.

22. **EXCERPT FROM MEDITATING SOUNDS**, by Paulo Motta, 1988. In *Sonic Graphics/ Seeing Sound*, by Matt Woolman, 2000.

The work of Brazilian composer Motta explores the relationship between music and mapmaking. *Meditating Sounds* employs vivid blocks of color, strong geometry, and text instructions such as “STOP” and “MAIN ATTRACTION,” which evoke road signs. The score is populated with distinct centers of activity, and performers are encouraged to traverse routes between regions, producing corresponding sounds along the way.

23. **BODY MUSIC**, by Lyell Cresswell, 1994. In **STRANGE TERRAIN: A NEW ANTHOLOGY OF NEW ZEALAND GRAPHIC SCORES 1965–2012**, edited by Jack Body, 2012.

Body Music is a series of 10 hand-inked scores that Cresswell dedicated to fellow New Zealand composer Jack Body for his 50th birthday. These playful scores are deliberately unexplained, each exploring ideas of embodiment and musicality. How might you perform and experience music across your whole body, rather than just the specific gestures required to play an instrument?

24. **SAXUAL ORIENTATION**, by Pauline Oliveros, 1998.

Saxual Orientation is a combination of graphic formatting and what is known as a *prose score* (musical instructions delivered as plain text). Oliveros has published many prose scores that foster “deep listening,” in which the artistic-spiritual practice involves engaging with sound as both a physical and a psychic entity. The pieces are often open-ended, and she encourages performers to listen closely both to themselves and those around them as they improvise and experience sounds together.

25. **COMPOSITION NO. 358: ACCELERATOR WHIP GHOST TRANCE MUSIC**, by Anthony Braxton, 2006.

Some of the works of noted composer-improviser Braxton are notoriously difficult to interpret and play. This score demonstrates a close relationship between color, shape, and sound. At times, Braxton explicitly states that a particular color denotes an emotion or a sonic tone, while at other times, the interpretation is left to the performer.

26. **INFORMODULATION.07**, by Anthony Ptak, 2007. In **BETWEEN THOUGHT AND SOUND: GRAPHIC NOTATION IN CONTEMPORARY MUSIC**, co-curated by Waterman, Singer & Lyons, 2007.

The bullseye figures Ptak introduces here modulate both vertically and against the grain of the tempo. Instead of being ultra-specific about pitch and rhythm, the concentric circles invite flexibility, where musicians can play in and around the notated figures.

27. **BROKENHEART**, by Anne La Berge, 2007.

In addition to instruments such as electric guitars and synthesizers, electronic music has a rich history of dedicated software tools. Platforms such as MaxMSP and PureData were developed to facilitate interactivity between musicians and computers. Such environments can be more visually intuitive than typical lines of computer code. This score is a screenshot of a patch, or MaxMSP project, devised by La Berge for use in *Brokenheart* performances.

28. **BLACK AND RED DOT COMPOSITION #1**, BY ALEXANDRA HAY, 2010. In **STRANGE TERRAIN: A NEW ANTHOLOGY OF NEW ZEALAND GRAPHIC SCORES 1965–2012**, edited by Jack Body, 2012.

Playfully elaborating on select elements of conventional western music notation, *Black and Red Dot Composition #1* is meant to be accessible to those unfamiliar with reading sheet music. Hay describes how red and black dots denote noise and pitch, respectively, and that their size can be interpreted as either *dynamic* (quiet, loud) or *durational* (short, long) markings.

29. **FOR BARBARA CROALL**, BY RAVEN CHACON, 2022. In **FOR ZITKÁLA ŠÁ, BY RAVEN CHACON**, 2022.

Originally from the Diné (Navajo) Nation, Chacon was the first Native American composer to win a Pulitzer Prize for Music. *For Barbara Croall* is one score in a larger collection, with 13 scores each dedicated to a different First Nations sound artist. Some elements of this score resemble conventional western notation. The filled/unfilled shapes look like half/quarter notes, and the long uppermost hairpin looks like a decrescendo (gradual quietening). What might the squiggly iterations of this form suggest?

LIFE AND INFLUENCES OF REMI GASSMANN

Remigius “Remi” Oswald Gassmann was an American composer of both acoustic and electronic music. His diverse output includes chamber and orchestra works as well as operas and film soundtracks. After completing a graduate degree in music, Gassmann relocated to Berlin to study under his mentor, the renowned 20th-century composer Paul Hindemith. During this time, Gassmann developed a parallel interest in avant-garde and electronic music. Over the years, Gassmann and his wife Dr. Marthe Loyson lived in France and the United States. Gassmann died in 1982, leaving to UCI his collection of correspondence, musical manuscripts, and miscellaneous papers as well as his apartment in Strasbourg, France.

30. **EASTMAN SCHOOL OF MUSIC GRADUATION.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1931.

Gassmann graduated from the University of Rochester’s prestigious Eastman School of Music in 1931. Originally a composer of works for traditional western-classical instruments, after moving to Germany, he developed an interest in the electronic music techniques of the post–World War II era.

31. **TRAVELER’S CHEQUE SIGNED BY GASSMANN.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. c. 1935.

When Gassmann first traveled to Europe, before ATMs and credit cards, international travelers relied on traveler’s cheques as a safer way to carry cash. This cheque was made out for \$20—that’s equivalent to \$427.23 today!

32. **PERSONAL TRAVEL,** photo by Mathe Loyson. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1935.

In 1935, Gassmann and his future wife Marthe Loyson took a trip through Europe and French-speaking North Africa, visiting Cannes, Monaco, Algiers, Tunisia, and Morocco, amongst others. There are few images of the pair together—someone had to be holding the camera, after all!

33. **MARRIAGE BOOKLET OF REMI GASSMANN AND MARTHE LOYSON.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1937.

This *Livret de Famille* is an official French document issued to the Gassmanns at the time of their wedding. It includes the couple’s names, birthplaces, and ancestries. Interestingly, the actual marriage date doesn’t appear on this certificate page.

34. **REMI AND MARTHE GASSMANN (NÉE LOYSON)**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1960s.

In 1937, Gassmann married Marthe Loyson, MD, an acclaimed neurologist 12 years Remi's senior. Their civil ceremony was held in Marthe's hometown of Strasbourg, France. Over the years, the pair lived in and traveled across various countries in North America and continental Europe.

35. **LETTER FROM GASSMANN TO HIS FATHER AND SISTER**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1934.

While living in Germany in the lead-up to World War II, Gassmann maintained regular correspondence with his family in Kansas. In this letter from late 1934, Gassmann describes how the Nazi regime had deemed the music of his mentor and friend Paul Hindemith to be *untragbar*, or "not possible of toleration in a Nazi State." During Hindemith's periods of mandatory leave from university teaching, Gassmann assumed his official teaching responsibilities while Hindemith tutored students privately.

36. **WOODBLOCK PRINT OF GASSMANN**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. Artists and dates unknown.

Gassmann's collected papers include hand-drawn and woodblock portraits, many of which are unsigned. It is unknown whether Gassmann or a friend created this woodblock print. Either way, he clearly loved this image so much that he had copies made to use as cards!

37. **CHRISTMAS CARD FROM PAUL AND GERTRUDE HINDEMITH**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1953.

Gassmann remained a close friend and admirer of Hindemith after his time studying at the Musikhochschule in Berlin. Paul and Gertrude Hindemith sent wonderfully creative, often music-themed greeting cards each Christmas.

ELECTRONICS: A GROUNDBREAKING BALLET

In 1961, the ballet *Electronics*, with choreography by George Balanchine and music by Remi Gassmann, was premiered by the New York City Ballet. The music was created using the Mixtur-Trautonium, an electronic instrument, and was considered to be the first major concert piece that utilized music generated by electronic means rather than music that was electronically manipulated. Even though the music was foreign to audiences, the dancing itself was generally thought to be quite straightforward and standard for a ballet of that era. The ballet was fairly well received, but it doesn't appear to have ever been performed after the 1960/1961 season.

38. **LP RECORDING OF *ELECTRONICS***. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1961.

When describing his composition method and music style for *Electronics*, Gassmann said, "I chose to return to sounds of electronic origin, since I had at my disposal an electronic instrument of kaleidoscopic and practically limitless tonal possibilities.... Hence, in this work, electronic sound, the virtuoso possibilities of the electronic instrument, and the further manipulations and techniques of the electronic sound studio, are for the first time inextricably bound together."

39. ***ELECTRONICS* MUSICAL SCORES**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. C. 1960.

As electronics and other new techniques began to be used in music, composers realized that traditional notation could not capture the intricacies of this new music. Gassmann described the notation for *Electronics* as "inadequate." The only reason why he bothered to create this score, which Gassmann titled a "dramaturgical draft" rather than a score, "was to provide the choreographer with a possible guide when working with the actual music on magnetic tape."

40. **ADVERTISEMENT IN *CUE MAGAZINE***. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. Sept. 9, 1961.

Although no musicians were required to perform the music for *Electronics*, special equipment needed to be installed around the hall in order to provide the best listening experience for the audience. This tongue-in-cheek ad by the music technology company Harman Kardon shows how important these amplifiers and speakers were in bringing the performance to life.

41. **A. STEWART HEGEMAN, GEORGE BALANCHINE, AND GASSMANN.** Photographer unknown. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1961.
- A. Stewart Hegeman (director of engineering of Harman Kardon's Citation Kit Division), George Balanchine, and Gassmann (left to right) are sitting in the balcony next to the newly installed Citation amplifiers and loudspeakers that were necessary to perform the music for *Electronics*.
42. **NEWSPAPER REVIEWS OF ELECTRONICS.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1961.
- Newspaper articles and reviews indicate that ballet lovers weren't sure how to react to *Electronics*. One review described the music as "weird sounds" and an "eerie din and clamor" that was accompanied by a "nightmarish scene of arctic stalactites and fantastic ice-like masses" (referring to the set designed by David Hays). Despite that, one reviewer's final impression was that the ballet was "rather tame and mundane."
43. **VIOLETTE VERDY, GEORGE BALANCHINE, AND GASSMANN.** Photograph by Martha Swope. Martha Swope Photographs Collection. New York Public Library Digital Collections. 1960.
- Gassmann observed the rehearsal for *Electronics*, while the choreographer George Balanchine worked with prima ballerina Violette Verdy. Balanchine is known as one of the leading choreographers of the 20th century and a foremost figure in shaping American ballet. Verdy danced with New York City Ballet for almost two decades.
44. **FLYER FOR GASSMANN LECTURE AT UCLA.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1961.
- Because Gassmann's work with electronic music was revolutionary, he was invited to give lecture-demonstrations at several noteworthy music schools, including UCLA. These events were an excellent opportunity to give young composers and other musicians firsthand experience with the burgeoning field of electronic music. They also demonstrated Gassmann's commitment to education, which was furthered later in his life with his estate gift to UCI's Music Department.

CHAMPION OF NEW MUSIC

Gassmann moved to Chicago in 1939 and took a job at the University of Chicago in 1941. Two years later, he created the Composers Concerts Series that presented cutting-edge music and featured composers as performers, conductors, or lecturers—frequently in a combination of these roles. Although the series only lasted a few years, Gassmann was able to present musical luminaries such as Arnold Schoenberg, Paul Hindemith, and Béla Bartók, in part due to these European composers' flight to the United States due to World War II. The legacy of this series is reflected at UCI with the Music Department's Gassmann Electronic Music Series, which has run since 1997 and hosts several concerts each year featuring composers like Morton Subotnick, Joan La Barbara, Pamela Z, and George Lewis.

45. **COMPOSERS CONCERTS SERIES PROGRAM.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1943.

The first concert in the Composers Concerts Series on Friday, December 10, 1943 featured the music of composer Darius Milhaud, who had emigrated to the United States in 1940 due to the Nazi invasion of France. During the concert, Milhaud played several of his own works for piano, including his popular piano duo *Scaramouche*, alongside Remi Gassmann.

46. **COMPOSERS CONCERTS SERIES POSTER.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1944.

During the second season of the Composers Concerts, Gassmann expanded programming from solely instrumental performances to also include an opera and a ballet concert. However, due to wartime rationing and other effects from the United States' involvement in World War II, these performances were rescheduled to the spring of 1946.

47. **BALLET COSTUME SKETCHES FOR 1945 COMPOSERS CONCERTS,** by Alexander Calder. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. c. 1944.

American artist Alexander Calder, primarily known for his sculptures, worked in many different media including theatrical designs. This design, intended for choreographer Ruth Page's ballet *The Bells*, is indicative of Calder's tendency to use large swaths of primary colors in his art. Unfortunately, these designs never came to life. The ballet was scheduled as part of the 1945 Composers Concerts Series, which was cancelled due to WWII rationing and other restrictions.

48. **NEWSPAPER ARTICLE ANNOUNCING CONCERT BY HEITOR VILLA-LOBOS.** Remi Gassmann papers. UCI Libraries Special Collections and Archives. 1945.

When Gassmann discovered that acclaimed Brazilian composer Heitor Villa-Lobos was in the country, he did everything possible to get him to visit Chicago and be a part of the series. This unexpected boon to the Composers Concerts wreaked havoc on the schedule, but bringing Villa-Lobos to a series that was dominated by European and American music was a treat for the Chicago audience.

49. **COMPOSERS CONCERTS SERIES POSTER.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1945.

50. **UCI'S GASSMANN ELECTRONIC MUSIC SERIES CONCERT.** UCI Department of Music website. 1997.

In 1997, UCI Music Professor Christopher Dobrian created UCI's Gassmann Electronic Music Series, thanks to Gassmann's gift to UCI. This free series brings composers and musicians to UCI in order to present concerts and events focused on electronic and electro-acoustic music in the Claire Trevor School of the Arts. After more than 25 years, this series is still going strong and is an interesting reflection of Gassmann's own Composers Concerts Series.

THE BIRDS

Alfred Hitchcock's 1963 thriller *The Birds* broke soundtrack conventions with the use of electronically generated sound effects rather than an orchestra. The movie's soundscape was created by Remi Gassmann and his longtime artistic collaborator Oskar Sala. Although it seems to use recordings of actual birds, almost all sounds were created on the Mixtur-Trautonium, an electronic instrument that Sala helped develop. The movie, a popular and iconic work since its premiere, was added to the Library of Congress's National Film Registry in 2016, an honor given to only 25 films each year because they are "culturally, historically, or aesthetically" significant.

"*The Birds'* great reliance on sound effects is not only an aesthetic strength but a logical outgrowth of Hitchcock's creative development." — Elisabeth Weis, 1978

51. **LETTER FROM GASSMANN TO ALFRED HITCHCOCK.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1962.

Gassmann wrote to Hitchcock to pitch the use of electronic music in Hitchcock's future films. He described the new music as a "very startling development in the creation and application of sound for film sound-tracks," later adding that "the result is much like a new dimension in film production." Clearly, this pitch was successful, as Gassmann and Sala were soon under contract to create the soundscape for *The Birds*.

52. **GUIDING NOTES FROM HITCHCOCK TO GASSMANN AND SALA.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1962.

Hitchcock provided Gassmann and Sala with direction for the sounds to accompany the film. For example, he asked that the title sequence sound imitate "wing noises only with a variation of volume and a variation in the expression of it in terms of rhythm." What was actually made was a combination of noises that imitate flapping wings and bird calls of all varieties to create a scene that puts the viewer on edge due to the constant motion and cacophony. Spoiler alert: It gets more intense as the movie progresses.

53. **TELEGRAM FROM HITCHCOCK TO GASSMANN.** Remi Gassmann papers. UCI Libraries Special Collections and Archives. 1962.

Prior to the near-instant contact offered by modern emails and cell phones, phone calls from Germany to California were extremely expensive. Thus, much of the communication between international parties occurred via letter and telegram. This telegram from Hitchcock's assistant to Gassmann is attempting to describe changes to the film that would affect the soundscape due to editing.

54. **POSTER FOR THE BIRDS.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1963.

Actress Tippi Hedren's first major role was as socialite Melanie Daniels in *The Birds*. Not all of the terror she portrayed on the screen was acting. During the filming of the final bird attack scene, she was injured, with cuts to her face from broken glass, because Hitchcock decided to use live birds whose beaks were clamped shut with elastic bands, rather than mechanical birds like Hedren had been told.

55. **ALFRED HITCHCOCK, OSKAR SALA, AND GASSMANN AT MIXTUR-TRAUTONIUM.** Art of the Title. 1962.

Because the Mixtur-Trautonium was such a large instrument and was difficult to move, work on the soundscape had to occur in Sala's studio in Berlin. To settle final details, Hitchcock visited Gassmann and Sala in Berlin. Here we see Gassmann (standing left) with Hitchcock (standing right) and Sala (seated at the Mixtur-Trautonium).

56. **TITLE SEQUENCE FROM THE BIRDS.** UCI LIBRARIES MULTIMEDIA RESOURCES CENTER. 1963.

57. **NEWSPAPER ARTICLE ABOUT MUSIC IN THE BIRDS.** Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1963.

According to an article Gassmann saved in his papers, "Hitchcock wanted no music score 'as such' for *The Birds*. He feels the new format replaces it with what he describes as sound compositions, but without tonal elements. A good example, he feels, is the realistic reproduction of thousands of attacking birds, screeching and caw-cawing. This creates an experience that people will remember a long time after they leave the theater."

WORLD'S FAIRS

In the 19th and 20th centuries, World's Fairs were an important site of global demonstration and cultural imagination. Countries and organizations would construct pavilions, often commissioning cutting-edge architects. Innovative music also has a long history with the World's Fairs. In 1958, Iannis Xenakis and Edgard Varèse contributed to the Philips Pavilion at the Brussels Expo. Leading up to the 1964 World's Fair in New York, Gassmann collaborated with German composer Oskar Sala to pitch an experimental electronic soundtrack for Disney's "Progressland" pavilion. They progressed far enough as to have received advance payment for the music's composition and to have their tapes sent from Germany to California for review by Walt Disney. Unfortunately, Disney executives eventually decided to use in-house sound designers to compose the pavilion's audio content.

58. **PHILIPS PAVILION AT EXPO 58 IN BRUSSELS, BELGIUM.** In **SPACE CALCULATED IN SECONDS: THE PHILIPS PAVILION, LE CORBUSIER**, Edgard Varèse, by Marc Treib and Richard Felciano, 1996.

The Philips Pavilion was designed by Iannis Xenakis, then an architect working at Le Corbusier studio in Paris. Xenakis would later become a renowned experimental composer, drawing on his experience with mathematics and architecture when designing his theoretically complex musical works.

59. **SKETCHES OF THE PHILIPS PAVILION AT EXPO 58.** Iannis Xenakis, c. 1957. In **SPACE CALCULATED IN SECONDS: THE PHILIPS PAVILION, LE CORBUSIER, EDGARD VARÈSE**, by Marc Treib and Richard Felciano, 1996.

These architectural sketches of the Philips Pavilion depict the project more or less in its final planning stages. The diagram shows the "cow's stomach" floor plan. Planning the movement of sound through the pavilion was an intrinsic part of the architectural process, perhaps presaging then-architect Xenakis' later shift into music composition.

60. **POÈME ÉLECTRONIQUE VIDEO STILLS**, by Edgard Varèse, 1958. In **LE POÈME ÉLECTRONIQUE LE CORBUSIER: PAVILLON PHILIPS POUR L'EXPOSITION UNIVERSELLE DE BRUXELLES 1958**, by Jean Petit, 1958.

Edgard Varèse's *Poème électronique* was an influential early work in the *musique concrète* style. This genre consists of musical pieces where composers recorded electronic samples and everyday noises onto magnetic tape, before collaging and manipulating them into a final work. These images are stills from the video that accompanied *Poème électronique* in the Philips Pavilion.

61. **EARLY SKETCHES FOR POÈME ÉLECTRONIQUE**, by Edgard Varèse, c. 1958. In **SPACE CALCULATED IN SECONDS: THE PHILIPS PAVILION, LE CORBUSIER, EDGARD VARESE**, by Marc Treib and Richard Felciano, 1996.

These early sketches for *Poème électronique* demonstrate how Varèse worked to consider the spatial arrangement of the Philips Pavilion as he composed its sonic component. He references the striking curves of the physical structure, aligning different points with traditional music notation in a precursor to some of the graphic scores featured in this exhibit.

62. **LETTERS FROM W. SCHOEN (FORD MOTOR COMPANY) TO GASSMANN**. Remi Gassmann Papers. UCI Libraries Special Collections and Archives. 1963 and 1964.

Gassmann and Sala were asked to compose musical accompaniment for the various scenes within the Ford/Disney Pavilion, including a "Time Tunnel," "City of Tomorrow," and mechanical "Monkey Motion Wall." In a personal and professional blow, Gassmann received news in early 1964 that his collaboration with Sala was not going to be part of the World's Fair.

63. **ILLUSTRATED VIEW OF THE 1964 WORLD'S FAIR, INCLUDING THE FORD/ DISNEY PAVILION**. In **NEW YORK WORLD'S FAIR, 1964/1965: OFFICIAL SOUVENIR BOOK**, by Norton Wood, 1964.

The official souvenir book from the 1964/1965 World's Fair in New York features wonderful, whimsical illustrations of the fairgrounds. This spread includes the Disney Pavilion, which housed the displays for which Gassmann had hoped to provide soundtracks.

MILESTONES IN ELECTRONIC MUSIC

Remi Gassmann Biography

1908 **GASSMAN BORN IN KANSAS CITY**

1920 **FIRST SCHEDULED RADIO BROADCAST**

Live results of the presidential election between Warren G. Harding and James Cox were broadcast from Pittsburgh by the Westinghouse Electric & Manufacturing Company.

1928 **MAGNETIC REEL-TO-REEL TAPE INVENTED**

Developed in Germany, magnetic tape allowed for audio to be recorded and, crucially, edited. Previous radio broadcasts were almost all live. The new technology was relatively inexpensive and could be played back many times.

1930 **EARLY ANALOG SYNTHESIZERS**

Early electronic instruments were often large and unwieldy, requiring detailed knowledge of electronics to operate, such as the Trautonium synthesizer designed by Friedrich Trautwein in Berlin. Gassmann would later use the Trautonium to compose his soundtrack for Alfred Hitchcock's *The Birds* (1963).

1931 **GRADUATES FROM THE EASTMAN SCHOOL OF MUSIC**

Having previously studied teaching, Gassmann pursued music composition at University of Rochester's prestigious Eastman School of Music.

C. 1932 **MOVES TO BERLIN**

Gassmann moved to Berlin to pursue further study with the pioneering German composer Paul Hindemith. Despite difficulties due to the Nazi regime's condemnation of Hindemith's work, the two became lifelong friends, continuing to correspond after both later relocated to the United States.

1937 **GASSMAN MARRIES MARTHE LOYSON IN HER HOMETOWN OF STRASBOURG, FRANCE**

1943 **FIRST UNIVERSITY OF CHICAGO "COMPOSERS CONCERT SERIES"**

After moving to Chicago in 1939, Gassmann curated a series of "Composers Concerts" at the University of Chicago. These concerts were intended to champion new music of the day, and featured luminaries including Arnold Schoenberg, Aaron Copland, and Béla Bartók.

1948 **FIRST VINYL LP**

Codeveloped by CBS and Columbia Records, the first vinyl LPs were designed to be a phonograph record capable of storing 20 minutes of audio on each side. Vinyl became the industry standard for record sales and playback and has experienced a resurgence in the 21st century.

1948 **CINQ ÉTUDES DE BRUITS RELEASED**

This landmark work by French composer Pierre Schaeffer is the first example of *musique concrète*, where composers manipulate "field recordings" or "samples" of everyday sounds, rather than using traditional instruments. The new style was made possible by the invention of magnetic tape, which could be sliced, looped, and arranged after recording.

1957 **FIRST COMPUTER-GENERATED MUSIC**

Max Mathews recorded the 17-second-long *The Silver Scale* at Bell Labs. It was performed using an IBM 704 mainframe computer and required the creation of a new computer programming language, called MUSIC.

1961 **ELECTRONICS PREMIERES**

Written by Gassmann and premiered by the New York City Ballet, with choreography by the renowned George Balanchine, this is the first ballet to feature an all-electronic soundtrack.

1963 **THE BIRDS PREMIERES**

Directed by Alfred Hitchcock, this natural-horror film was released to critical acclaim. The film is notable for its conspicuous absence of music; the entire soundtrack features electronic sound effects composed by Gassmann and longtime collaborator Oskar Sala. The sounds were produced on the Mixtur-Trautonium, an early German analog synthesizer.

1964/1965 **WORLD'S FAIR IN NEW YORK**

The 1964/1965 World's Fair was held in Flushing Meadows in Queens, New York (now home to the annual US Open tennis tournament). Gassmann had proposed an electronic soundtrack for Walt Disney's "Progressland" (also known as "Tomorrowland") pavilion but was ultimately unsuccessful.

1968 **SWITCHED-ON BACH RELEASED**

Wendy Carlos, a keyboard player and the first transgender recipient of a Grammy Award, produced a groundbreaking electronic interpretation of music by Johann Sebastian Bach using a Moog synthesizer. The recording is frequently credited as bringing the synthesizer to the attention of the public.

1977/1978 **FIRST COMMERCIAL DIGITAL AUDIO TAPE RECORDER AND DIGITAL AUDIO WORKSTATION (DAW)**

Released by Soundstream, the DAW program initially required a desk-sized standalone hardware system to operate. Today, most consumer-grade laptops can download and run DAW software, such as Ableton Live, Pro Tools, REAPER, GarageBand, and Audacity.

1979 **FIRST WALKMAN CASSETTE PLAYER**

Designed by a subsidiary of Sony, the Walkman was the first truly portable audio player capable of high-quality sound reproduction. "Walkman" later became a generic term for any portable audio player.

1979 **FIRST DIGITAL SAMPLER**

The Fairlight CMI was invented in Canberra, Australia. Its earliest adopters included Genesis, Led Zeppelin, Kate Bush, and Stevie Wonder, who were excited by the potential of recording and manipulating their own sound-bite libraries. This process paved the way for the remixes and sampling that characterized hip-hop and electronic music in subsequent decades.

1982 **CDs RELEASED**

Codeveloped by electronics manufacturers Philips and Sony, compact discs were initially released in Japan. They quickly became favored in commercial markets for their low cost and portability. By 2007, an estimated 200 billion CDs had been produced worldwide.

1982 **GASSMANN DIES**

A widower who never had children, Gassmann left his collected papers, correspondence, and his flat in Strasbourg, France to UCI.

1983 **FIRST MIDI INSTRUMENTS**

The MIDI (musical instrument digital interface) protocol translates between performers, computers, and electronic instruments. Although a MIDI keyboard looks similar to a piano keyboard, it generates a series of electronic control messages that tell the computer or synthesizer which kinds of sounds to produce.

1985 **MAX MSP FIRST DEVELOPED**

The visual programming language Max MSP was designed for use with electronic sound processing. American music technologist Miller Puckette pioneered this technology in conjunction with IRCAM (Institut de Recherche et de Coordination Acoustique/Musique), a prestigious center for electronic music research in Paris, France.

1997 **UCI GASSMANN ELECTRONIC MUSIC SERIES BEGINS**

Partly funded using proceeds from the sale of Gassmann's Strasbourg apartment, this series of concerts is facilitated by faculty from the PhD program in Integrated Composition, Improvisation and Technology (ICIT). Performers have included electronic music pioneers such as Morton Subotnick, Pamela Z, Joan La Barbara, and George Lewis.

2001 **FIRST IPOD RELEASED**

The rise of digital audio formats such as MP3 resulted in a new generation of portable audio players, including Apple's iPod series. Digital audio files are downloaded onto these devices, making them much smaller than the portable cassette and CD players that preceded them.