



The Stearns Newsletter

The Stearns Collection of Musical Instruments at the University of Michigan

SPRING 2003

SCHOOL OF MUSIC, THE UNIVERSITY OF MICHIGAN

VOLUME 16, No. 1

Greetings from the Director

The winter of 2003 was long and cold, but the Stearns Collection had two particularly noteworthy successes. First, the "Adopt-an-Instrument" program has been well received. Only three months from its formal announcement, we have already had three adoptions. And more are being negotiated. This support will sustain the momentum we now have in developing the collection, and in preparing its return to the renovated Hill Auditorium. As reported in the last issue of this newsletter, the collection will have a dedicated display area in the lobby of the auditorium, and will mount a special exhibition to celebrate its reopening. The other success story is that the collection will soon begin the operation of its "virtual museum." By the end of this spring, a computer kiosk will be installed in the Conlin Lobby of the Moore Building of the School of Music. By simply touching the computer screen, visitors can instantly access sound and visual files of selected musical instruments in the collection. See "A Virtual Museum for the Stearns" in the next column. For further information about the "Adopt-an-Instrument" program and about the kiosk, please contact Joseph Lam, Director of the Stearns Collection: jsclam@umich.edu ; 734-647-9471.

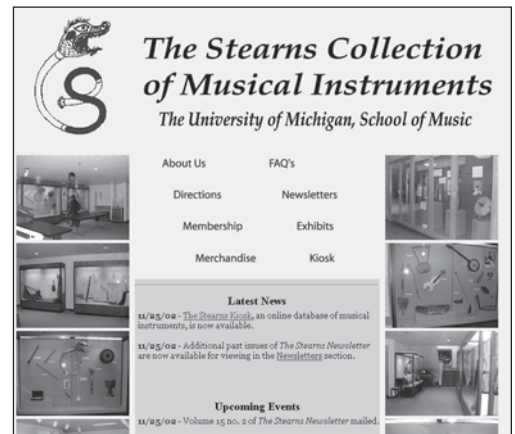
A Recital of Chinese *erhu* Music

On March 18, 2003, the Stearns Collection and the Center for Chinese Studies, U-M, co-sponsored a recital of Chinese *erhu* (two-string-fiddle) music. The soloist was Ms. Ma Xiaohui from Shanghai, a virtuoso who has concretized all over the world and has

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A Virtual Museum for the Stearns

Like other major collections of musical instruments inside and outside the U.S., the Stearns Collection of Musical Instruments is adjusting to the rapidly changing technology and life styles of the 21st century. More and more, people rely on the internet, websites, and other electronic means to access information about musical instruments. More than books and physical displays are needed to cope with the increased and democratized interest about musical instruments. At the same time, collections realize that to surpass the limitations of physical displays, to preserve the precious musical instruments against the tear and wear for being displayed, and to make information about them widely available, virtual museums are needed. In a nutshell, virtual museums provide a cyber space in which visitors can examine musical instruments through visual, sonic, and text files. And they can do it through either computer kiosks or the internet access in their homes.



The Stearns Collection homepage.

Realizing this 21st century need and new direction of development for museums, the collection started to explore the possibilities two years ago. A pilot project was promptly formulated with support, financial and otherwise,

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from Senior Vice Provost Lest Monts, Dean Karen Wolff of the School of Music, Ms. Karen Dickinson and Mr. Alan McCord of the Information Technology Central Services of the University, Director Robert Newcomb and Mr. Greg Laman of the Information Technology of the School of Music, and Professor William Malm, the director emeritus of the collection. Kudos to their support! Then the needed instruments—computers, digital cameras, recorders and monitors and so forth—were purchased; wiring was installed to connect the Stearns warehouse/workspace with the computers so that the files can be managed and updated; and assistants, including Mr. Christopher Dempsey and Ms. Suzanne Camino, PH.D students in the UM Department of Musicology, were hired to help with the research on the musical instruments, develop the electronic files and organize them into a virtual museum.

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appeared in the Schleswing Holstein International Music Festival and other major music events. Performing pieces of traditional Chinese fiddle music, her own modernistic compositions, and transcriptions of popular tunes like Frank Sinatra's "My Way," Ms. Ma mesmerized her audience with superb musicality and dazzling techniques. Many wondered how an instrument of two strings can produce such variety of musical sounds and expressions. To further implement its mission of promoting knowledge about diverse musics and musical instruments, the collection will sponsor more recital/workshops in the future. Announcements of such events will be placed in the *Ann Arbor News*, *Ann Arbor Observer* and other local and University newspapers.



Ms. Ma Xiaohui and *ehru*.

The Theremin: Intrigue, Innovation and Inspiration

By Suzanne Camino

From 1938 until 1952, radio listeners across the country tuned in to hear the latest installment of the mystery series "The Green Hornet" waiting to hear the otherworldly, insect-like buzzing sound that was the show's trademark. That sound was produced by the theremin, one of the earliest 20th century electronic instruments. Named for its inventor, Lev Sergeyevich Termen (1896–1993), the theremin has fascinated listeners, composers and other inventors since it was first introduced to Russian audiences in 1920. Nearly every aspect of the theremin—its history, the means by which it is played, its eerily human timbre, the biography of its inventor—is imbued with an air of mystery and intrigue.

The instrument consists of a large wooden console about the size of an end-table, from which protudes one vertical metal rod on the right and a horizontal metal coil on the left. A theremin player controls the pitch and volume of the sound without ever touching the instrument. The right hand controls the pitch by moving closer to or further from the vertical antennae or "space bar." The left hand effects changes in volume by increasing or decreasing its distance from the horizontal loop. The visual effect of a theremin performance is of someone standing at a lectern-like object and shaking his or her hands in the empty air.

In other words, the performer's body becomes part of an electrical circuit. The musician's hand interferes with the electromagnetic field created by the instrument, and thus creates a variable capacitor with the capacitance, or storage of electrical energy, increasing as the distance between hand and antenna diminishes. As the player's hand moves closer to the antenna, the pitch is raised.

Although a listener to the theremin will perceive a series of single pitches creating a monophonic line, in fact, the sound is the result of two pitches which are imperceptible to human ears. The theremin employs a beat-frequency oscillator (BFO) which is comprised of two radio-frequency oscillators. One emits a fixed frequency while the other emits a frequency which is controlled by the distance between the right hand and the antenna. Although both frequencies lie well above the range of human hearing,

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the resulting sum and difference tones, or “beats” are within an audible range. This reliance on the beating together of two high frequencies distinguishes the theremin from most later electronic instruments and accounts for its complex timbre, which has been compared to both the violin and the human voice. The theremin performer may select from a variety of timbres by flipping a switch to engage a series of filters.

Lev Termen unveiled his new invention, which he initially dubbed the “etherphone” in 1920 to a group of engineering students in St. Petersburg. Because the theremin resembled the cello somewhat in timbre and in range, music for cello provided the initial repertoire for Termen, who was himself trained as a cellist. The program included Saint-Saens’ “Swan” and Massenet’s “Elegy.” Two years later, Termen demonstrated his invention for Vladimir Lenin, who insisted on trying out the instrument himself and was able to perform a passable rendition of Glinka’s “Lark.”

The theremin’s fame in the West came as a result of Soviet government-sponsored tours for Termen to Western Europe and the United States. In addition to serving as a cultural ambassador for the Soviet Union, Termen was given an additional assignment by his government to make inroads with Western businesses which would pave the way for future Soviet industrial espionage. For his Western tour, Termen westernized his last name to its ancestral French spelling and became Leon Theremin.

At the end of 1927 Theremin traveled to New York, where he and his invention made a triumphant American debut recital at the Metropolitan Opera House on 31 January 1928 in a program entitled “Music from the Ether.” As the theremin and the potential of electronically-realized sound seized the public imagination, the RCA Victor company produced 500 theremins, hoping to prove true Leon Theremin’s prediction that his invention would eventually replace the piano as the instrument of choice in American living rooms. In 1928, Stokowski added a fingerboard-controlled theremin to a Philadelphia Orchestra performance of a transcription of Debussy’s piano piece, “The Engulfed Cathedral.” The practice of reinforcing the double basses with a theremin was

Virginia Martin Howard Lectures, Winter 2003

In winter 2003, the collection presented two Virginia Martin Howard lectures. On March 9, Professor Michael Gould, U-M, a noted and recorded percussionist, gave a lecture on Japanese drums and drum playing, one that was scheduled to coordinate with the Ann Arbor performance of the Kodo Drummers of Japan. In addition to describing the structure and making of the various Japanese *taiko* (large-drums) with beautiful illustrations and revealing video-clips, Professor Gould also explained the long history of the drumming tradition in Japan. On April 13, Dr. Mark Clague, a specialist of American and film music, discussed the theremin. Entitling his lecture “The Theremin and the Silver Screen: Instrument Technology and the Expansion of the Hollywood Sound,” Dr. Clague traced the Hollywood use of the “artificial” timbre of the theremin as a sonic representation of the psychotic, alien, and extraterrestrial. His examples from such classic movies as the *Spellbound* and the *Lost Weekend* fascinated the audience. After the lecture, there was an active question and answer session; and after that, the audience took good looks at the Stearns theremin. After almost thirty years, it tentatively sang—one of its electronic transmitters needed to be replaced, a minor problem that will soon be fixed.

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After nearly two years of dedicated work, the Stearns virtual museum will be fully operational by the end of this spring. Though it is still in its pilot stage, and only 30 selected musical instruments are being displayed in the Stearns website and the computer kiosk in the Conlin Lobby, this virtual museum is a milestone in the history of the collection. Files about many more musical instruments will be gradually added to the virtual museum in the coming years. All are welcome to visit the website and test out the virtual museum with the computer kiosk. Your support and comments will help us develop this new operation of the collection. Visit us at:

<http://www.music.umich.edu/resources/stearns/>

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How Do I Get To The Stearns?

The Stearns Collection of Musical Instruments is located in the Margaret Dow Towsley wing at the south end of the Earl V. Moore Building of the School of Music on Baits Drive in the University of Michigan North Campus area. Enter through the doors nearest to the parking lot. The McIntosh Hall is just across the lobby and to the right of the entrance. The Stearns galleries are down the stairs at the end of the lobby to the right.

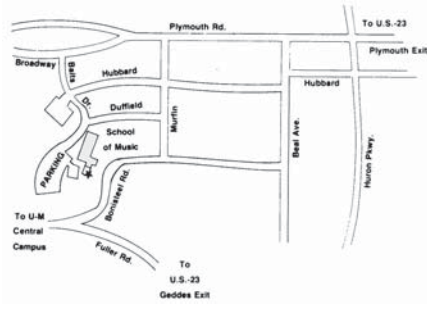
Admission: Free at all times.

Exhibit Hours: Monday through Friday
10:00 a.m. - 4:00 p.m.

Group Visits and Tours:

To arrange for group visits or guided tours, please call (734) 763-4389.

Parking: Metered parking is available south of the entrance doors.



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discontinued when several members of the bass section complained of nausea brought on by the low frequencies.

The most accomplished and celebrated thereminist was the late Clara Rockmore, a Russian-born violinist who was Theremin's protégé. She was instrumental in the development and evolution of theremin technique and she concertized widely, building a repertory for herself drawn from standards of 18th and 19th century European art music. Other prominent theremin performers included Lucy Rosen, a New York socialite who had become Theremin's student in the late 1930's, and Samuel Hoffman, who played the theremin for film and television scores. The composer Percy Grainger referred to the theremin as "the most perfect tonal instrument I know," and composed his *Free Music No.2* for a sextet of theremins in 1935. In the 1960's, rock musicians discovered the theremin. Its unique timbre was featured prominently in the 1966 Beach Boys song, "Good Vibrations." The theremin was a popular choice for film composers during the 1950's and 1960's. It appears in the soundtracks of more than 35 films including, *The Day the Earth Stood Still* and *It Came From Outer Space*, *Spellbound*, and *The Lost Weekend*. Both film and radio composers chose to cast the timbre of the theremin as mysterious and slightly threatening.



Theremin of the Stearns Collection.

Theremin himself presents every bit as intriguing a study as his eponymous instrument. At the height of his success as a scientist and inventor working for the new Soviet Union, Theremin was hailed as the "Russian Edison." His inventions included a burglar alarm, an electronic cello, an electronic keyboard, a prototype

television, and listening devices to be used for intelligence gathering. He was a consummate showman and was able to tailor both his instruments and their presentation to the public in such a way as to capture the imagination of composers, inventors, New York high society patrons and classically trained performers.

In 1938, Theremin was suddenly seized at his home by Soviet agents and taken back to Russia. His family speculated that he had been kidnapped, but recent research by Michael Glinsky suggests that the sudden disappearance was more likely orchestrated by Theremin himself, who never broke his ties to the Soviet Union. After years of imprisonment in the Soviet Union on false charges of spying, he would later serve in the KGB.

Theremin's invention broke new ground both in electronic music technology and its reception. The theremin captured the imagination of musicians and audiences around the world and inspired a new generation of electronic instruments and inventors including Robert Moog, the inventor of the Moog synthesizer.