

## Joseph Schillinger? The Father of Electronic Music, That's Who

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*Los Angeles Times (1923-Current File)*; Jun 10, 1972;

ProQuest Historical Newspapers: Los Angeles Times (1881-1989)

pg. J58

# Joseph Schillinger? The Father of Electronic Music, That's Who

BY ARNOLD SHAW

• The furore over the use of computers, tapes and electronic devices in musical composition has modulated into eager acceptance. Hardly any self-respecting rock group or recording studio is without its Moog (rhymes with "vogue") synthesizer. Every other movie seems to feature an electronic score these days. Mills College in Oakland has a Tape Music Center.

Ironically, the most influential prophet of the popular use of music in these forms died nearly three decades before his prophecies came true and few people except musicologists know his name.

Joseph Schillinger, who was born in Russia in 1895, came to this country in 1928 under the aegis of philosopher-educator John Dewey, taught many of the foremost figures of the Big Band Era and died, swiftly and prematurely, in 1943.

His "Schillinger System of Musical Composition," published posthumously in 1946, created a storm. His mixing of mathematics and music, his graph method of musical notation and his system of composition based on rhythm rather than harmony all seemed to raise questions not merely of aesthetics but of morality. Another posthumous work, "Mathematical Basis of the Arts," described the multimedia art forms now familiar enough but then still to be developed. Schillinger's book pointed the way to the devices that would produce these new forms.

The general public had its first real taste of elec-

tronic music when the eerie wail of the theremin was heard in Alfred Hitchcock's "Spellbound," the 1946 thriller starring Ingrid Bergman and Gregory Peck.

Schillinger had composed a work for theremin and orchestra 18 years earlier. His "Airphonic Suite," premiered in 1929 by the Cleveland Orchestra, was later performed in New York with Leon Theremin, inventor of the space-controlled, variable-pitch oscillator, as soloist.

Schillinger was of medium height, dark, and not handsome in a conventional way but with the kind of face that attracted attention. He had heavy-lidded eyes and a rather aesthetic-looking countenance. "He was neither shy nor gruff," says Frances Schillinger, whom he married in 1948 and who is still active in promoting his work. "But he had an aura of authority. He seemed aloof, but to his friends he was warm and compassionate. He was totally sophisticated about art and totally unsophisticated in everyday matters. He was naive enough to believe almost anything he was told by salespeople. And in money matters, in spite of his mathematical genius, he never knew how much he had or what he should tip or what to pay for an item.

"He was a fastidious dresser and possessed about 200 pairs of socks of different weights and colors, 40 suits, twenty coats and dozens of shirts. He applied his principles of rhythmic design to the colors and

fabrics, and by using permutations he varied his outfits so that none was ever fully duplicated. He loved to play games and had a keen sense of humor. Once he went to a department store to buy some blocks for a design he was making. 'How old is the child?' asked the clerk. Schillinger replied casually: 'Oh, about 40.'

At a meeting of the American Musicological Society, he played a piece of music on the piano and invited the assembled scholars to identify the composer or at least the style. Guesses ranged from Mendelssohn to Schoenberg. Schillinger shook his head and then, grinning, revealed that the selection was a graph of the Cost of Living taken from the morning's newspaper. He went on to explain that he had merely transformed the time periods into equivalent note durations and the up-and-down curves into pitch intervals.

Not too long after his arrival in this country, Schillinger became a celebrated in-group figure. Just as the proponents of rock have recently helped prepare the way for the present "serious" interest in electronic music, so in Schillinger's lifetime it was the young men of Pop—arrangers, bandleaders, songwriters—who flocked to his Park Avenue studio for private instruction in his musico-mathematical theories and avant-garde techniques.

Among his first students was George Gershwin. During the four and one half years that Gershwin studied with Schillinger, Gershwin's friend Oscar Levant also became a devotee of "the numbers racket," as he called the method. Later, Levant wrote: "There always seemed to be in the score of 'Porgy and Bess' considerable evidence of Gershwin's studies with Schillinger. Not, of course, in the melodic writing or the songs, but in the working out of the rhythmic patterns, the planning of such episodes as the fugal background for the crap-game scene and in some of the choral passages. Schillinger's theories of cyclical harmonic progression with an intricate lead-

*Please Turn to Page 60*

# Joseph Schillinger

*Continued from Page 58*

ing of bass notes, his scheme of rhythmic permutations, extended George's resources considerably."

Gershwin biographer David Ewen adds: Application of "the Schillinger method to his musical writing . . . can be found in sporadic passages (used as thematic material) in the 'Cuban Overture,' in the 'Variations on I Got Rhythm,' in passing choral incidents and in some of the storm music in 'Porgy and Bess.' During the orchestration of his opera, Gershwin sought out and profited from Schillinger's advice."

Before long, a list of Schillinger disciples read like a Who's Who of the Swing Era. Just as Gershwin wrote "Mine" ("Let 'em Eat Cake") as an exercise, so Glen Miller composed his theme "Moonlight Serenade" as a Schillinger exercise. Later, Miller's studies led him to devise the reed voicing of clarinet over tenor sax that became known as "the Glenn Miller sound." Benny Goodman was a student for two years. Tommy Dorsey once awoke Schillinger at 4 a.m.—Dorsey had just come off the bandstand—to ask a question about an assignment. Other name bandleaders who studied with Schillinger included Will Bradley, Alvino Rey, Matty Malneck, Red Norvo and Mark Warnow, conductor of the Saturday Night Hit Parade.

Top arrangers of the day crowded Schillinger's teaching schedule, among them Jimmy Dorsey arranger Bernard Mayers, Horace Heidt arranger Fabian Andre and Hal Kemp arranger Harold Mooney, now musical director of Universal Studios. Schillinger's engineering approach was soon felt throughout the film studios.

In 1937 Hollywood music director Charles Previn, uncle of Andre, conducted the orchestra on a concert tour with George Gershwin as piano soloist. One day on a train, he came upon Gershwin poring over what looked like algebraic problems.

"What's that?" he asked, "a new hobby?"

"It's a hobby all right," Gershwin replied, "but it's also the most rewarding music study I ever engaged in. It's Schillinger."

"Schillinger?" Previn said. "I hear everybody talking Schillinger these days. What in the world is it?"

In November, 1937, Previn wrote to Schillinger and began studying with him by correspondence, mastering the lessons that later became the Schillinger System of Musical Composition which still sells briskly in two mammoth volumes. "The work was fascinating," Charles Previn has said, "and it was a thrill later to adapt this material in scoring for pictures."

"Schillinger's Theory of Rhythm," Previn says, "offers immediately usable materials to the film composer. His devices for balancing, expanding and contracting themes are a film composer's gold mine. Suppose a composer wants to portray a rapid transition of reminiscences associated with different countries. Melodies bearing no resemblance to each other may be stylistically unified through a type of harmonization not previously developed by musical theorists—one that Schillinger calls symmetrical harmonization."

"In the Psychological Dial, Schillinger offers the most practical device as yet developed for correlating music and emotion. Avoiding the "catalog" approach, he presents a set of general laws governing the relationship of sound and emotional reactions."

Originated before digital computers were in existence, Schillinger's permutational approach to music was expanded to embrace all the arts in "The Mathematical Basis of the Arts," which I edited for publication. Permutating special components like sound, mass, odor, flavor, light, pigment and surface in relation to general components of time and space, he devised 18 different art forms. We would call them multimedia today.

Schillinger envisioned the instruments—we call them computers or synthesizers today—that could be constructed for the automatic production, reproduction and variation of these works of art. He named these instruments "musmatons." And with his love for inventing words: "graphomatons," an instrument for producing linear designs; "luminaton," an instrument producing designs projected by light. His dream was of a kinetic art appealing to all of our senses, a dream that he hallucinated even on his deathbed in 1943: "I see all the different arts," he told his wife, "being fused in one form. The colors are magnificent, and the music and movements are just right."

Some of Schillinger's notions are audible today in the work of contemporary tape-and-computer composers and visible in multimedia advances in the arts. Schillinger creations in music and painting are accessible in collections at many museums, among them Lincoln Center Library in New York, the Museum of Modern Art, Whitney Museum of American Art and the Smithsonian Institution in Washington, D.C.

But as the director of the music department at the University of Georgia, Edwin Gerschefski, said recently: "It seems ironic that Schillinger, the father of today's wave, should be completely ignored—and certainly not more ironic than that some of the people capitalizing on Schillinger's works were his greatest detractors in the 30s."