

HOME PAGE | MY TIMES | TODAY'S PAPER | VIDEO | MOST POPULAR | TIMES TOPICS

My Account | Welcome, kawalek | Log Out | Help

The New York Times **Music** **Ameriprise Financial**

Arts All NYT Search

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION | ARTS | STYLE | TRAVEL | JOBS | REAL ESTATE | AUTOS

ART & DESIGN | BOOKS | DANCE | MOVIES | **MUSIC** | TELEVISION | THEATER



Mechanical Dreams Come True



Robert Stolarik for The New York Times

In "Frequency Hopping," Erica Newhouse and Joseph Urla are Hedy Lamarr and George Antheil inventing military technology.

By ANTHONY TOMMASINI
Published: June 9, 2008

Correction Appended

The American composer George Antheil, the Bad Boy of Music, as he titled his 1945 autobiography, is best known for a jackhammer of a piece he wrote in Paris in his mid-20s, "Ballet Mécanique." It was originally conceived as a 25-minute score to accompany a Dadaist silent film by Fernand Léger and Dudley Murphy. The music was supposed to be performed by 16 synchronized player pianos, but Antheil could never figure out how to get the pianos to play in sync. A concert version for a roster of percussion instruments including an airplane propeller was introduced in Paris in 1926.

Multimedia

[An excerpt of the 'Ballet Mécanique' score \(courtesy of the Ballet Mécanique Project\)](#)

[An excerpt of the Mendelssohn arrangement for eight player pianos \(courtesy of Paul D. Lehrman\)](#)

The Austrian-born actress [Hedy Lamarr](#) is best known as a voluptuous screen goddess of the late-1930s and '40s. But in the annals of science, Antheil and Lamarr, who became friends in Hollywood in 1940, are remembered as the improbable inventors of a system for the radio control of airborne torpedoes that they called frequency-hopping. By rapidly switching a radio transmission among a large number of frequency channels the idea offered a way, they theorized, to direct missiles that could resist jamming attempts by the Nazis. They actually received a patent in 1942, though there was no interest among the American military until the 1960s.

The story of these unlikely scientific collaborators is told in an imaginative, two-character multimedia 80-minute play, "Frequency Hopping," written and directed by Elyse Singer and presented by Hourglass Group. It opened this weekend at 3LD Art & Technology Center in Lower Manhattan. As a special kickoff for a three-week run, the performance on Saturday night was followed by a 70-minute concert titled

[More Articles in Arts »](#)

TicketWatch - Theater Offers by E-Mail

Sign up for ticket offers from Broadway shows and other advertisers. [See Sample](#)

[Change E-mail Address](#) | [Privacy Policy](#)

Share an idea now:
My Starbucks Idea.com

E-MAIL
 PRINT
 SINGLE PAGE
 REPRINTS
 SAVE
 SHARE

ARTICLE TOOLS SPONSORED BY
SIDEWAYS

MOST POPULAR

E-MAILED | BLOGGED | SEARCHED

1. Cover Story: When Mom and Dad Share It All
2. Well: How Much Radiation Does Your Phone Emit?
3. American Exception: Unlike Others, U.S. Defends Freedom to Offend in Speech
4. Thomas L. Friedman: Obama on the Nile
5. Mystery on Fifth Avenue
6. The Minimalist: Putting Meat Back in Its Place
7. When Conscience and Closet Collide
8. Timothy Egan: Godless
9. Nicholas D. Kristof: The Sex Speech
10. Yes, Dear. Tonight Again.

[Go to Complete List »](#)

The New York Times **REAL ESTATE**
 nytimes.com/realstate

The geology of cool
 Also in Real Estate:

"Antheil's Legacy," conceived by the composer and producer Charles Amirkhonian.

The main item in the concert was a performance of "Ballet Mécanique" arranged by Paul D. Lehrman for eight Yamaha Disklavier pianos and a robotic orchestra of electronic percussion instruments equipped with mechanical mallets and programmed to play themselves. Best of all, this electronic realization of the original score accompanied a restored version of the film, a pairing that never took place in Antheil's lifetime. (He died in 1959.)

Ms. Singer certainly did her homework in writing "Frequency Hopping," taking in not just the biographies of Antheil and Lamarr but also the scientific issues that dominated their conversations. As portrayed by the engaging actor Joseph Urla, the New Jersey-born Antheil comes across as a decent yet somewhat melancholic man with a wide range of interests. A mischief-making composer in Paris in the 1920s, he mingled with Stravinsky, Joyce and Hemingway. We meet him after he has settled down with his wife and son, whom he supports by writing forgettable scores for Hollywood films and teaching music. But other interests keep him fired up, especially the columns he has been writing for the *lovelorn* based on knowledge of endocrinology. We are products of our glands, Antheil believed.

Lamarr, vividly portrayed by Erica Newhouse, is cool, sultry and keenly intelligent, a woman who does not take MGM's overheated promotion of herself that seriously. When we meet her, she is separated from her second (of what would be six) husbands. She has met Antheil at a party and has invited him to her house, ostensibly to talk about the potential of hormones to increase the size of her breasts. Antheil's wife and son are away.

But soon the talk turns to Lamarr's scientific ideas. She recalls the early days of her first marriage, in 1933, when her partly Jewish husband, who operated a German armaments firm, took her to dinners with Nazi officials where the conversation often centered on the search for technology to guide those torpedoes. The play captures the fanciful way Lamarr and Antheil fashioned their invention, staging mock battles with toy airplanes and ashtrays as they conceptualized the theory.

Antheil brought to the table what he knew about synchronizing machines. Though romantic sparks are kindled between them, the implication is that nothing untoward happened. This is a friendship of surprisingly lonely people drawn to each other through intellectual, artistic and patriotic interests.

1 | 2 [NEXT PAGE »](#)

The play runs through June 29 (with "Ballet Mécanique" on June 22) at 3LD Art & Technology Center, 80 Greenwich Street (at Rector Street), Lower Manhattan, (212) 352-3101, frequencyhopping.net.

This article has been revised to reflect the following correction:

Correction: June 10, 2008

Schedule information on Monday with a music review of a concert at the 3LD Art & Technology Center that featured "Ballet Mécanique," by George Antheil, and that was presented in conjunction with "Frequency Hopping," a play about Antheil and Hedy Lamarr, misstated the center's address. It is 80 Greenwich Street in Lower Manhattan (at Rector Street), not 80 Rector Street.

[More Articles in Arts »](#)

[Need to know more? 50% off home delivery of The Times.](#)

[Ecology vs. economy](#)
[The ferry: past, present and future](#)
[Foreign investors in the New York market](#)

ADVERTISEMENTS

In a world of second opinions, get the facts first.

Which movies do the Critics recommend?

All the news that's fit to personalize.

Need to know more?
 Get 50% off home delivery of The Times.



All the news that's fit to **debate.**

nytimes.com/opinion

All the news that's fit to debate.



Ads by Google

what's this?

Classical Piano Lessons

A Seasoned Music Teacher's Review Of The Best Piano Training Courses
Piano.SmartGuyReviews.com

10 Rules for Stomach Fat

Obey these 10 Easy Idiot Rules & Drop 9 lbs every 11 Days.
www.FatLoss4Idiots.com

Classical Music

ArkivMusic Sells CDs and DVDs The Source for Classical Recordings
www.arkivmusic.com

Tips

To find reference information about the words used in this article, double-click on any word, phrase or name. A new window will open with a dictionary definition or encyclopedia entry.

Past Coverage

- MUSIC REVIEW; Rare Works By Antheil, As He Tried Not to Shock (October 10, 2005)
- CLASSICAL MUSIC REVIEW; A Young Conductor Accepts An Eclectic Assignment (January 13, 2005)
- A Musical Maverick Rooted in Trenton (March 16, 2003)
- FOOTLIGHTS (March 29, 2000)

Related Searches

- Music [Add Alert](#)
- Antheil, George [Add Alert](#)
- Hourglass Group [Add Alert](#)
- 3LD Art & Technology Center [Add Alert](#)

INSIDE NYTIMES.COM



OPINION »



Bloggingheads Video: Is McCain a Neocon?

U.S. »



Rough Events at Mexican Rodeos in U.S. Criticized

OPINION »

Safety Starts at the Top

The current regulations on crane safety fail to address the daily hazards faced by construction workers.

MUSIC »



Harmonious Tension and Dueling Flaxen Locks

FASHION & STYLE »



When Conscience and Closet Collide

HOME & GARDEN »



Mystery on Fifth Avenue