



LINDA HALL LIBRARY

# HEDGEHOG

Number 49 • Fall 2011

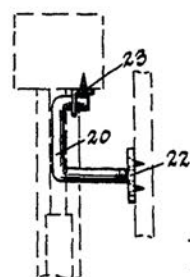
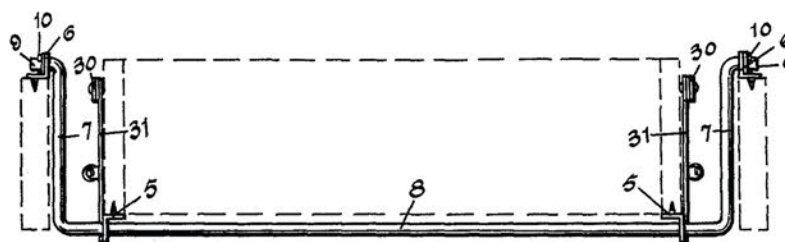


FIG 6

FIG 7

Inventor  
*Edward M. Knabusch and  
Edwin J. Shoemaker*  
By *Faust F. Crampelton*  
Attorney

## THIS TIME IT'S PERSONAL

### INNOVATION IN YOUR HOME

Exhibition Opening September 28, 2011



## Friends of the Library: James and Francie Flynn

Even in retirement, friends of the Linda Hall Library, James and Francie Flynn, manage to keep busy. Volunteer commitments, philanthropic interests, a home in Kansas City, a farm in West-Central Iowa, seven children, and five grandchildren fill their calendar. But busy has always been a way of life for the couple who met in 1951 at the University of Iowa, where Jim was a biochemistry graduate student and Francie was in nursing school. Following Jim's acceptance to medical school, the couple married and started their family. After medical school, Jim served four years of active duty in the Navy, including six months in the School of Aviation Medicine, where he earned the designation of Naval Flight Surgeon. While stationed in Jacksonville, Florida, the Flynn's became interested in the space program. On television they could watch a rocket launch 150 miles away at Cape Canaveral, then step outside and see a plume of smoke rise over the horizon. (This early interest in manned space flight may explain the Flynn's eagerness to co-sponsor two of the Library's lecture series: *To the Moon & The Planets Beyond* and *Are We Alone?*)



Francie and James Flynn in the Linda Hall Library's history gallery.

With Jim's active service completed, the Flynn's moved to Kansas where Jim trained in anatomic and clinical pathology at the University of Kansas Medical Center. In 1965, he accepted a position as a pathologist at Research Medical Center where he spent the next 28 years. In addition to his work, Jim joined the Naval Reserves (retiring in 1988 with 21 years of active and inactive service), served on the Healthcare Foundation of Greater Kansas City from 2005 to 2011, and has served on the Board of Directors of the Research Medical Center Foundation since 1996.

Over the years, Francie stayed busy with community involvement and kept their growing family engaged with weekly trips to the local library, instilling in each child a lifelong love of reading. Once all of the children were off to college, Francie returned to nursing, this time working in home-health-care management. Ten years later, she retired and served two years on the Johnson County Library Foundation Board, and ten years on the Friends of the Johnson County Library Board. "We both love books," she says. "Sometimes I think libraries are in our blood."

"It's a real pleasure to see the whole place fill up with interested people."

*Jim Flynn*

The Flynn's interest in the Linda Hall Library came not long after Jim retired in 1993. They knew of the Library, but hadn't spent much time in it. Because they both loved reading — and Jim, in particular, had an interest in science — the Flynn's began attending lectures and haven't stopped since.

"After you've attended a lecture at Linda Hall you want to go home to read or get on the Internet and Google the topic," says Francie. "All of a sudden, you find a plethora of sources that could take a lifetime to research."

In addition to the lectures, the Flynn's were impressed with the Library's rare book collection, and now consider it the foundation for much of the intellectual activity in the sciences around the metro area. They feel that the focus of the Library is to broaden its audience by highlighting not only its rare book collection but also its extensive general collection as well as its urban arboretum, and they're tremendously pleased with their involvement and investment in the Library.

"I think with the quality of lectures that are being offered... you are going to have to buy some more chairs."

*Francie Flynn*

"I definitely feel we've received value; it is a real pleasure to see the whole space just fill up with interested people," says Jim.

This past spring, the Flynn's sponsored the **Nobel Laureate Lecture Series**, which drew large and diverse audiences to the Library. "I don't think another organization or facility in town does what Linda Hall does; it's so unique," Francie says. "I think with the quality of lectures that are being offered now under the direction of your president, Lisa Browar, you are going to have to buy some more chairs."



## Linda Hall Library Receives Online Exhibition Award

*The Grandeur of Life – A Celebration of Charles Darwin*, commemorating the 200th anniversary of Darwin's birth and the 150th anniversary of the publication of his landmark work, *On the Origin of Species*, received the Katharine Kyes Leab & Daniel J. Leab American Book Prices Current Exhibition Award for the best electronic exhibition of 2011.

The Leab Awards are given annually by the Rare Books and Manuscripts Section of the Association of College & Research Libraries in recognition of excellence in the publication of exhibition catalogs and brochures, as well as for electronic exhibitions. Submissions are judged on originality, accuracy of detail, informational content, and effectiveness of design.

The in-house and electronic versions of *The Grandeur of Life*, were curated by William B. Ashworth, Jr., Consultant in the History of Science, and Bruce Bradley, Librarian for the History of Science. Both versions were underwritten by a grant from the Victor E. Speas Foundation, Bank of America, Trustee.

*The Grandeur of Life* is available for viewing at [www.lindahall.org/events](http://www.lindahall.org/events).

What the Leab Award Committee said about *The Grandeur of Life*: "Of the many centenary exhibitions of Darwin mounted recently, Linda Hall's Web exhibition stands out as a thoroughly engaging, carefully researched and flexible resource for audiences of all ages. The site does



A portrait of Charles Darwin at the time that he published *On the Origin of Species*.

not overwhelm viewers with content, but provides ample opportunity to learn more through in-depth essays and becomes further useful through the addition of a site index. The diverse, richly colorful illustrations produce a second, implicit narrative about the development of scientific illustration, and high-resolution images ensure that audiences will be able to fully enjoy the high-quality scans."

## The Darwin Project

The first Friends of Chamber Music concert of the season will join the Kauffman Center for the Performing Arts in a co-presentation of a new multi-media concert program on Friday, October 18. The program titled *The Darwin Project*, is ambitious not only in its breadth of performers, comingling of genres, styles, etc., but also in its attempt to experiment with a new style of the concert going experience.

*The Darwin Project* combines actors, a narrator, string quartet, pianist, chamber choir, projections of historical images, and stunning nature photographs to tell the story of Charles Darwin's life and the publication of his most famous work, *On the Origin of Species*.

Co-written by local playwright Jeremy M. Lillig and English professor and Darwin Scholar Nancy Cervetti, *The Darwin Project* will feature Gary Neal Johnson as Charles Darwin, Kathleen Warfel as Emma Darwin, and Cinnamon Schultz as the Narrator. The Daedalus String Quartet and the Kansas City Collegium Vocale directed by Ryan Board are some of the musicians who will perform works by Byrd, Mendelssohn, Ravel, Chopin, Debussy, Schumann, Schubert, and many others. Kyle Hatley, associate artistic director for the Kansas City Repertory Theatre, directs.

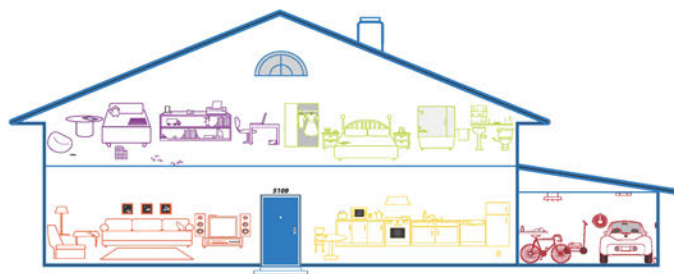
Images from Charles Darwin's life as well as stunning photography by field biologists John Hess, Robert Powell, and Jeff Ackley will serve as the backdrop to the retelling of one of the greatest scientific discoveries of all time.

The script of *The Darwin Project* has been on its own epic journey for more than a year. Following the success of a concert presentation on the life and work of Galileo by the chamber orchestra, *Tafelmusik*, Lillig and Cervetti decided to tackle the arduous task of relating Darwin's life story and the story of his theory, one of the most influential theories in the history of science. Enlisting help from scientist Robert Powell of Avila University, and William B. Ashworth, Jr., science historian, the team spent many hours compiling the historical facts while producing a dramatic, yet accurate, account. Of equal importance was the painstaking work of selecting the music that would accompany the spoken words. The challenge was to identify works that were appropriate for the mood and moment in the script, and pieces that were connected in some way to Darwin, whose life included several connections to music. As a student at Cambridge, young Darwin enjoyed listening to an unaccompanied chamber choir. His wife, Emma, was a gifted pianist who studied with Chopin and Moscheles. Lastly, Darwin and Felix Mendelssohn were born only nine days apart, and each lost a significant person in his life during the same year. These connections, and others, will be explored in *The Darwin Project*.

Dr. Ashworth will present a lecture on Darwin immediately prior to the concert. For more information on *The Darwin Project* visit [www.chambermusic.org](http://www.chambermusic.org) or call 816-561-9999.



## Fall Programs



### ***This Time It's Personal: Innovation in Your Home***

September 28, 2011 - March 16, 2012

The Linda Hall Library's year-long celebration and examination of the history of innovation continues with ***This Time It's Personal: Innovation in Your Home***, opening September 28, 2011. ***This Time It's Personal*** follows the Library's Spring exhibition, ***What's the Big Idea? A History of Innovation***.

Visitors to ***This Time It's Personal*** will be surprised to discover technology's influence in every aspect of their lives from the mundane — carpet fibers — to the sophisticated — laser lights in television remote controls.

Various galleries throughout the Library's first floor will represent rooms in a contemporary family home. The installation will include a kitchen, living room, kid's room, bedroom, bathroom, and garage. Curators Nancy Green and Eric Ward will highlight more than 60 household inventions used daily, and illustrate how these items are the result of decades — and sometimes centuries — of technological innovations.

Visitors can expect journal articles, rare books, and patents from the Library's collection that demonstrate the pathway of innovation for these common household items. They will leave with the sense that even a quiet night at home can be a walk through the history of modern innovation.

This exhibition is made possible through the generous support of the Harry Portman Charitable Trust, UMB, n.a., Trustee; Husch Blackwell LLP; and the Linda Hall Library Annual Fund.

### ***This Time It's Personal***

Opening Reception and Lecture  
Wednesday, September 28, 2011  
Reception 6 p.m., Lecture 7 p.m.



Cultural historian and media scholar Siva Vaidhyanathan of the University of Virginia opens the exhibition with a lecture on his latest book, ***The Googlization of Everything (And Why We Should Worry)***, an examination of the impact that this innovation has

had on contemporary life. Dr. Vaidhyanathan will consider why we use this search engine with unquestioning faith. "It concerned me that this company was playing roles in our lives that were at least slightly inappropriate," Vaidhyanathan explains. "I wanted to get to the sense of why and how we embrace Google, how we might use it better, how we might use it in a wiser fashion, and I wanted to get us to see past the mystical vision of Google."

This lecture is made possible through generous support from the Dwight D. Sutherland Family and Mr. and Mrs. Charles A. Spaulding III.

### ***The Better Angels of Our Nature: Why Violence Has Declined***

Wednesday, October 12, 2011  
7 p.m.



Drawing from psychology, history, brain science, war studies, game theory, complexity theory, and popular culture, Steven Pinker, Harvard College Professor and Johnstone Family Professor of Psychology at Harvard University, explores where violence comes from, why it has been so

common over the course of history, and how we have been slowly bringing it under control. With panache and intellectual zeal, Dr. Pinker will explain the most important development you've never heard of, which will forever change the way you think about modernity, progress, and human nature. Dr. Pinker earned a B.A. in psychology from McGill University, and a Ph.D. in experimental psychology from Harvard University.

A book signing courtesy of Rainy Day Books will follow the lecture. Copies of ***The Better Angels of Our Nature*** will be available for purchase.

This lecture is made possible through generous support from Barbara and Burt Smoliar and the Linda Hall Library Annual Fund.



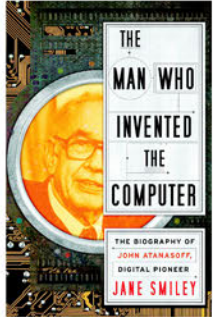
## Modern Inventions Lecture Series

This series is dedicated to the memory of Dwight D. Sutherland by his family.

### *The Man Who Invented the Computer*

Wednesday, October 19, 2011

7 p.m.



Pulitzer Prize-winning author Jane Smiley offers the first lecture in the Library's series on modern inventions. Smiley will discuss her latest book, *The Man Who Invented the Computer: The Biography of John Atanasoff, Digital Pioneer*, which tells the story of John Atanasoff, a physics professor at Iowa State University, and the subsequent race to build the world's first computer. "It's not just about who invented the computer, but how the invention of the computer came about," Smiley says. "It turned out to be an... almost breathlessly dramatic story... that is very much an all-American poor boy-makes-good story."

A book signing courtesy Rainy Day Books will follow the lecture. Copies of *The Man Who Invented the Computer* will be available for purchase.

This lecture is made possible through generous support from the Dwight D. Sutherland Family; Mr. and Mrs. Charles A. Spaulding III; and the Linda Hall Library Annual Fund.

### *Disruptive Innovation:*

#### *The Story of the First Digital Camera*

Wednesday, October 26, 2011

7 p.m.



Steve Sasson, the inventor of the digital camera, discusses his game-changing invention. As a 25 year-old electrical engineer at the Eastman Kodak Company in 1975, Sasson developed the first digital camera, revolutionizing not only the camera industry, but also his employer, then

a film company. His 0.01-megapixel camera weighed 8.5 pounds and was the size of a small toaster. It recorded black and white digital images to a magnetic cassette tape. In this lecture, Sasson will share his lessons learned in developing disruptive technologies inside a corporate environment, and his insights into the contributions by the Eastman Kodak Company to the development of digital photography.

This lecture is made possible through generous support from the Dwight D. Sutherland Family; Mr. and Mrs. Charles A. Spaulding III; and the Linda Hall Library Annual Fund.

### *Pandora Radio and the Music Genome Project: What Musicology and Science Reveal About Our Musical Tastes*

Wednesday, November 2, 2011

7 p.m.



The third and final lecture in the series features critically acclaimed composer, pianist, and musicologist Nolan Gasser. Dr. Gasser is the chief musical architect of the Music Genome Project, the musical technology behind Pandora Radio — a Web and mobile application that services 94 million American listeners, automatically delivering a steady stream of songs and tracks that match individual musical preferences. In this talk, Dr. Gasser discusses the innovative Pandora experience, as well as the broader story of the ways in which musicology and science combine to influence our musical preferences.

This lecture is made possible through generous support from the Dwight D. Sutherland Family; Polsinelli Shughart PC; and the Linda Hall Library Annual Fund.

All lectures are free, open to the public, and held in the Linda Hall Library's Main Reading Room unless otherwise noted. Seating is limited and tickets are required. To attend, email [events@lindahall.org](mailto:events@lindahall.org) with your name, address, phone number, and the number in your party, or call (816) 926-8772. Please specify the lecture(s) you plan to attend.



## Excerpts from an Interview with Jane Smiley

In her latest book, *The Man Who Invented the Computer: The Biography of John Atanasoff, Digital Pioneer*, Pulitzer Prize-winning author Jane Smiley tells the fascinating story of the invention of the computer. Smiley will speak at the Library on October 19 at 7 p.m. as part of the Modern Inventions Lecture Series. On June 28 she spoke with Eric Ward, Director of Public Programming, about her research.

**EW:** I enjoyed reading your book and we're looking forward to your lecture this fall.

**JS:** Well, it's an incredibly interesting and weird story.

**EW:** You write that it has every trope of a novel.

**JS:** It really does and to me, the best part is that the characters are really characters with a capital "C." Every one of the eight main characters is truly an original, and truly different from all the others. It's not eight nerds gathered in the room and we're scratching our heads trying to distinguish between them. It's eight really different men whose lives are different, whose ways of looking at things are different, whose intellectual processes are different, whose creative processes are different and somehow, by hook and by crook, the computer got invented.

**EW:** What advantages did Atanasoff have over the other innovators that enabled him to invent the computer?

**JS:** The biggest advantage, just in terms in getting the computer invented, was to go to a land grant university rather than, let's say, Harvard or Cambridge or someplace like that. Once he was at Iowa State—and he also went to the University of Florida which was a land grant university—the engineers were on the premises. At Iowa State he could bump into an engineering professor and say to him, "Do you have a graduate student who is pretty handy who might like to do this with me?" and come up with Clifford Berry who was an engineering graduate student. And they were a match made in heaven.

**EW:** And the computer they built was known as the Atanasoff-Berry Computer (ABC).

**JS:** Yes, but the problem then became how do you get the word out? And out in Iowa it was very hard to get the word out. And so, because the university systems in both the U.S. and the U.K. are the way they are, there's a separation between the practical side and the intellectual side. The intellectual side is the influential side in terms of getting things into the mainstream. So he could get it invented at Iowa State, but he couldn't get it famous at Iowa State.

**EW:** Then the war interrupted his work when Atanasoff moved to Washington, D.C., to work for the Naval Ordnance Laboratory.

**JS:** Yes, but there's no way of knowing what would have happened if the war had not come along.

**EW:** I'm sure he would have followed the patent process more closely, though, if he remained in Ames.

**JS:** Oh, absolutely, I'm sure he would have, but the war proved to the government in no uncertain terms that calculation was essential to the future. Calculation was essential to the war effort in many ways. Examples are the firing tables that the ENIAC (Electronic Numerical Integrator And Computer) team was trying to calculate or the proper elevation of the explosion of the atomic bomb that John von Neumann was trying to calculate. So, yes, Atanasoff would have followed up with his original machine and patented it, but then would it have had mass appeal? If von Neumann had been consulted he would have been shaking his head saying, "No, we don't want this kind of machine patented. We want people to have free access to the ideas so that they can add on to the ideas." But if no one owned the patents, who would have an incentive to do the development? That is an interesting question.



Jane Smiley, author of *The Man Who Invented the Computer*, will speak at the Library on October 19.

**EW:** To me, John Mauchly, one of the co-inventors of the ENIAC, comes as close to a villain in the story as anyone. He traveled to Ames to look at the ABC prior to building the ENIAC.

**JS:** Yes, he did and he read Atanasoff's 35-page description and he had his hands on the computer when he was with Berry. He was in the computer room for many hours for several days. And Atanasoff's wife knew that he was perusing, at least, and possibly copying, the 35-page description of the computer. Subsequently, he wrote Atanasoff and he asked him if he could build a computer like the ABC in Philadelphia.



Atanasoff said, "I don't think so," because he was aware of the patent process that he was trying to get through. I don't actually think Mauchly intended anything nefarious, but he saw the commercial possibilities that the other scientists did not see. The others saw it as a government thing or a technical thing or a mathematician sort of thing.

"I think that the truly interesting thing about Atanasoff's childhood was that he was always encouraged to follow his intellectual curiosity."

Jane Smiley

**EW: Just to help them with their day-to-day work.**

JS: Yes, but Mauchly and Eckert grasped the fact that it had a lot of other potential uses and they just moved forward. And then when they looked back, there was such a big difference in size and appearance between the ABC, which was about the size of a small desk, and the ENIAC, which filled a room, and then the UNIVAC, which filled two rooms. It could be sincerely stated that they allowed themselves to overlook the similarities because appearances were deceiving. So, was Mauchly a villain or was he sincere when he said to Atanasoff at the Naval Ordnance Laboratory, "What we're building is nothing like yours?" Was he lying? I don't think there's any way of knowing.

**EW: But the ENIAC would not have been the ENIAC without Atanasoff and his ABC.**

JS: That's true, but the ABC never would have gotten out of the basement without Mauchly. To me, that's the lesson that I learned from doing all the research. The thread between the ABC in the basement at Iowa State and the big world was very fine, and Mauchly was the carrier. Given the circumstances of the war, he is as essential to the building of the computer as Atanasoff. Not because Mauchly originated the ideas, but because he saw the value of the ideas and carried them to Philadelphia. If he had never visited Ames, then the ABC would've just been smashed up by a graduate student.

**EW: Which is actually what happened.**

JS: Yes, so somebody had to carry the idea somewhere because the ABC would've been lost. It's also possible that if the ENIAC had never been built, some other version, like Colossus, would have been the original form of the computer. But there's no sense that Colossus could have become my laptop. It was built on different principles and when they tried at the end of the war to do a mathematical problem on it, it took a very long time. Another thing was, that because of ENIAC IBM became very aggressive in its pursuit of the computer. Originally, IBM wasn't that interested.

**EW: Thank you for your time. We're looking forward to your lecture. It's an amazing story.**

Dr. Smiley will sign copies of *The Man Who Invented the Computer* following the lecture. Books will be available for purchase courtesy of Rainy Day Books.

A transcript of the complete interview is available online at [innovation.lindahall.org](http://innovation.lindahall.org)

## ***The Atomic Age: The Discovery and Evolution of Nuclear Science*** **A Linda Hall Library Online Exhibition**

The Linda Hall Library's fascinating exhibition, *The Atomic Age: The Discovery and Evolution of Nuclear Science*, is back but this time it's online. In this three-part, interactive exhibition explore the history of atomic science, expand your nuclear physics knowledge, and discover how radiation is part of daily life.

*The Atomic Age* online exhibition is made possible through the generous support of KCP&L. Find *The Atomic Age* online at [atomic.lindahall.org](http://atomic.lindahall.org)

### **What to Expect**

Did you know that the first controlled nuclear chain reaction occurred under a football stadium? Find out more by exploring a timeline of scientific breakthroughs in nuclear science from the 19th century discovery of x-rays through post-World War II advances in modern nuclear applications.

What are isotopes? What is the difference between fission and fusion? Discover the answers to these and other questions about nuclear physics in "It's a Question of Physics."

Are you curious about environmental radiation? Answer questions about where you live, work, and play to reveal information about normal sources of radiation that we encounter in our daily lives.

## **Linda Hall Library Online**

View our current exhibitions and lectures,  
and browse our online catalog at  
[lindahall.org](http://lindahall.org)

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and follow us on Twitter  
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## Thank You: Your Annual Gifts Matter

The Linda Hall Library marked its 65th anniversary with a year-long exploration and celebration of innovation — a look back at the ways in which science, engineering, and technology have allowed humans to advance. As the year draws to a close, the staff and Board of Trustees would like to say “thank you” for helping to make this special year possible with your generous support of the Library’s Annual Fund. Throughout 2011, Annual Fund gifts helped bring world-renowned scientists and experts in technology to the Library, including Nobel laureates and Pulitzer Prize winning authors, appearing before some of the largest audiences in the Library’s history.

Watch for our 2012 Annual Fund letter, which will arrive in your mailbox in late October. Your contributions to the Annual Fund are vital as the Library seeks new ways to expand awareness and understanding of science, engineering, and technology throughout Greater Kansas City and beyond.

Thank you for choosing to support the Linda Hall Library.



**Linda Hall Library**

SCIENCE, ENGINEERING & TECHNOLOGY—INFORMATION FOR THE WORLD

5109 Cherry Street  
Kansas City, MO 64110-2498 USA

## HEDGEHOG

Number 49 • Fall 2011



The Fall 2011 issue features an illustration of a hedgehog from artist P. Paillou, published in Thomas Pennant's *The British Zoology* (London, 1766). This illustration can be found in the LHL Digital Collections as part of *The Grandeur of Life* collection.

The cover image is a drawing sheet from U.S. Patent 1,789,337, one of the inventions presented in the exhibition *This Time It's Personal: Innovation in Your Home*.

### HEDGEHOG

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