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OFFERING GRADES 9-12
LOCATED IN NEWTOWN, PA

Admission Open House
Sunday, October 25, 2015 at 2:00 p.m.
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MAKING CONNECTIONS

Did Ira Fuchs change the world
through technology?
He says no, but others say yes.

By Pam Hersh
Photos by Mark Czajkowski





Ira Fuchs was called a “legend” of IT by Ted Dodds, chief information officer at Cornell University.

Who is the true father or mother or inventor of the Internet? “Most people don’t think about it,” says longtime Princeton resident Ira Fuchs.

Every day, billions of individuals sitting in front of a screen connecting them with people, places, objects, and words on the Internet, think about the creator of the Internet as often as they think about the inventor of electricity when they turn on a light, according to Mr. Fuchs.

Ira Fuchs — formerly the vice president of computing and information technology for Princeton University — doesn’t need to think about the origins of the Internet, because he knows all about it.

Mr. Fuchs can talk in depth about the long and evolutionary process that led to what people know today as the Internet. He rattles off acronyms and names of dozens of individuals connected with the beginnings of the Internet. He explains that Al Gore never claimed to invent or create the Internet, but rather wanted recognition as someone, who (thanks to his political clout) facilitated the development of the Internet by passing legislation to finance Internet infrastructure. But he rarely mentions his own name or the role he played in the advancement of computer messaging.

The reality of the situation is that in the world of virtual reality, Ira Fuchs could be considered, if not the “father” of the Internet, then the co-founding father of the precursor to the Internet. Mr. Fuchs, when he led a computing center at City University of New York (CUNY), and a colleague Greydon Freeman, an IT

administrator at Yale, were the co-founders of Because It’s Time Network (BITNET). BITNET, a cooperative university computer network, was established in 1981 as a tool for liberal arts scholars to exchange messages. As loath as Mr. Fuchs is to take credit, other scholars and professionals, as they speak and write about the history of the Internet, are highlighting his significant role in the development of the Internet.

The Fourth Annual IT@Cornell Conference on June 25, 2015 reinforced that fact. The conference, which brought together several hundred IT scholars from across the Cornell University campus and other research institutions, was subtitled: “Connecting the Past, Present and Future.” One panel discussion, dubbed a “flower-side chat” (a table with a vase of flowers separated the speakers) featured Ira Fuchs and Ken King, both described by the moderator Ted Dodds, CIO and vice president, Cornell University, as “legends” in the IT world.

Ken King, vice president for computer services at Cornell from 1980 to 1987, also was a renowned leader in; information technology at Columbia University and City University of New York (CUNY), where he mentored Mr. Fuchs.

Ira Fuchs, said Vice President Dodds, “is an internationally known authority on innovative technology solutions for higher education and a co-founder of BITNET, a precursor to the Internet.”

The Fuchs/King conversation focused on how they worked together in several organizations to help computer networking grow from a few primitive connections among universities until

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2015-2016 Concert Season

Songs from the Soul

Saturday, October 24, 6:00pm
Nassau Presbyterian Church, Princeton

A historical and musical journey of songs that lift the spirit and center on American music genres. Featuring guest artist Deborah Ford.

Lynnel Jenkins
Artistic Director



Children Making a Difference

Saturday, November 14, 5:00pm
Nassau Presbyterian Church, Princeton
An evening of young voices raised in song to benefit Kiva.

United in Song

Sunday, January 31, 6:00pm
McCarter Theatre Center, Princeton

Celebrating Princeton Girlchoir’s 27th season, 275 girls unite together in song at McCarter Theater to perform a wide-range of music.

A Musical Mosaic

Friday, May 6, 7:00pm
Nassau Presbyterian Church, Princeton

The colorful sounds of young voices in varied choral performances present a beautiful musical mosaic.

Vivaldi’s Gloria

Saturday, May 7, 7:00pm
Princeton University Chapel, Princeton

Princeton Girlchoir will perform this glorious work composed for orphan girls of the Ospedale della Pietà in Venice, along with other wonderful works for women’s voices by various composers.



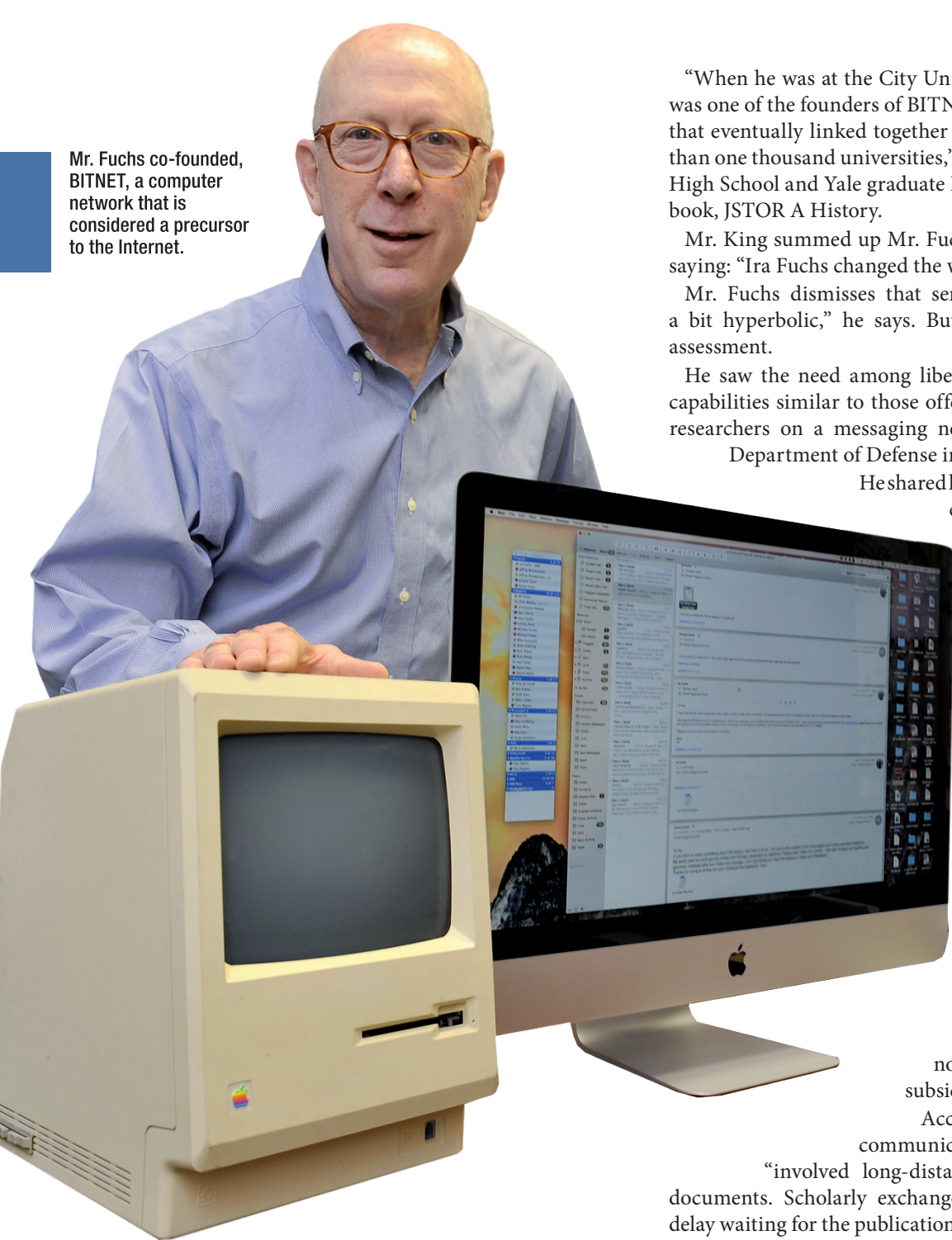
Princeton Girlchoir
609-688-1888

www.prinetongirlchoir.org



This program made possible in part by funds from the New Jersey State Council on the Arts

Mr. Fuchs co-founded, BITNET, a computer network that is considered a precursor to the Internet.



“When he was at the City University of New York, Mr. Fuchs was one of the founders of BITNET, a forerunner of the Internet that eventually linked together the computing systems at more than one thousand universities,” JSTOR historian and Princeton High School and Yale graduate Roger C. Schonfeld, wrote in his book, JSTOR A History.

Mr. King summed up Mr. Fuchs’ accomplishments by simply saying: “Ira Fuchs changed the world.”

Mr. Fuchs dismisses that sentiment: “That may be in fact a bit hyperbolic,” he says. But the facts support Mr. King’s assessment.

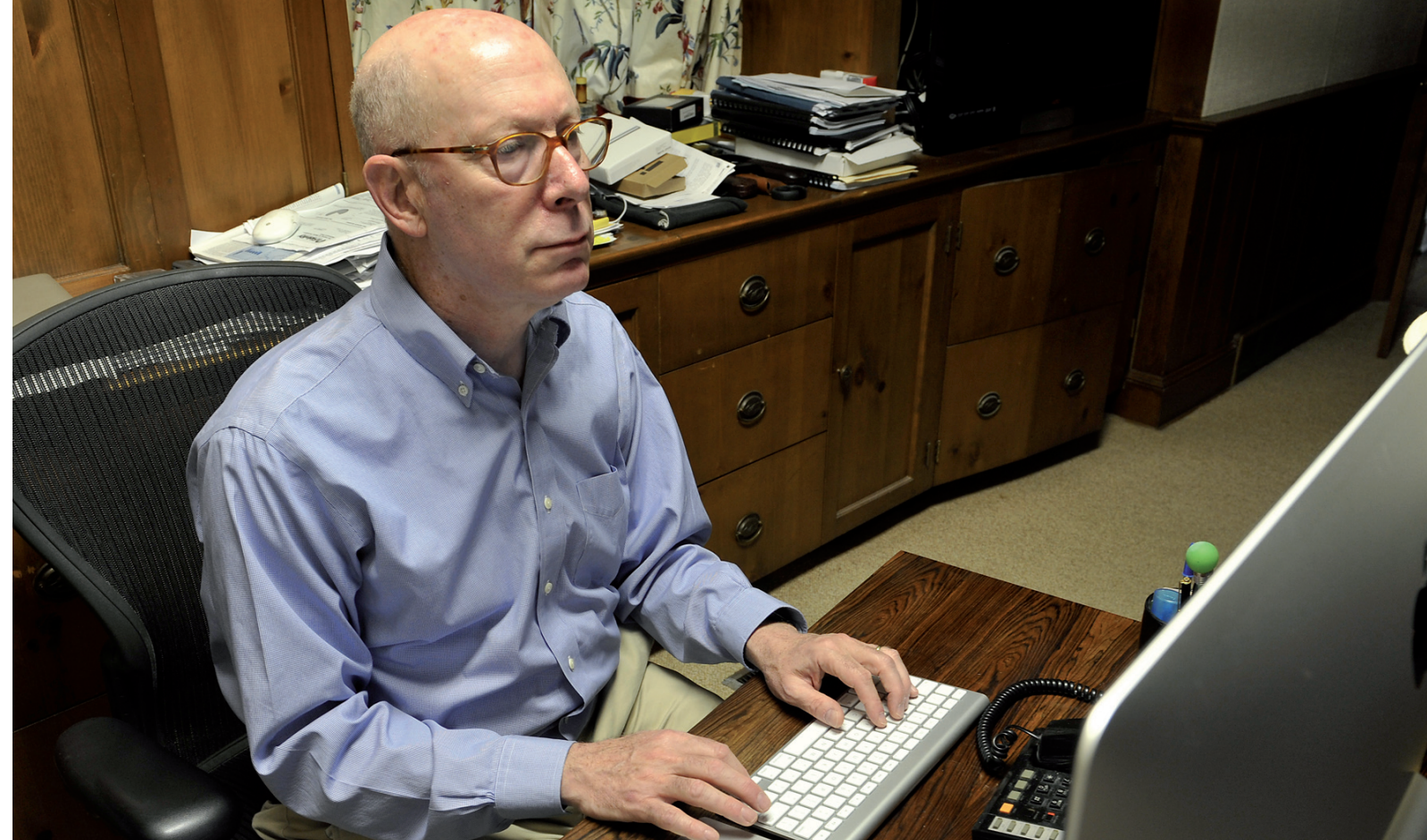
He saw the need among liberal arts scholars for messaging capabilities similar to those offered to engineering and physics researchers on a messaging network established by the U.S. Department of Defense in 1969.

He shared his thoughts with Yale’s computer center director, Greydon Freeman, and BITNET was conceived. Recognizing that most university campuses already were equipped with the infrastructure to allow computer messaging, the Fuchs/Freeman team began researching ways to use RSCS in conjunction with a mainframe system, a modem, and a phone line to allow messages and files to pass back and forth between universities. CUNY and Yale were linked on May 5, 1981. By 1984, BITNET had connected more than 150 campuses and then expanded to Europe — all this was accomplished with no government or taxpayer-subsidized dollars.

According to Mr. King, scholarly communication in the early 1980s “involved long-distance telephone calls or faxing documents. Scholarly exchanges usually involved months of delay waiting for the publication of scholarly articles in journals. BITNET changed that dramatically, putting scholars in daily communication at zero cost to them. Ira, pursuing his goal of connecting every scholar in the world to every other scholar, worked tirelessly to expand BITNET to a network that grew to connect scholars in 49 countries that spanned the globe. BITNET laid the groundwork that (gave universities the incentive) to create the National Research and Educational Network (NREN), which evolved into the Internet.”

What was particularly noteworthy about the operation of BITNET was that it was a huge social experiment where the contribution of each member institution benefited all other members. It was a network whose growth and success was dependent upon the cooperation of each of its members.

In the mid-1990s, Mr. Fuchs and BITNET’s managerial board, known as the Corporation for Research and Educational



Ira Fuchs saw a need for scholars to message each other, which led to the founding of BITNET, with Greydon Freeman.

Networking (CREN), knew that the Internet had made BITNET virtually obsolete. BITNET, however, laid the groundwork that allowed the Internet to flourish — doing exactly what parents should do for their children.

Mr. Fuchs also played a major role in creating JSTOR or Journal Storage, whose mission is to catalog out-of-print academic journals and make the articles accessible on line. “JSTOR put scholarly journals online with a full text index,” Mr. King says. “Thus instead of languishing unused in journals on thousands of miles of library shelves, scholarly articles became available to people around the world who were able to find relevant information using Google or any other search engine.”

After working 14 years at Princeton University (from 1985 to 2000) and developing the university’s web site, and working to connect the entire campus to the Internet, Mr. Fuchs accepted a vice president’s position at The Andrew W. Mellon Foundation, the funder and incubator of the JSTOR initiative that Mr. Fuchs helped to spearhead.

The talent of Ira Fuchs has been his ability to connect or link the needs of academia to technological solutions. He did not invent the hardware, but rather used his creative genius to link the technology to fulfilling an unmet academic need; by doing so, he furthered the mission of colleges and universities around the world.

Even though he describes his current job status as “retired,” his mind is still making those connections. He sees technology as not only facilitating research, but also creating a better learning environment for students — one that is personalized and individualized to the unique learning needs and styles of the student.

“Educators have known for a very long time that one-to-one tutoring is vastly superior to other methods of teaching,” Mr. Fuchs says. “Of course, it has always been too costly to do one-to-one tutoring on a large scale. What is different now is that the combination of economical computational capacity, large amounts of data collected from (among other sources) the students’ progress through the courses they take, and artificial intelligence algorithms, we are coming closer to being able to offer a learning environment that mimics what a good personal tutor does. The computer tutor would understand which learning style is best for you, the sorts of examples that you respond to, and the ways to motivate you. We have a way to go, but it is not a ridiculous goal.”

In addition to speaking and writing, Mr. Fuchs is spending his retirement serving on two corporate boards, Ithaka, and The Philadelphia Contributionship. He is president of BITNET, LLC, which he created to do consulting on applications of technology in education.

He takes courses online and at Princeton University to stay current with all the advances in computer science, and continues to do some programming. And he offers IraCare to a small group of friends who request help with their home technology. His animated conversations in Small World Coffee on Nassau Street often attract eavesdroppers who want to learn about net neutrality, computer ‘glitches,’ and the worthiness of the latest Apple ‘toy.’

However the best connection that has come out of his retirement is that he has more time to spend with his wife of 33 years, with whom he goes on nine-mile walks a few times a week, and their three grown children in New York and Boston.

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they both became advocates helping Al Gore in his efforts to create the infrastructure enabling the blossoming of the Age of the Internet.

When Mr. Fuchs graduated from Columbia in 1969 (with a B.S. in physics), he went to work at the Columbia University Computer Center, where Mr. King was director. Shortly afterward, Mr. King left Columbia to work at CUNY as university dean (in charge of computer technology); and, in 1973, he hired Mr. Fuchs, who by that time had an M.S. in computer science from Columbia) to be the executive director of CUNY’s new computing center. When Mr. King left CUNY for Cornell, Mr. Fuchs took over Mr. King’s responsibilities in the computer field by becoming vice chancellor for university systems.