



Collecting Women's Ingenuity

Fred Amram and Sandra Brick

Women's History Month is an appropriate time to explore how we have honored--or neglected--women inventors. In April 1890, on the occasion of the Patent Office's centennial, the commissioner of patents received a petition requesting "that a room be set aside in the present Patent Office, to be used exclusively for the benefit of Woman Inventors, that there be exhibited models of the woman inventors only, that the same be properly labeled, giving full particulars of each invention." It took 100 years before that petition request was fulfilled!

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Image: Cover of Women Inventors to Whom Patents Have Been Granted by the United States Government, 1888.



Notes from the Director

Were we to judge by images alone, invention has been a man's world, and only a man's world. The title of one of the iconic paintings of 19th-century invention, *Men of Progress* by Christian Schussele, says it all, at least for that century. I'm sure no one then was even thinking about "Women of Progress."

Lest we believe the 20th century was more enlightened, consider the images of scientists, engineers, and inventors sent around the country by America's first science news agency, Science Service, publisher of *Science News*. Founded in 1921, Science Service was for many decades the primary source for science and technology photographs used in newspapers, magazines, and other media. Today, these photographs serve as an important historical source for understanding popular perceptions of scientists and engineers in 20th-century America.

While women were frequent subjects, the roles they assumed were usually restricted. Many photographs show rooms full of **women assembling or testing** technological devices, for example. There are literally hundreds of photographs of white-coated male researchers making or using scientific instruments, but almost none of women doing comparable things. When women do appear with men in such stereotypical scenes, they are invariably **passive or admiring observers**. In other words, females are shown dominated by, rather than in charge of, technology.

Science Service images were typical of those presented by other contemporary

media, save for the occasional movie about Madame Curie. None of this means, of course, that women did not play active roles in science and technology over the last two centuries. On the contrary, at the Lemelson Center we have uncovered ample evidence of significant female contributions, some featured in this newsletter. But given the **skewed nature of the visual record**, we have had to work very hard to find this evidence. While image isn't everything, it counts for a lot, especially in today's visual culture. It influences how we see women in relation to scientific and technological occupations; the lack of female images in such contexts cannot help but stunt the expectations of young female students deciding on future careers.

My feeling is that today's media are doing a much better job of bringing women into the frame. It is also my sense that these representations are still nowhere close to reflecting actual numbers. Women's History Month is a good occasion for us to bring women in science and technology into focus.

Best regards,
Art Molella
Jerome and Dorothy Lemelson Director

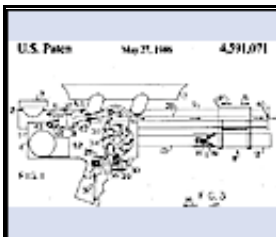
Explore: The Smithsonian holds the [records of Science Service](#), now renamed Society for Science and the Public, and has made many of [Science Service's historical images available online](#).



Have You Seen?

The Lemelson Center's Innovative Lives program brings young people together with working inventors for interactive demonstrations and discussion. Since the Center's beginnings in 1995, many women inventors have shared their stories to inspire the next generation of inventors. You can learn more about these women and a bit about the rich history of women inventors as well in the [Innovative Lives section of our website](#). And you can find information on all of the women featured on our website in our [Invention Stories Index](#). Have a look!

Image: A young girl dons Kevlar items during an Innovative Lives program with inventor Stephanie Kwolek, 1996. Smithsonian photo.



Trivia Challenge

In each edition of Prototype, we offer a question about an invention or inventor that you and your friends and family can try to answer. Sometimes the answer can be found on the Lemelson Center's website, where you can also learn a little more about the subject. Email your answer to us at prototype@si.edu along with your name and mailing address. Each month we'll select winners randomly to receive a small prize from the Center.

Thank you to everyone who entered the February challenge, and congratulations to Amanda W. of Alexandria, Virginia, and Harold S. of Kailua, Hawaii, who (among others) knew that Lonnie Johnson invented the Super Soaker toy that has delighted--and drenched--countless children (and, we dare say, adults, too!). Amanda and Harold will each receive a year's subscription to *Smithsonian* magazine.

Fred Amram, guest author of our feature article this month, pointed out that Lonnie Johnson has a number of inventions that can leave you, well, what's the opposite of "high and dry"? He writes, "First there is his 1981 Automatic Sprinkler Control patent (4,253,606). Second, one must include his 1985 patent for a Soil Moisture Potential Determination by Weight Measurement (4,509,361). Third, his Wet Diaper Detector patents granted in 1993 (5,266,928), 1995 (5,469,145), and 1998 (5,838,240). Fourth, there is his Hair Drying Curling Apparatus patented in 1998 (5,299,367). Fifth, and most obvious, are his many patents for pressurized water guns, granted as early as 1986 (4,591,071), with improvements and variations running through 2003 (6,540,108) and beyond."

Wow. Thanks, Fred! To learn more about Lonnie Johnson's inventions, search the [U.S. Patent and Trademark Office database](#) and [visit Johnson's website](#).

This month's question: When life gives you lemons ... make lemonade! Which woman inventor turned an accidental spill on her sneakers into the fabric protector known as Scotchgard? And a bonus question: What was the name of the chemist who worked with her?

Image: Lonnie Johnson's U.S. patent 4,591,071.



From the Archives

Forty-two. That's the number of babies my mother delivered during her short career as a medical doctor during the 1950s. It was a time when women quit working once they got married, as my mother did before my older brother was born. But she was very proud of that number, and when I was still playing with dolls she used to tell me stories about those babies. She didn't protect me from the harsh realities of childbirth either. She told me about *all* the babies, including the ones who didn't survive or had to stay in the hospital living in incubators before they could be sent home.

Those stories captured my imagination, which is perhaps why I was fascinated to learn about neonatal nurse and inventor Sharon Rogone. Like my mother, Rogone put family before career. In her case, she came into nursing after raising her children. She earned degrees as a licensed practical nurse in 1976 and as a registered nurse in 1980 from San Bernardino Valley College. In the late 1980s, Rogone was working in the neonatal intensive care units (NICU) at St. Bernardine hospital and San Bernardino County Hospital in California.

Motivated by her experiences trying to save premature infants, Rogone began inventing and founded her own medical supply company, Small Beginnings, Inc., in

1997. Her first patent (5,613,502) was for the Bili-Bonnet, a phototherapy mask that protected the eyes of infants receiving light therapy for jaundice. Other inventions include the Bebeonker (an oral/nasal suction device) and Cuddle Buns diapers (to prevent hip dysplasia).

I was drawn to Rogone's story personally, but as a historian the opportunity to document this inventor was equally compelling. The history of the NICU has yet to be written, and here was a story about a neonatal nurse whose career neatly coincides with the evolution of the neonatology profession itself. The first NICU was founded at Yale-New Haven Hospital in 1960, the same year that Rogone graduated from high school. By the time she finished her nursing degrees and began working in hospitals in the mid-1980s, a few larger facilities had dedicated NICUs, and many more were simply creating makeshift units wherever a little space could be found. Today nearly all children's hospitals and many large general hospitals have dedicated NICUs.

In addition, women inventors are underrepresented in the historical record, and at the Lemelson Center we are working to correct this imbalance by locating and acquiring the records of women inventors for the Smithsonian national collections. So in the winter of 2007 I headed out to Hesperia, California, with archivist Alison Oswald and curator Judy Chelnick. It was cold for California, but we were greeted warmly by Sharon Rogone and her business partners (who happen to be her family and best friends) and proudly shown around the company's production and distribution facility. Over several days we were able to collect artifacts and business records and also record oral history interviews with Rogone, her husband Phil, and business partner Ken Croteau.

The Records of Small Beginnings, Inc., collection is, well, small. Covering the period 1986 to 2006, it includes articles of incorporation for the business, correspondence, corporate-identity branding, product information, sales records, patent and trademark files, photographs, journal articles, magazine and newspaper clippings, and oral history interviews. It is a rich source of information about neonatology, invention, and entrepreneurship (see the [Small Beginnings finding aid](#) for details). If my mom were around today I would enjoy showing her the Small Beginnings collection. She would be pleased to know how far women in the medical profession (and premature babies) have come.

--Maggie Dennis, historian, Lemelson Center

Image: Sharon Rogone, courtesy Sharon Rogone.



Inventive Ideas for Schools and Families

One of the few women chemists at DuPont in the 1960s, Stephanie Kwolek's research included experimenting with long molecules called polymers in order to develop lightweight, heat-resistant fibers. Her work led to the development of Kevlar, a fiber best known for its use in bullet-resistant vests.

Now [you can make a polymer](#) with some common ingredients that are probably right in your own home! Download the experiment!

Image: Stephanie Kwolek, 1996. Smithsonian photo.

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Contact us at prototype@si.edu

General Smithsonian Visitor Information: 202-633-1000

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