

THE WILD RIVER REVIEW PRESENTS:



**UP THE CREEK: CROSSING CULTURES, GENDERS; TRANSCENDING HISTORY**

In a post 9/11 world, we were compelled us to tell a different story than what was being presented in most of the mainstream press. And so, we began regular coverage of stories centered in the Middle and Near East..

by Joy Stocke



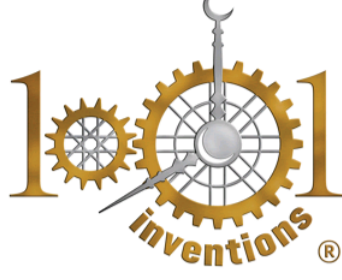
**SCIENCE - THE NEW YORK HALL OF SCIENCE HOSTS 1001 INVENTIONS - MUSLIM HERITAGE IN OUR WORLD: A CONVERSATION WITH DR. MARGARET HONEY**

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*SCIENCE - The New York Hall of Science Hosts 1001 Inventions - Muslim Heritage in Our World : A Conversation with Dr. Margaret Honey*

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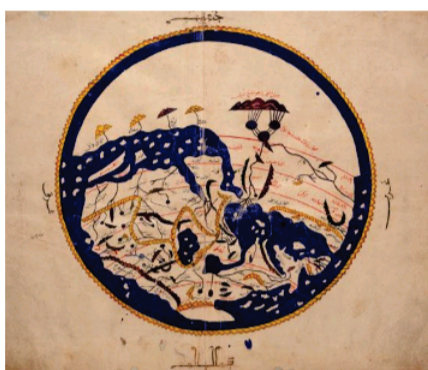


At some point in their education, students of western history will learn a term that describes a period of time between the fall of the Roman Empire and the Renaissance (5th- 12th centuries CE) when the so-called "light of civilization" dimmed and stagnated: The Dark Ages.

What the term Dark Ages doesn't take into account is that much of the world was, in fact, experiencing a golden age of scholarship and literature.

Within an area stretching from southern Spain and northern Africa, across the Middle East and along trade routes through India and the Hindu Kush into China, universities were homes to scholars, scientists, mathematicians and artists. One of those universities, al-Qarawiyyin, was founded in Morocco in 841 CE by a woman, Fatima al Fahri, and is considered by the Guinness Book of World Records to be the oldest continuously operating academic degree-granting university in the world.

Throughout the Muslim world, Greek and Latin texts were being translated into Arabic, artisans were perfecting techniques in making fine pottery and paper; and scientists, mathematicians and physicians were charting the universe and the body.



Al-Idrisi's 12th-century world map.

*1001 Inventions: Muslim Heritage in Our World*, an award-winning exhibition sponsored by the Foundation for Science Technology and Civilization, launched in Istanbul and London, and now at the [New York Hall of Science](#), is the first multi-disciplinary exhibition to highlight how science is and has been a global endeavor, how the term "dark ages" might not be true; and how, as we reframe world culture in terms of a global community, the Muslim world has been part of a continuum of invention and scholarship that began long before Rome rose to power.

In 2010, *1001 Inventions* won a Google Science and Technology Award for its interactive initiative. In May 2010, the Cannes Film Festival board awarded *1001 Inventions* the Gold Award for Best Education Film for its companion film, *Library of Secrets*, starring Oscar-winner Sir Ben Kingsley.

"A large percentage of the general public is unaware of the influence that Muslim scholars of the Middle Ages had on future generations, right up to the present day," says Dr. Margaret Honey, CEO of the New York Hall of Science where *1001 Inventions* continues until April 24th before moving to Los Angeles and Washington, DC.

Honey, widely recognized for her work using digital technologies to support learning across the disciplines of science, mathematics, engineering and technology, believes that expanding our knowledge of science and its history can contribute to a vibrant educational future.

We recently spoke with Honey, who explains, "*1001 Inventions* has helped me think about the ways in which scientific ideas travel. While science is always set in a specific historical and socio-political context, the simple truth is that ideas in and of themselves, know no boundaries."



Dr. Margaret Honey

**WRR: One of the components of the 1001 Inventions Exhibition that intrigued us most - particularly since few women in any culture are given prominence in the historical record - was the story a wealthy Tunisian woman named Fatima al-Fahiri (ca 850) who built Al-Qarawiyyin University in Fes, Morocco.**

**In a larger context, how do you see the inclusion of prominent women in exhibitions like this reframing the views girls and boys and their teachers have about women in science and education?**

**Margaret Honey:** What's important about Fatima al-Fahiri's story is that she creates not only a sense of pride for younger girls, but also a sense of possibility. She is someone that young girls can identify with, and for both boys and girls, the exhibit helps us to see science as the creation of people, their passions, and interests.

**WRR: 1001 Inventions is a fascinating look at the flowering of science and scholarship in the Near East, the Middle East, North Africa and Spain during the years when Western Europe entered what has become known as The Dark Ages. Who approached whom about hosting the 1001 Inventions? How did it come to the New York Hall of Science?**

**Margaret Honey:** Our colleagues at The Exhibitions Agency approached us on behalf of 1001 Inventions. They were planning a US tour which will bring the exhibition to Los Angeles and the National Geographic Museum in Washington, DC; and wanted to kickoff in New York. We were impressed by the extensive scholarship that went into the production of the exhibition and also by the way it employs hands-on exhibits, video interactives and even a short film starring Ben Kingsley to engage visitors in a story about how ideas travel from one age to the next.

**WRR: In an article in the New York Times, art critic Edward Rothstein claims the exhibition has exaggerated the importance of contributions from the Islamic world to modern science. However, the exhibition is geared toward children who often have no knowledge outside the traditional western curriculum. What's your response to that charge?**

**Margaret Honey:** Historians stopped using the term "dark ages" decades ago, but it still resonates in popular culture. 1001 Inventions isn't curated for specialists and doesn't draw conclusions without historical evidence. Like any exhibition we present, our intention is to engage as broad an audience as possible and encourage their curiosity. The scholarship of this exhibition is supported by a wide array of resources where interested people can discover more about the scientific legacy of Muslim civilization and then make their own assessments.

**WRR: And how have children and their teachers responded? Any examples?**

**Margaret Honey:** More than 20,000 field trip visits have been booked for just the first two months of the exhibition's run at NYSCI. We are seeing not only New York City public elementary and middle schools - which make up the majority of our school field trip audience - but also visits from older students, and independent and private schools that haven't previously visited.

**WRR: What have you personally learned from this particular exhibition?**

**Margaret Honey:** The exhibit has helped me to think about the ways in which scientific ideas travel. While science is always set in a specific historical and socio-political context, the simple truth is that ideas in and of themselves, know no boundaries. This is something that younger children (K-12) are not exposed to in school, but it is key to building an understanding of science as a human and historically grounded enterprise.

**WRR: You are a pioneer in the field of technology and education for children. How is technology shaping the way children interact with the world?**

**Margaret Honey:** A key advantage of technology and the Internet in particular is that textbooks aren't the only game in town for teaching and learning. Educators have more options and learners have more opportunities to engage with each other and with a broader array of information. Kids have more channels for interacting with the world. Access to information, to different kinds of communication channels, and to rich media environments also means that kids need different powers of discernment. The obvious way to think about this is the idea that 'just because it's online, doesn't mean it's true.' Our children have to learn different strategies for evaluating the viability of information. They have to learn different conventions for communicating, and they have to understand the ways in which rich media environments are composed to obtain certain effects.

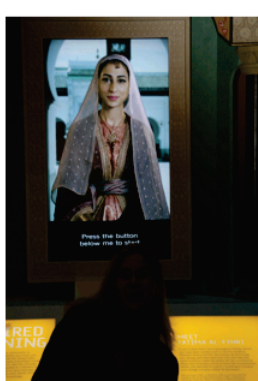
**WRR: Created initially as a pavilion for the 1964 World's Fair, the New York Hall of Science bills itself as New York City's hands-on science and technology center. How do you see the New York Hall of Science's Mission evolving with advances in technology, and how can the Hall of Science enhance education for children and adults?**

**Margaret Honey:** Technology also means there's more competing for children's time and focus. So we have to hold their attention and interest once we have it. At NYSCI, we believe that giving children an opportunity to interact with material things is a key component of learning. We're in the process of building a new environment focused on design-based STEM learning, where kids will have rich opportunities to design, build, make, create and simply mess-around - all processes that are key to learning and engagement.

We will use technologies to extend and enhance these kinds of engagements. One of my colleagues, David Kanter, who is directing a new center on Play, Science and Technology learning is developing a series of technology games that extend the science learning that can evolve from children's play on the playground. At NYSCI we think the physicality of learning is important - making, tinkering, exploring with ones' hands and body. We also think that well designed technology environments can extend and enhance this kind of learning by giving kids, parents, and teachers tools that enable a concept to be explored in ways that would be hard to do physically. The core idea - to quote Frank Wilson - is to connect the hand and the mind.

**WRR: Can exhibitions like 1001 Inventions spark a radical rethinking of how we study science?**

**Margaret Honey:** I think the exhibition underscores the central role an institution like ours can play in improving science education. We can have an impact with hands-on exhibitions that textbooks alone can't achieve. Because the exhibit exposes us to science and scholarship through the personal lens of the innovators, it helps us to understand science as a human endeavor. This may seem obvious, but I think for many of us, this represents a shift in how we perceive and think about "science." In schools, sciences is taught as a collection of largely immutable facts, and to the extent that we learn about the scientists themselves, they are portrayed, more often than not, as larger-than-life men. It's hard for most of us to see ourselves in such images. 1001 creates a different kind of opening, and it's quite stunning to see our young Muslim visitors taking in what the exhibit has to offer.



Interactive Exhibition - New York Hall of Science - Fatima al-Fahiri

*1001 Inventions* continues its run at the New York Hall of Science through April 24, 2011. It will move on to the California Science Center in Los Angeles and then, in 2012, to the National Geographic Museum in Washington, D.C.

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