covers only the hair and neck; the burqa and niqab cover the face.)

Women in Egypt initially began to unveil around the turn of the twentieth century, as British occupiers sought to rescue Muslim women from what they took to be the oppression of Islam. But local women who unveiled had different reasons for doing so. "Unveiling," Ahmed writes, "would become ever more clearly the emblem of an era of new hopes and desires, and of aspirations for modernity: the possibility of education and the right to work for both women and men, and of equal opportunity and advancement based on effort and merit."

In the 1970s, most women began covering their heads again. After Egypt's defeat in the Arab-Israeli War in 1967, groups that aimed to "Islamize" society, such as the Muslim Brotherhood—quashed under President Gamal Abdel Nasser—reemerged and flourished. At the same time, Saudi Arabia wielded increasing influence as an economic superpower that sought to spread its strict Wahhabi Islam globally. Islamist leaders of the period worked to persuade women to wear Islamic dress, but scholars who interviewed women during this period found that those who adopted it typically reported doing so willingly.

"As is the case sometimes today in America, many of the women who took on hijab did so against parental wishes," Ahmed says. "Islamic dress gave them new authority as strictly observant religious women, and in a society where men and women were expected to maintain a certain separateness, it gave them the freedom to attend school and go to work—in offices, for example, shared with men—in ways that were socially acceptable. It certainly had some positive outcomes."

The recent movement in Europe to ban Islamic dress for women echoes the old colonial concern for Muslim women, but Ahmed says it's layered with something new. Hijab is now identified—wrongly, she believes—with violent strains of fundamentalist Islam. These assumptions, which she shared at the start of her research, "were quite mistaken," she says now. "Certainly there are violent elements at the extreme edges, but the broad mainstream of the Islamist movement—according to all the experts—is overwhelmingly opposed to violence and committed to nonviolence." She also emphasizes that the Muslim Brotherhood in particular has a long-standing commitment to social justice, including provision of education and medical treatment to the poor, and she believes such social activism is part of the organization's legacy in America.

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American Islam, she reports, was dramatically altered by 9/11, with more Muslims speaking publicly about their faith, and young Muslims insisting on a new dialogue within Muslim-American organizations. Immediately after 9/11, some women shed their veils to avoid harassment, but others began covering themselves for the first time in their lives. They cited a range of reasons: a desire to affirm their Muslim identity, to educate others and counter stereotypes, and sometimes to express solidarity with the Palestinians. Ahmed was particularly surprised to meet an American Muslim woman in Boston who said she hoped her headscarf would prompt other women to think about gender bias in society, including how clothing choices and physical appearance may influence the treatment of women.

Ahmed's book has been widely reviewed in the United States and Britain, and she has faced some criticism for suggesting that the veil might symbolize a new kind of Muslim feminism in America; critics say it cannot shake its history as an emblem of oppression. Clearly, Ahmed responds, hijab can't stand for empowerment in a place like Iran. "In a country where you're free to choose to wear a veil, its meanings are worlds away from what it means when you're forced to wear it," she says. "That's a critical point. The veil today has no universal meaning. Its meanings are always local." —ERIN O'DONNELL

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PAINT, PIGMENT, CRAYON, AND CLOTH

High-Tech Art Sleuthing

Call them art detectives. Using scientific methods, the researchers at the Fogg Museum's Straus Center for Conservation and Technical Studies gather evidence and help solve art mysteries: Who painted this? What materials did the artist use?

One such mystery involves the self-taught American artist James Castle. Profoundly deaf, perhaps autistic, he never learned to speak or write. He lived in rural Idaho, creating compelling, intimate works, including hundreds of drawings using only woodstove-soot mixed with his own saliva. He sketched with color as well, and assembled three-dimensional figures from bits of packaging. His work was still largely unknown outside Idaho when he died in 1977 at the age of 78.

Flash forward three decades. Conservators wanted to know where Castle obtained his pigments, what tools he used, and how he worked. Castle's family had provided some clues, through artifacts and memories. For more precise information about certain pieces, Daniel Kirby, an associate in conservation science at the Straus Center who has a background in biotechnology, used an instrument common in biology but fairly new to art conservation: a laser-desorption-ionization time-of-flight mass spectrometer. The technique is often called LDMS, for short.

In one analysis, Kirby tested a single fiber of yellow paper from a Castle drawing, using the instrument's laser to ionize the pigment molecules. (Pigment ionizes easily.) The resulting ions "flew" to the instrument's analyzer, with smaller ions traveling faster than heavier ones, en-

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abling a detector to determine each ion's mass by its time of flight, measured in billionths of a second.

The method produced a "mass spectrum," a distribution pattern of the ions' masses. When Kirby and his associates compared the patterns to those of known pigments, they found three matches in the single fiber. By comparing these pigments to those identified in materials known to come from Castle's studio, the team discovered intriguing evidence about the color sources and techniques the artist may have used: green tempera paint and a yellow wax crayon—both perhaps applied to paper using a piece of chartreuse fabric.

Narayan Khandekar, senior conservation scientist at the Straus Center, says that this new analytical technique has dramatically expanded conservators' ability to identify materials that artists use in contemporary art. Until Kirby tried LDMS, Khandekar says, "we had hit a dead end" in identifying complex modern organic pigments. Recently, for example, the center was able to determine that a Jackson Pollock-style painting likely was *not* a Pollock; LDMS identified a pigment in the painting that had been developed after Pollock died.

Kirby says LDMS is useful for identifying mixtures of pigments, even when they're blended with binders and other inorganic materials. He also believes, because of the simplicity of sample preparation, that LDMS is easier to use than other available methods. He wants to publicize the practice and has begun teaching it to visiting conservators from other institutions. "What we're trying to do is develop simple turnkey techniques that nonexperts can do," he explains. (For several years, Kirby used an instrument at Harvard's chemistry and chemical biology mass-spectrometry facility on Oxford Street. Last March, after he gave a talk at the Waters Corporation on his use of LDMS, the company donated one to the Straus Center. "We're the only conservation lab on the planet that has its own," he says.)

He has also used the instrument, in a slightly different process, to identify paint proteins more precisely than previously possible—not just egg binder, for example, but egg white, specifically from a chicken, rather than a duck. In a Mark Rothko mural owned by Harvard, Kirby found that the artist had used both egg white and yolk in his paint, a combination that produces a particular sheen. "The choices an artist makes are incredibly important," Khendakar says. "We're now able to get in there and tell in great detail what those choices were." —NELL LAKE

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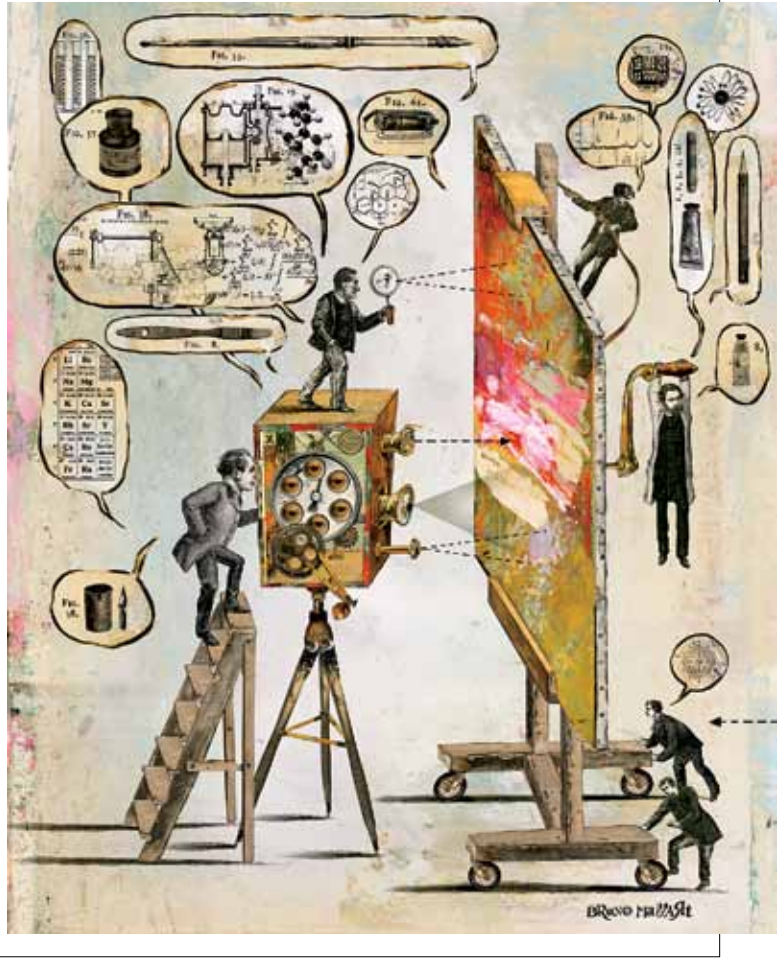

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