

# A Little Art, a Little Science, a Little 'CSI'

By SIMON A. COLE

EDMOND LOCARD, a French pioneer of forensic science, once wrote that every contact leaves a trace. Proceeding from that doctrine, known as the Locard Exchange Principle, it would seem that art history offers particularly rich pickings for forensic scientists. Through the ages artists' intimate contacts with their materials have often left revealing traces.

Lately the art world has been saturated with tales about painters' fingerprints. Luigi Capasso, an Italian anthropologist, reported recently that researchers had succeeded in reconstructing a print of [Leonardo da Vinci](#)'s left index finger, preserved amid the ink on 52 papers he handled. Mr. Capasso hailed the fingerprints on the papers as rare "biological traces" of the artist.

The most sensational tidbit to emerge from his analysis was his claim that the fingerprint's pattern type, a "central whorl," supported the popular conjecture that Leonardo's mother was not a Tuscan peasant but a Middle Eastern slave who was brought to Tuscany from Constantinople.

Such stories seem to play off a supposed culture clash between art and science. Art history has long been viewed as a "soft" discipline populated by intellectual types making subjective judgments, in contrast to the cool objectivity of the hard sciences.

But it may be that art and science are more alike than we tend to assume.

**Another artist's fingerprint is central to the documentary film "Who the \$#%& Is [Jackson Pollock](#)?" released last month in New York. The movie, directed by Harry Moses, recounts the now-familiar story of Teri Horton, a retired truck driver from Costa Mesa, Calif., who found what she claims is a Pollock drip painting in a thrift store. The painting's history is unknown, and Ms. Horton's attempts to have it authenticated by an expert have consistently failed.**

**But tantalizingly a forensic art expert, Peter Paul Biró, found a fingerprint on the back of the canvas that supposedly matches a "plastic" fingerprint preserved in paint in Pollock's East Hampton, N.Y., studio.**

**The central mystery of the affair is how the opinions of a bunch of art connoisseurs could trump a fingerprint. The film is a fascinating discourse on the nature of expertise. The art experts — the one who is interviewed on film, Thomas P. Hoving, a former director of the [Metropolitan Museum of Art](#), as well as the anonymous ones who have denied the painting's authenticity for the International Foundation for Art Research — come off as stubborn elitists, saying "I'm an expert, and she's not," and "Scientists are very interesting, but they come after the true connoisseurs."**

**Art authentication, then, seems like the final redoubt of humanistic knowledge, the last arena in which the word of an art historian can override that of a forensic scientist, to the tune of tens of millions of dollars.**

**The fingerprint analysis meanwhile is presented as coldly objective. Regardless of all the problems with provenance and the arguments about whether the Horton painting has the same “energy and dynamism” as a true Pollock, how, one wonders, could anyone dispute its authenticity given “a perfect match” between the fingerprint on the canvas and the one in Pollock’s studio?**

Closer examination however shows that fingerprinting and art connoisseurship may not be all that different.

There is no such thing as a “perfect” fingerprint match. All fingerprint impressions, even those from the same finger, are at least slightly different. What there is, is a subjective judgment by a fingerprint examiner that two prints come from the same source finger.

This of course sounds a lot like art authentication, which seeks to determine whether a disputed work derives from the same “hand” as an undisputed one. Contrary to myth, fingerprint examiners do not base their attributions on scientific measurements. Rather they are subjective visual assessments of whether or not the features in the prints appear “consistent.”

Like art connoisseurs, fingerprint examiners’ basis for making these judgments is experience: a lot of time spent studying and looking at fingerprints. Most art connoisseurs, however, supplement their experience with extensive training in art history, whereas many fingerprint examiners lack formal training in science.

In a 2002 federal court case, a criminal defendant argued that fingerprint evidence should not be permitted precisely because it represented a subjective judgment rather than a scientific determination. The judge, whose name was, interestingly, Louis Pollak, ruled that even though fingerprint examiners’ judgments were subjective, they could still give expert testimony. In so ruling he explicitly drew an analogy with “land and art appraisers,” whose knowledge was similarly subjective and based on experience but could nonetheless be properly used in court.

What the ruling apparently failed to take into account is that we seem to have higher expectations for fingerprint examiners than for art historians, even though art historians tend to have more formal education. Jurors, we assume, believe that art connoisseurship is subjective judgment based on the expert’s background. But jurors believe that fingerprint evidence is “science.”

In a well-known essay, “Morelli, Freud and Sherlock Holmes: Clues and Scientific Method,” the historian Carlo Ginzburg draws parallels between forensic identification and the work of the 19th-century art expert Giovanni Morelli. The place to look for authenticity is in the unconsciously rendered details of the artwork, Morelli argued, rather than in the more obvious displays of mastery.

The insight has obvious connections to Pollock, whose work is considered at once accidental and intentional, conscious and unconscious, and who therefore has been described as both the most and least forgeable of artists.

Ginzburg argued that Morelli, along with Freud and the fictitious Holmes, signaled the rise of a new scientific method of interpretation and diagnosis characteristic of the medical sciences, which differed from the more measurement-based version of the scientific method employed by Galileo and other physicists. Fingerprint examiners and art connoisseurs alike, it would seem, are diagnosticians — interpreters. In the case of the Leonardo fingerprint, inferring ethnic origin from fingerprint patterns may sound far-fetched. But in the late 19th and early 20th century there was a thriving research program seeking to correlate fingerprint patterns with the world's ethnic groups. Anthropologists scoured the globe collecting sample fingerprints from people they considered distinct ethnic groups: Englishmen and Irishmen; Jews and Basques; the Yoruba, Fulani and Hausa people.

Anthropologists treated fingerprint patterns in much the way we think about genes today: they assumed that heredity, ethnicity and perhaps even character were encoded within the whorls of the fingertip. These investigations seem silly to us today, but they were not entirely fruitless.

Anthropologists documented some ethnic differences in the frequency of various pattern types. The whorl pattern, for example, appears around 30 percent of the time in Caucasians, but the frequency rises to around 35 percent in Asians. The finding is interesting statistically, but ultimately of very little value in inferring the ethnic origin of a single fingerprint.

The basis for the Middle Eastern origin of Caterina da Vinci is the claim that 60 percent of Middle Easterners have the “central whorl” pattern found on Leonardo’s left index print. Given that most people have 10 fingers, the significance of a finding of a single “central whorl” seems slender. Furthermore some important data is missing in this analysis, specifically, the percentage of Tuscans with that type.

Today of course the ethnic correlations of fingerprint patterns have been largely forgotten. Most people think of fingerprints solely as indisputable individual identifiers, so much so that they are seen as virtually devoid of racial information.

Science and history, it turns out, are both interpretive methods of getting at truth. In the cases of Ms. Horton’s painting and Leonardo’s ethnicity, the truth ultimately comes down to which expert you believe. This is not simply a matter of choosing the expert who is more objective or scientific: all such expert judgments are ultimately acts of interpretation, heady mixtures of both “art” and “science.”

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