

“Accidental painting”

David Alfaro Siqueiros (1896–1974) was one of the three founders of the Mexican muralism movement of the 1920s. Most of his works not only dealt with radical social and political themes but also explored radical techniques and materials to express them. In 1936 he led an experimental painting workshop in New York City. Among the participants was 24-year-old Jackson Pollock, whose technique of dripping and pouring paint onto his canvas became a lasting symbol of American abstract expressionism.

The fluid dynamics of Pollock’s approach has been examined by many scientists (see the article by Andrzej Herczyński, Claude Cernuschi, and L. Mahadevan, *PHYSICS TODAY*, June 2011, page 31). Now, too, has Siqueiros’s technique of “accidental painting”: He poured two or more layers of differently colored paints on top of each other on a horizontal canvas; infiltrating each other, the paints formed distinctively textured patterns he described as “the most magical fantasies and forms that the human mind can imagine.”

Roberto Zenit and colleagues at the National Autonomous University of Mexico (UNAM) have reproduced and systematically studied those patterns in the lab; the one shown here, 10 cm × 6.7 cm, formed in about five minutes after a white layer was placed on top of black. The researchers found that the patterns in the thin, viscous layers were quantitatively described by the linearized onset of Rayleigh–Taylor instabilities: If a higher-density paint is above a lower-density paint, the density difference (5% for this image) will drive them to mix with a characteristic length scale. Moreover, the drying paint froze the patterns before they could enter the nonlinear regime. (S. Zetina, F. A. Godínez, R. Zenit, *PLoS One* **10**, e0126135, 2015.)

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