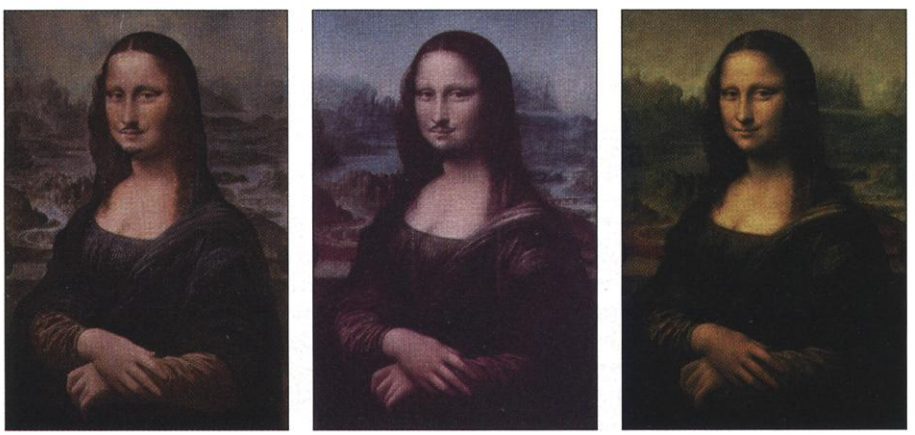
The 1919 and 1930 versions of Marcel Duchamp's series of images of the Mona Lisa with a moustache and beard, entitled *L.H.O.O.Q.*, prove a source of confusion. Potential pest resistance to Bt toxin produced by genetically modified crops is discussed in two letters—as a general topic, and more specifically as it relates to research on the European corn borer: "The critical point about the inheritance of resistance and its implications for resistance management is whether heterozygotes die on transgenic plants." And local experiences in Zimbabwe with the community-based natural resource management (CBNRM) approach, being used in several African nations, are described.

Duchamp's *L.H.O.O.Q.*—From 1919 or 1930?

Marcel Duchamp's intentions lie revealed in an inadvertent, but highly amusing and equally instructive error in the figure of *L.H.O.O.Q.* (a moustached and bearded Mona Lisa) that illustrates Barry Cipra's News Focus article "Duchamp and Poincaré renew an old acquaintance" (26 Nov., p. 1668). Cipra discusses analyses by R. R. Shearer and R. Brandt (*1*) that Duchamp's infamous *L.H.O.O.Q.* of 1919—his supposedly simple "desecration" of festooning an image of the Mona Lisa with a moustache, a beard, and a salacious title (the letters spoken out loud in French sound like the sentence "She has a hot ass")- actually represents Duchamp's more subtle and complex manipulation of creating his own lithographic reproduction by making a composite of his face with Leonardo's *La Gioconda*. (In so doing, we presume, Duchamp wished to expose the foibles of art critics and historians by showing that he could so alter their most famous icon, and they would not notice so long as he distracted them by an outrageous graffito and a plausible Dada claim for why he had done so).



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The Duchamp guises of *Mona Lisa*. *L.H.O.O.Q.*, 1919 (left); *L.H.O.O.Q.*, 1930 (middle); and *Mona Lisa* by Leonardo Da Vinci, 1504 (right).

Duchamp festooned at least 12 other versions of the Mona Lisa throughout his career, all presumably as part of a plan for hinting toward his intentions, and displaying the power of tiny alterations on general themes (if only we could free our mind of expectations, and learn to observe closely). But from comparisons of measurements of the facial features, Shearer and Brandt (*1*) have concluded that all these other mustachiod Monas differ from the original 1919 version in a crucial way. In fact, the other versions all use unaltered reproductions of Leonardo's famous painting. Only Duchamp's 1919 original (and the replica that he produced later for the portable and miniaturized "museum" of his oeuvre the *Bôite-en-Valise*) features the composite of his face and Leonardo's Mona Lisa. In Cipra's article, the top image on page 1669 is described as the 1919 original, but it actually represents Duchamp's first "replication" of 1930, using Leonardo's unaltered painting. Interestingly, Duchamp did not exhibit the original 1919 work in public until 1930, when he posted both versions, side by side, in a gallery, perhaps as a dare or a challenge.

Incidentally, your illustration showing Duchamp's masterpiece the *Large Glass* (p. 1668) appears "flopped" (that is, turned by 180 degrees in printing from a reversed negative), another illustration of errors so easily made with "objective" visual information.

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Bt Toxin: Assessing GM Strategies

The debate over possible deleterious effects on the Monarch butterfly of genetically engineered plants expressing a biological insecticide (Bt toxin) is described in the News Focus article "Risks and benefits: GM crops in the cross hairs" by Dan Ferber (26 Nov., p. 1662). In response, some critical points should be raised.

The issue is broader than whether Bt toxin (from the bacterium *Bacillus thuringiensis*) produced by genetically modified (GM) crops imperils Monarch butterflies. The real issue is that a strategy to constitutively express an insecticidal compound in large-scale crop monocultures (15 million acres of Bt corn was planted in the United States in 1998, 20% of the total acreage of corn), and thus expose a homogeneous subecosystem continuously to the toxin, seems bound to create Bt-toxin–resistant pests because of heavy selection pressure. Sooner or later we will likely see Bt-toxin resistance in those insects that are continuously in contact with these monocultures and feed on them. If or when this occurs, we will have lost the use of a valuable bio-insecticide. For about 30 years Bt toxin has been applied on the spot (by spraying *B. thuringiensis* directly onto plants) and only when there are signs of infestation of the crops by insects. It is the most successful biological insecticide control system we have and would probably retain its potency against pests for many more years to come.

Bt toxin has been found to leak through the root system of Bt-toxin GM maize into the soil, which could possibly affect a myriad of insects in the soil and give rise to horizontal gene transfer, for example, through soil bacteria (*1*). Perhaps we should consider going back to the drawing board and designing better GM strategies with less or none of such drawbacks.

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References

1. D. Saxena, S. Flores, G. Stotzky, *Nature* **402**, 480 (1999).