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**Part I (Strictly optical questions)** | [Part 2 \(More general questions\)](#)

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## **Optics, Skill, and the Fear of Death**

### **Introduction**

I have two kinds of comments to offer: the first is "inside" Hockney's project -- that is, accepting his terms and speaking only about what seems plausible and what looks more problematic. The second is "outside": assessing the book's relation to contemporary art history and the effect it may have on readers.

### **I. Strictly optical questions**

#### **I. The optical procedures posited in Hockney's book are all radically undertested.**

There are three devices posited in Hockney's book: the camera lucida, the camera obscura, and the concave mirror.

First, then, it's relevant that camera lucidas come in a wide variety of shapes and sizes. I have three camera lucidas myself, all of which are designed to be used with microscopes, and two of which are perfectly good for making life drawings. I have tried making drawings with them, and the results are different from one device to the next. The different makes and models need to be tested to see what kinds of drawing they enable.

Second, no one, including myself, knows what it is really like to get inside a camera obscura and make a drawing, a grisaille, or a painting. Philip Steadman tells me he didn't actually make a drawing with the camera obscura in his full-size mockup of Vermeer's room: instead the BBC crew replaced the camera obscura with a photographic camera. This is relevant not only to Hockney's case, but also to more general and metaphoric accounts of camera obscuras such as Jonathan Crary's. The ease with which a camera obscura can be turned into a metaphor of subjectivity (as in Crary's *Techniques of the Observer*), or construed as the source for a given painting (as in Hockney's book), depends on *exactly* what kind of seeing, drawing, and painting it enables. They were cramped and probably stuffy: they might have been almost anything but a metaphor or an efficient machine.

Third, the concave-mirror hypothesis is virtually untested outside of Hockney's apparatus. I have compared several concave make-up mirrors, and found-as Hockney says-that their images are extremely faint, so that they would require very dark boxes and very bright light on the subject. Someone should make a reasonably decent tracing of the chandelier in the *Arnolfini Wedding* in order to see if a blurry, upside-down image really can produce the (allegedly) perfect drawing that Hockney emphasizes. Hockney's own attempt, in the BBC film, is inadequate: it is too rough, and does not constitute plausible evidence that the chandelier was originally traced from such an optical projection.

These three points go to the question of testing. I think that art historians who are interested in this material have to go the extra distance and actually *make* and *use* these devices. It is not enough to show their existence in contemporaneous texts, not least because there are many optical devices mentioned in texts that have no common use. We need to know what it is like to look through the lenses, set up the mirrors, peer into the prisms, and at the same time *draw*.

## **2. What matters in Hockney's demonstrations is the exact qualities of the paintings and drawings that can be assigned to optics.**

Hockney's book seems exact, not least because of its large color plates: but I think when it comes to drawing and painting a significantly more myopic analysis can be useful.

First, in relation to the camera lucida. To me, this is the most convincing part of Hockney's argument. More work could be done to make it more exact. Camera lucida tracings have no "running marks" (that is, back-and-forth attempts to find a contour), and they have paint-by-number-style shadows that do not contact the surrounding outlines. Hockney mentions three or four other traits. A whole classification of such phenomena would be possible. Further, there *are* inaccuracies in drawings supposedly done with the camera lucida-for example in the pattern of the drapery in Mme. Leblanc's portrait, which Hockney says is perfect. The pattern is actually flawed, and in measurable ways; I imagine the "flaws" are moments when Ingres was not using the camera lucida. (In which case the question is: Why not? Why not just then?)

Second, in relation to camera obscuras. Steadman and I had an interesting exchange of emails before the conference, pondering whether or not the image would have been projected upside-down and reversed, or just upside-down. Either Vermeer had an opening into another room, and traced the image upside-down on a translucent surface, or he traced it upside-down and reversed inside the camera obscura itself. That issue involves very practical questions. I think it is more likely that Vermeer did not cut a hole in the wall,

and rig up a translucent sheet so as to be able to draw the projected image from behind. He could have accepted the image reversed right-to-left; perhaps he just asked his models to hold their wine glasses in their right hands. And what, *exactly*, did Vermeer do inside the camera obscura? An outline drawing? A *grisaille*? And what, *exactly*, was the effect of refocusing, if indeed he did refocus at all? We need *finished paintings* made from beginnings in camera obscura drawings or *grisailles*. Until I've seen one, I won't say the explanation is complete. (I agree with Steadman's findings, but I think there is a next step.)

Third, in relation to the concave mirror. I am unconvinced by the concave-mirror hypothesis for five reasons; one is that the refocusing problem is actually severe. Hockney says that Sanchez Cotan chose planar arrangements of objects for his still lifes because they required less refocusing, but even in the little photograph made in a curved mirror that he reproduces in the book, a huge amount of refocusing would be necessary. We own one of Cotan's paintings in the Chicago Art Institute, and I have helped students copy that painting-so I know it intimately, detail by detail. The extremely shallow depth of field provided by even Hockney's excellent modern concave mirror would create much more of a problem than it would solve. The depth of focus is so shallow that it does not make any difference that the arrangement is planar.

A last note on these first, strictly optical, questions. I wonder if anyone will keep going along the lines Hockney has set out. I did not see evidence in the conference that specialists will be working much with Hockney's optical theories, so it's possible that such research will be carried on, if it is at all, by younger scholars, and published in venues such as *Leonardo*. But *if* the work is to be continued, testing (my first point) and detailed reconstructions (second point) are essential. Otherwise the devices will become abstract explanations, accepted but not tested or understood in detail. (That is, they will become, as Rosalind Krauss said, elements of technology: like watches, microwaves, and TV, we won't understand them, but we won't care.)

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