

Artist's Voice

Shadows of a Plane

By Robert Linsley

In September of 2001, I left Vancouver to accept a teaching job at the University of Waterloo. One circumstance of the move has been an unexpected gift to me as an artist, namely the fact that the Perimeter Institute of Theoretical Physics arrived in Waterloo at the same time as I did.

I want to stress right away that I have not had any formal connection with PI; I have never given a talk there or shown my work in the building. I've been to a few lectures and colloquia, but most of my contact with the researchers has been social and informal. Many of them are very interested in art, so it hasn't been hard to get a conversation going. I can talk with them about their work on fundamental questions about the universe, time, space, reality and knowledge, and they do me the honour of assuming that I can understand what they are talking about. I've picked up some books about contemporary science written for the layperson and so have gradually and unsystematically begun to get my bearings in this new context. No one could be more surprised than I am at what I have learned.

Anyone who is skeptical about the relationship between art and science has good reason to be. Nattering about cubism and relativity or parallels between Einstein and Picasso is just that: a lot of words that gather around art but don't really mean anything to it. For an artist there seems to be little practical reason to study science; if there is any legitimate link to be made between cubism and relativity, for example, it is not on the level of ideas. If art is to be vital, it has to be autonomous; it can't accept standards, meanings, intentions or criteria from outside itself. But still, the question of what science could possibly mean to art does rest with the truth that it has to offer. Probably the most creative student of science in recent art was Robert Smithson, and his work demonstrates what I mean.

As is well known, Smithson's master trope was entropy, and entropy is a fact of the physical universe. The famous *Non-Sites* are open metal boxes often filled with industrial by-products such as mine slag or rubble from demolitions. They present entropy in the form of end products of a social process. All of the *Non-Sites* were created in 1968, the year in which the social conflicts of the sixties reached their greatest pitch. In this context it is hard not to view them as sarcastic negations of the American dream. Like any avant-gardist of the 1960s, Smithson wants to give us the real, not a depiction of the same, but for Smithson, unlike many of his colleagues of the period, art does not reduce to social relations or politics but to fundamental natural facts. Society itself reduces to the same facts, and this is how his gesture can be critical of both society and art.

But if the scientific understanding of entropy should change, then so would our perception of the work; it would lose the critical edge given by scientific truth. Smithson recognized the precariousness of an art that founds

itself on a presumed truth—the most unstable of all foundations—and so he also used entropy in a different way, to stand for artistic innovation. To do this he had to use a different concept of entropy, one that defines it as loss of information. Science, in recent years, has adopted information as an important metaphor, although my scientist friends would object to this characterization. They say that the physical world is, in a very real sense, information. Anton Zeilinger, a respected Austrian physicist, has said it clearly in the recent book *What We Believe But Cannot Prove*, a compilation of statements from very bright people on the topic given by the title, edited by John Brockman: “What I believe but cannot prove is that quantum physics requires us to abandon the distinction between information and reality.” This shift from material phenomena to information is the greatest difficulty in Smithson’s work, as it is in contemporary science. My scientist interlocutors don’t have the kind of trouble with it that I do, and that may be an indication of my lack of understanding, but I cannot escape the impression that some sleight of hand has occurred. Nevertheless, if we accept this development for the time being, we can also move our discussion from natural processes back to art.

For Smithson, the history of modernism is a progressive collapse of form. Modernist painting proceeds down the entropy slope, shedding information as it goes, from cubism to Pollock to Helen Frankenthaler to Morris Louis to Smithson. To put it simply, loss of information equals loss of meaning equals innovation. The properties of late modernist painting—blandness, all-over sameness, unity without conflict, large uninflected areas, no literary or other content—are descriptive terms that certainly fit the *Non-Sites*. This would be nothing more than an interesting moment in the art history of the last 50 years were it not that what I have learned at PI suggests that this use of entropy does have a future.

The important discovery is something called the Bekenstein Bound, which says that the amount of information lost inside a black hole is proportional not to the volume it encloses but to its surface area. The conclusion that science has drawn is that what can be known about any space is limited by the properties of a surface. There is then a strong analogy between the surface of modernist painting and the surface of a black hole—they are both boundaries of lost information.

Soon after I arrived at Waterloo I made a surprising discovery in my work. I had been pouring paint on mirrors when I noticed that between two areas of paint I had the very vivid impression of a plane twisted in space. It was the unimpeded transparency of the background mirror that made it seem so vivid and uncanny. I realized that I had hit on a new kind of pictorial illusion, of planes that were utterly transparent and intangible yet very real, and I identified them with the picture plane itself, brought to a new level of perceptibility when it was twisted away from parallel with the picture surface. It became clear that this new kind of illusion could be projected into real space, and I began to make works that did that, but the things I was seeing became more interesting as, thanks to my friends at PI, I began to notice the analogy between black holes and modern painting.

The most recent research holds that black holes eventually decay and release their stored information. I think that we can call the optical effect that I saw on my mirrors one example of the return of the information about space that modernist painting has purged from itself. It doesn't come back in the same form that it had before, but as the illusion of a transparent plane, sometimes flat, sometimes curved. The Bekenstein Bound has led scientists to posit that all knowledge is tied in some way to a surface, but the location of this surface is not easy to specify. Like the kind of surface I'm trying to describe, the boundary of knowledge exists, yet can't be touched, measured, weighed or seen. The willingness of science to accept such strange entities makes it possible to build an analogy between art and science that doesn't depend on a material substratum, but that also is in no danger of vanishing up the navel of art theory. But though the analogy is amusing, I still worry that it has no genuinely artistic necessity. Joyrides through modern science may be fun, but they don't do much for art, which has to maintain its own momentum. However, there have been precedents for what I am talking about in the art of the last 50 years—they just haven't been recognized and discussed in the right way.

For one, Gordon Matta-Clark, in his famous building cuts, projected simple geometric solids such as cones through real space filled with solid matter. The cone itself had no actuality, and was only recognizable by virtue of what remained around the cut. For another, Fred Sandback stretched lengths of coloured yarn across the gallery space to frame out what appeared to be very substantial flat transparent planes. Both artists understood surface as the intrinsic limit of both painting and sculpture and then continued both activities simultaneously by placing illusionistic surfaces into real space. In Latin America there have been other precedents, notably in the work of the Venezuelan artist Gego (Gertrude Goldschmidt), the Brazilian Lygia Pape and the Argentine Raul Lozza. The latter two in particular prove that this kind of work does not necessarily have to be sculpture. What matters is that the illusion projects into real space; it can be produced by two-dimensional or wall work. This is entirely in line with the scientific insight that three-dimensional reality can be described in terms of information located on a plane.

It is possible that a new abstraction will emerge, one that extends pictorial illusion into real space. It may resemble some past moments that we know well, including Op art, some aspects of Minimalism, Brazilian Neo-Concretism and the optical experiments that went on in Venezuela during the 1960s, but will not be reducible to any of these. It must not be a gimmick or a style, but an expansion of the possibilities of abstraction, and that can only mean a new kind of pictorial space. The celebrated flatness of classic modernism may be an acknowledgement of a fundamental feature of any picture, but we can never know that a picture is flat, only that it looks flat; flatness is just as much a matter of illusion as deep pictorial space, so illusion is then the most fundamental property of art, of both painting and sculpture. An art that accepts this insight could open up a new realm of pictorial possibilities. Science might give us a vocabulary to talk about this realm, but we do not need science to provide validation of it. Nevertheless, the optical effects found in the art I have

mentioned are real, objective and verifiable. In this respect they resemble
Smithson's entropy: a truth, however contingent, that can be used.