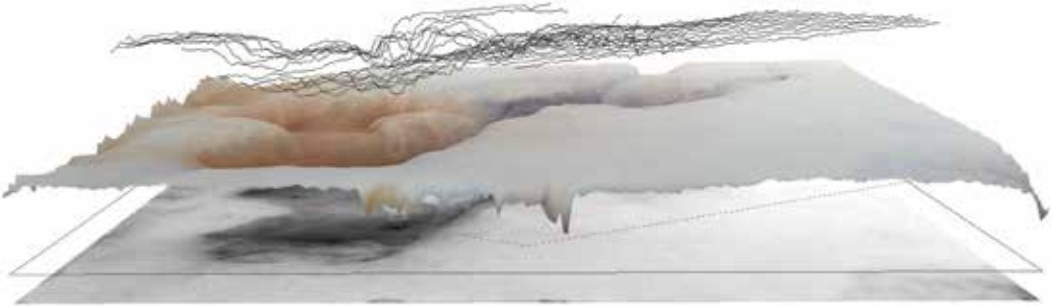


DANIEL LEFCOURT: TERRAFORM



In 1965, a television camera mounted to *Mariner IV*, NASA's spacecraft engineered for a flyby mission to Mars, shot the first close-up images ever captured of another planet (in the recorded history of this solar system, anyway). The probe transmitted the planetary image data back to Earth as number sequences representing the tonal intensity of each pixel, which were then simultaneously recorded on magnetic tape and printed out in digit form at NASA's Jet Propulsion Laboratory in Southern California. The NASA scientists awaiting their first detailed photograph of the red planet became antsy while the data underwent hours of further processing, however, and because they had access to the tonal values unspooling on the paper printout, they conceived of a DIY proxy. Snipping off strips of digits from the printer, the scientists assembled a numerical grid on a large sheet of paper and proceeded to use six warm-hued pastel crayons, from yellow to rusty red to a distinctly ferric ocher, each corresponding to a strictly defined value range, to color in a rough terrain map [figs. 1–2].

Thus, the first close-up representation of Mars seen on Earth was created by human hands—a by-the-numbers, pointillist landscape drawing that only secondarily appeared in photographic form [fig. 6].

The paintings in Daniel Lefcourt's *Terraform* series are landscapes, of a sort; like the first NASA image of the surface of Mars, they are generated through a combination of machine-produced data and the labor of the human hand. Viewed from afar, these congeries of topographic lines and piebald splashes resemble aerial views of fictional terrains—seemingly of deserts, karst mountains, rocky schist, striated tundras. Some of the landscapes look vast, others intimate; some have the distinct line quality of Northern Renaissance engravings; others feature dense, almost Post-Impressionist hatchings; and still others resemble the schematic drawings of Land artists such as Robert Smithson.



Fig. 1: The color/value table used by NASA's *Mariner IV* imaging team. Image: NASA/JPL

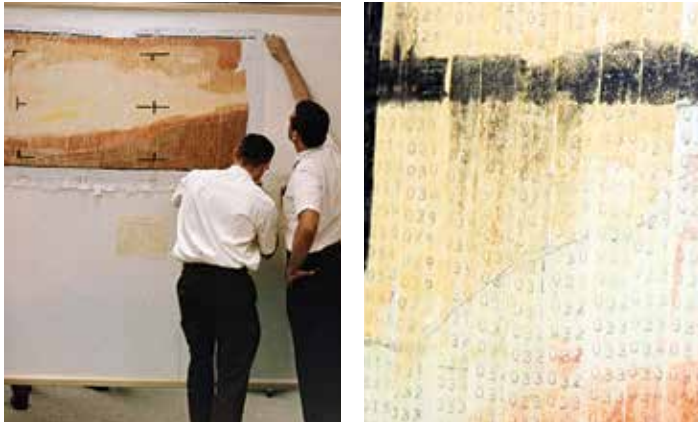


Fig. 2 and detail: NASA's *Mariner IV* imaging team using pastel crayons to render the landscape of Mars based on the numeric grid pinned underneath. Image: NASA/JPL

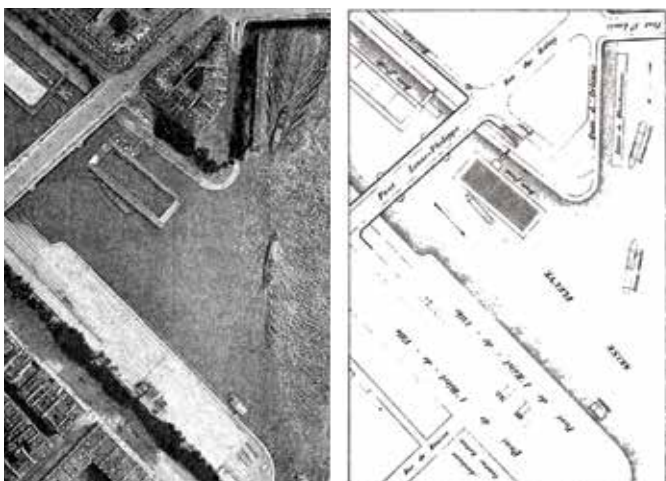


Fig. 3: In his treatise on cartographic technology, Colonel Aimé Laussedat included this comparison of an aerial photograph and the official map of Paris.

In certain compositions, grids of mechanically drawn numbers correlate in value to the areas of aqueous color on which they lie. All are made through chance procedures and algorithmic manipulations: Lefcourt begins by randomly applying washes of pigment to unprimed canvas, and thereafter sets in motion an elaborate series of procedures.

The altered canvas is photographed, and the digital image is manipulated in a 3-D programming environment. The two-dimensional array of data is used to generate a height map via variations in tone—lighter tones and darker tones produce higher or lower numbers, corresponding to greater or lesser distances away from a defined plane—to create something like a 3-D model of the painting thus far. The 3-D model is then translated back to two dimensions using algorithmic vectors programmed by Lefcourt, and the resulting figures are mechanically rendered onto the canvas via computer-controlled paint pen. It's a generative process not unlike those favored by artists of the New Tendencies movement of the early 1960s, who were committed to the concept of "art as research"—a mode of computational artmaking concerned with spatial perception that heralded a broader shift to the information economy. Among those influenced by the group was Hanne Darboven, whose systems-based work has been enormously consequential for Lefcourt's own practice. And like the New Tendencies artists, Lefcourt views his experimentations within an ethic of making: an attempt to produce knowledge through an exploration of pictorial space.

The aerial view—the bird's eye view, the god's eye view—is linked, inextricably, to various kinds of flight: of winged creatures, airplanes, space shuttles, drones. The French portraitist Nadar famously produced the world's first aerial photograph from a hot-air balloon in 1858, after patenting the use of aerial photographs for map-making three years prior; certain rumors have

it that his inaugural aerial photos were commissioned by Colonel Aimé Laussedat, a military cartographer, who was interested in aerial photographs solely as interstitial information for the production of maps to aid in the Franco-Prussian War [fig. 3]. Perhaps one of the central questions arising from making a painting via this set of actions is: What makes an image photographic, cartographic, or diagrammatic? Within each of these modes of representation, what is an image's relationship to reality, its use value, its association with technological histories of surveillance and control? And what of these paintings' relationship to the specific history of the aerial photograph, with its overtones of military domination?

If we now frequently associate the aerial view with the arena of combat, other histories point to its association with expansive vision, equanimity, even peace. It was this latter interpretation that prompted Stewart Brand, legendary exponent of the California counterculture, to demand, in a 1966 letter campaign to NASA officials, United Nations delegates, and Soviet scientists: "Why haven't we seen a photograph of the whole Earth yet?" Brand also distributed pin-back buttons emblazoned with this query, hoping to create a movement to convince astronauts to "turn the cameras backwards"—to show Earth to itself [fig. 4]. He got the idea while spending an afternoon on LSD on a rooftop, where his lofty view reminded him of Buckminster Fuller's assertion that "people perceived the earth as flat and infinite, and that that was the root of all their misbehavior." Thus, the ultimate aerial image, taken from so far above as to show our landscape, our world, in its totality, could underscore our collective vulnerability, and also the relative triviality of our troubles. For what is all human striving and suffering when looked at from a great height? We are mere motes, Earth a shining marble to be cast about in the capricious hand of a universal power.



Fig. 4: The first color image of the whole Earth, November 10, 1967. Image: NASA/JPL

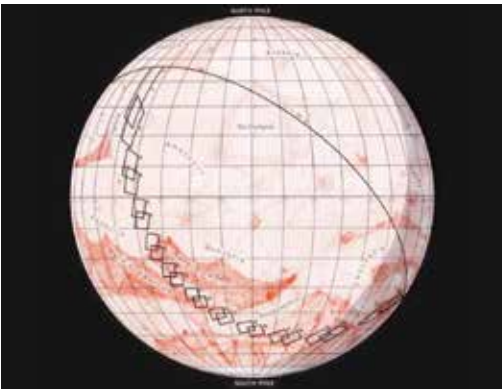


Fig. 5: Image published in the April 1966 issue of *Scientific American* showing the twenty-two regions of Mars photographed by the *Mariner IV* mission. The red markings on the map, based on data prepared by the Army Map Service, shows “surface features reported by astronomers over three centuries,” including representations of the Martian canals.

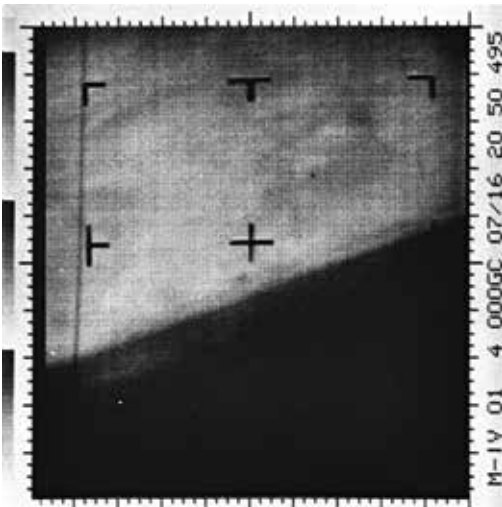


Fig. 6: The first close-up image of Mars transmitted by the *Mariner IV* spacecraft rendered in photographic form.

The full set of twenty-two images of Mars sent back to Earth by *Mariner IV* revealed that the surface of the planet was more heavily cratered than previously known, and definitively laid to rest the belief that Mars was crisscrossed by a series of fluid-bearing canals, as had been erroneously observed by several astronomers from 1877 onward. The appearance of these “canals” was in fact due to inferior telescope lenses visually smearing series of points into ostensible lines, and had been mostly discredited by the early twentieth century. But the notion that there were landscape features on Mars seemingly engineered by intelligent life endured for decades: Martian canals turned up in the fictions of Robert A. Heinlein, C. S. Lewis, and Ray Bradbury, the latter of whom waxed on about the “green liquors” or “lavender wine” that flowed through these conduits. According to some earlier, more “scientific” theories about the Martian canals, the trenches existed in order to siphon melted water from Mars’s polar ice caps down to its dry equatorial regions—in other words, it appeared that advanced beings on the planet were terraforming, or consciously altering Mars’s environment to make it more hospitable to supporting life. The terrain map of Mars used by the *Mariner IV* mission in 1965 to predetermine which planetary areas would be photographed by the spacecraft still included, astonishingly, hand-drawn indications of the long-disparaged Martian canals [fig. 5].

In Lefcourt’s *Terraform* series, the lines and marks laid down mechanically are themselves remnants of optical effects—from the camera lens that provides the digital visual data to be extrapolated from a previously uncharted surface, that of Lefcourt’s canvas. Isn’t every canvas, in the beginning, a world unto itself, an environment in which chance and intention can combine to produce an image of intelligence, allegory, even fantasy? And isn’t every aerial view a picture not only of physical information, but a potential stage on which all manner of life forms might one day pass, whose travails or achievements we, from afar, can only imagine?

Text by Claire Lehmann

Produced on occasion of the exhibition:
Daniel Lefcourt: Terraform
 November 1 – December 22, 2018

MITCHELL-INNES & NASH
 534 WEST 26TH STREET NEW YORK MIANDN.COM