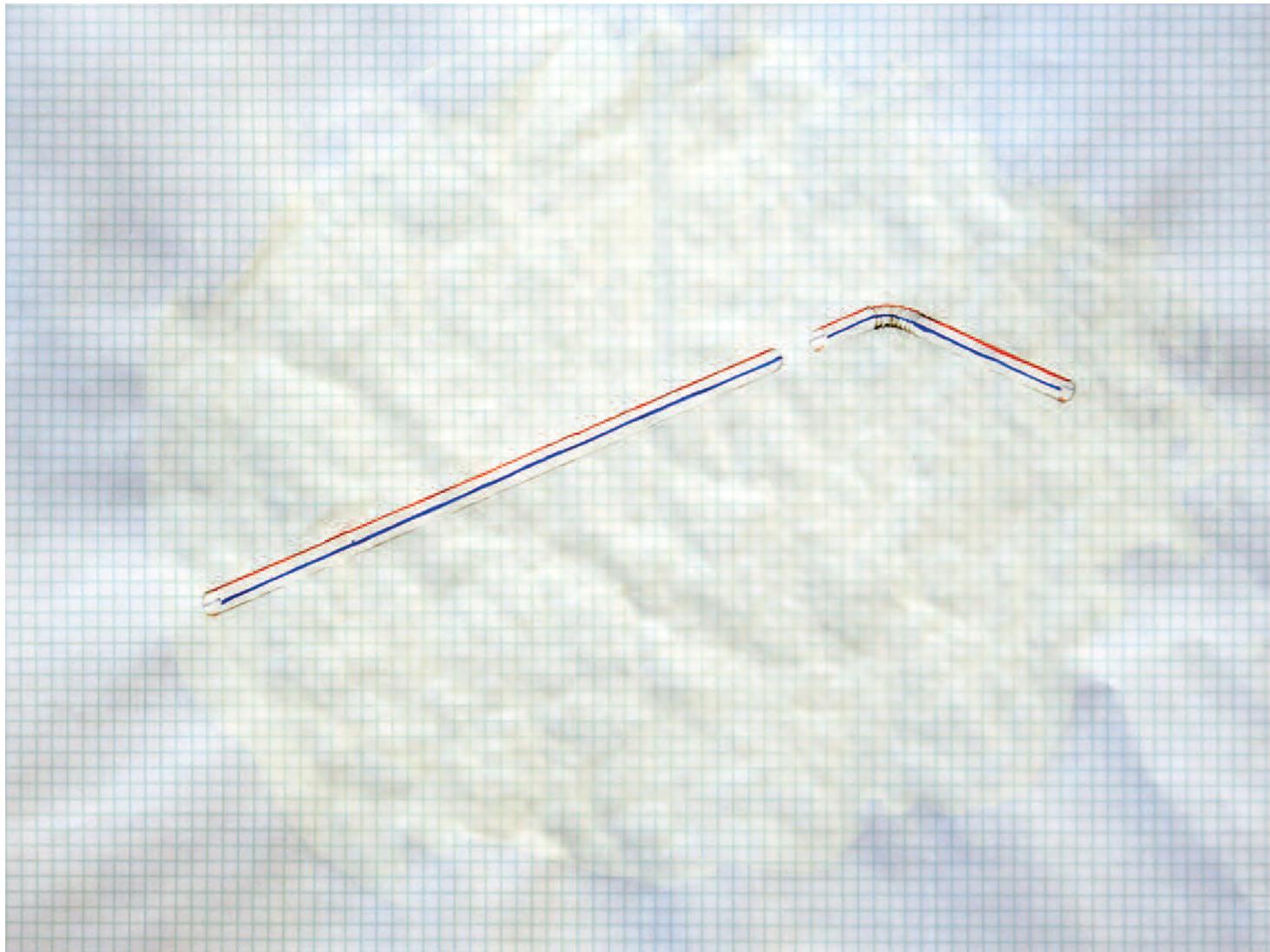


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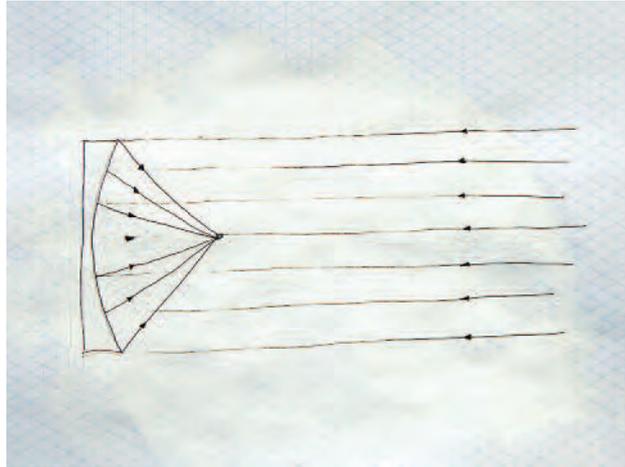
PRINCIPLES OF ASTRONOMICAL TELESCOPY

Gahlberg Gallery
Trevor Gainer



First, let's consider the condition of looking up. The very act of looking through a telescope predicated a conscious decision to see beyond the threshold of human vision, to resolve detail unavailable to the human eye. As with all optical utensils, their function affords a type of perspective that begins with the limitations of the human optical system, and ends with the present limitation of technology. By choosing to participate with a telescopic device, one is no longer burdened by the croakey's neck, a symptom resulting from endless hours of asking for something more. Resolution exists on a scale to be determined by the observer.

Our first concern when considering telescopic investigation is the instrument's ability to collect light rays from distant objects. For all non-terrestrial objects, it shall be assumed that any light rays, reflected or emitted, are doing so at such a distance as to provide sufficient time for the once scattered rays to become orderly and fall into parallel lines. In accordance with this geometry, and in order to gather the rays of light, a straight cylindrical hollow tube is most suitably utilized for this purpose.

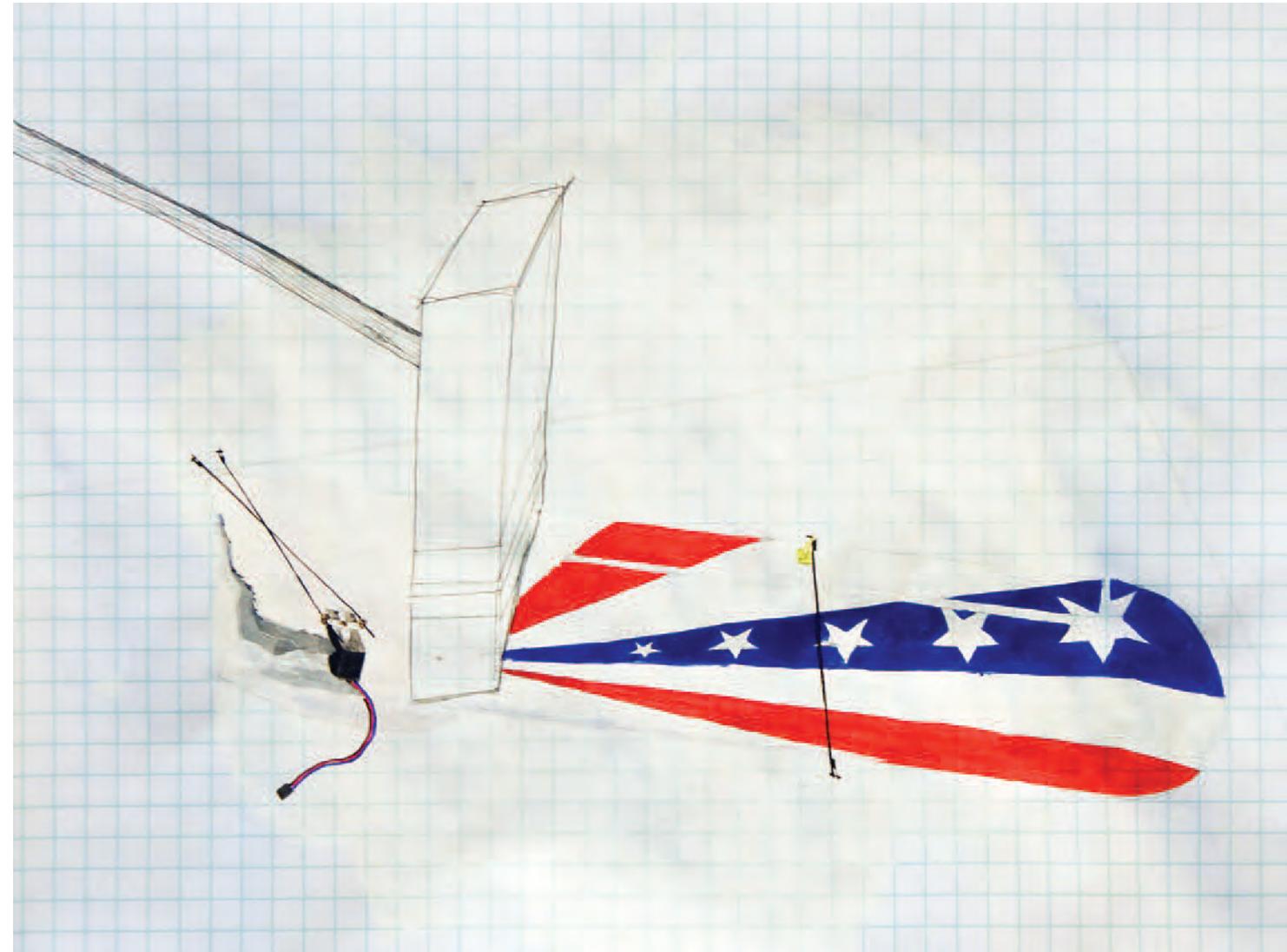


Light is bound by its physical traits, a constant in part to its particular nature. Early speed and wavelength deductions brought forth through mediated observations created the present state of mind. Of more than curious concern to telescopic investigation is the paradoxical condition of the behavior of light as witnessed by Young, and later Farwell. "If it were not for the general waggish temperament of light, we would surely be deprived of this midnight spectacle"¹

" ... the darkness that would be night, absolute absence in the northern and southern spheres for reason of the vast vacuum that inhabits the void between Earth and her distant illuminated bodies, is only to be relieved by such a peculiar trait"²

As far as telescopic investigation is concerned, refraction and reflection are the primary means of mediating a light source in order to fulfill its objective of increased magnification. Therefore there are two principle kinds of telescopes; refractors and reflectors. The difference between the two can be found in what kind of primary the telescope employs. The primary is the main focusing element in the telescope. In the case of a refractor, the primary element is a glass lens (also called the objective lens); in the case of a reflector, the primary is a mirror.

All wave propagation requires a substrate, in its absence there is no wave. Therefore the vacuum of space is silent, and if it were not for the dualistic "temperament" of light, acting as a wave and a particle, the night would be utterly dark and formless.



Endeavours of the polar axis. At the present time, Polaris is 41 minutes of arc from the celestial pole and describes a diurnal circle of that radius about it. Twice in each 24 hours, therefore, at upper and lower culminations, the star is exactly north. And twice daily, at eastern and western elongation, it is at exactly the same altitude as the celestial pole.³

In order that the maximum benefit may be derived from its use, the mounted telescope should harbour an accurately orientated equatorial adjustment. This fixture is often overlooked by the myopic rigour of the optician where lens convexity, radially, and focal planes cohort with oblique effects, and aberrations of utility emerge. For what benefit is a chosen resolution in the absence of spatial order.

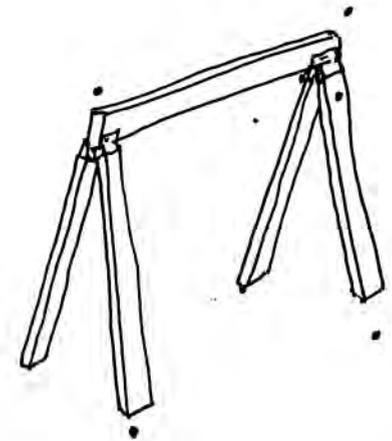
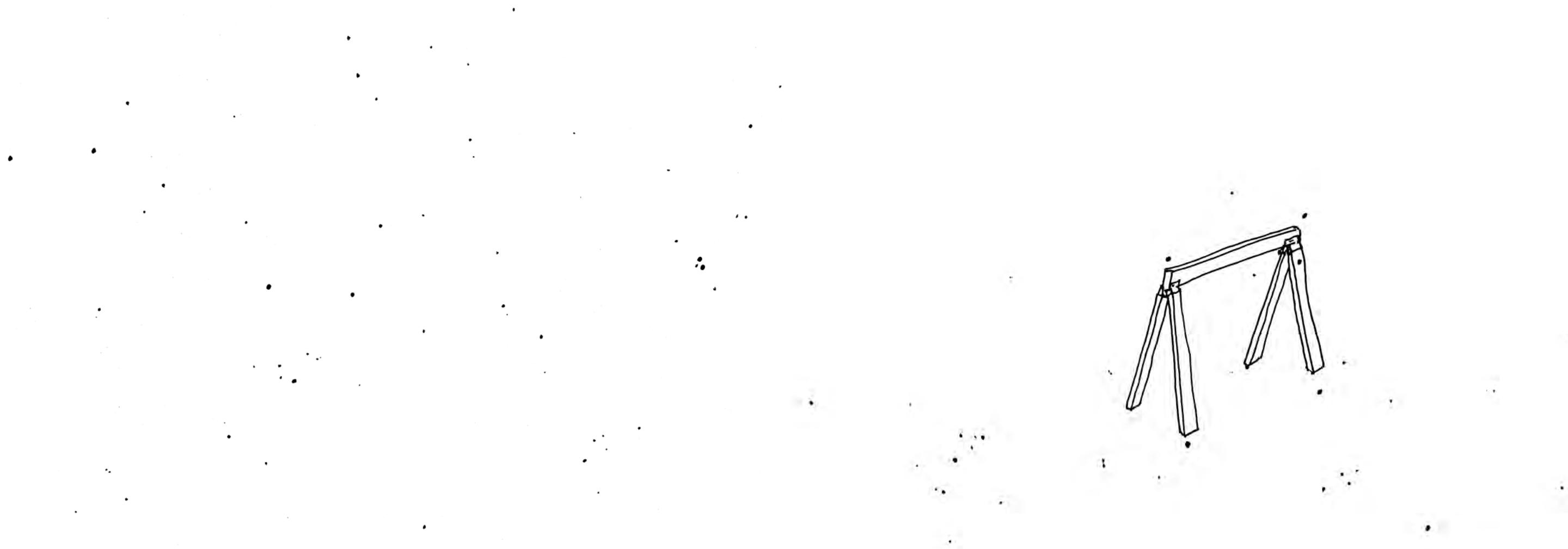
Among other options than permanently affixing the telescope to a base, a three-poled device can be fashioned to accommodate both the equatorial mount and the telescope body. The three-point structure providing transportable stability, relies on a system of internal triangles to evenly distribute the imbalance of the counterweighted telescope. With the buttressing provided by the potential of mobility, the telescopic perspective is un-tethered and therefore complete.

¹Applied Optics and Optical Design, Alexander Eugene Conrady. Dover Publications, Inc., New York, 1957, pg. 55.

²Applied Optics and Optical Design, Alexander Eugene Conrady. Dover Publications, Inc., New York, 1957, pg. 55.

³American Ephemeris and Nautical Almanac. U.S. Government Printing Office, Washington, D.C. 20402, annual. pg. 229.





Necessity Never Made a Good Bargain

Anthony Elms

"We distinguish between two kinds of technology, which we will call small-scale technology and organization-dependent technology. Small-scale technology is technology that can be used by small-scale communities without outside assistance. Organization-dependent technology is technology that depends on large-scale social organization."

Any good American is expected to run an acceptable profit margin on a day-to-day schedule, emotionally, spiritually and professionally. Economic metaphors are rife in our speech. Also, the guidelines by which actions are deemed valuable have trickled down from corporations to all quarters of life. An individual who generates deficits morally depletes society. Those who amass surpluses are only accepted depending on the type of surplus, whether it be romantic, financial, hedonistic, etc. Lack or slack cannot be tolerated. If there is a hole in the system, a solution based on as few redundant steps as possible must correct the scenario. Refrain from too much discussion or consideration, which cuts into the efficiency and results in excessive expenditure of energy and time. Do a thing and have done with it. Waste no resource. Arguing against usefulness is a thankless job.

"We use the term "surrogate activity" to designate an activity that is directed toward an artificial goal that people set up for themselves merely in order to have some goal to work toward, or let us say, merely for the sake of the "fulfillment" that they get from pursuing the goal ... "

Theodore Kaczynski, otherwise known as the Unabomber, in a fight against the encroachment of technology and its effect on the individual's possibilities within social systems, engaged in a 16-year, 16-bomb, terror campaign against random individuals connected to technology, air travel, higher education, advertising and the timber industry. Eventually caught, he was undone by the publishing of his nearly 35,000-word manifesto in the *New York Times* and the *Washington Post*, where a family member recognized his writing style.

" ... Here is a rule of thumb for the identification of surrogate activities. Given a person who devotes much time and energy to the pursuit of goal X, ask yourself this: If he had to devote most of his time and energy to satisfying his biological needs, and if that effort required him to use his physical and mental facilities in a varied and interesting way, would he feel seriously deprived because he did not attain goal X? If the answer is no, then that person's pursuit of a goal X is a surrogate activity ... "

Apparently the Unabomber's lengthy, alternately enthralling, tiresome and loathsome account of his goals and complaints was not enough for the media. The media found other motives for and signs of his abnormality. His solitary lifestyle provided the necessary explanation. News accounts routinely focused on his small cabin in Montana, on such bizarre and antisocial behaviors of Kaczynski's such as baking his own breads, growing his own vegetables, catching his own animals, and choosing to not have a phone and instead communicate by letters — all ruefully pointless and inefficient.

Kaczynski knew the good and bad aspects of technology are inseparable, and he did not hate all technologies. By all accounts he was a tinker, making many of the items he used on a day-to-day basis. He utilized small-scale technologies, while despising what he saw as the encroaching psychological horrors of organization-dependent technologies. He argued that organization-dependent technology was bound to bleed across systems, cause mental illnesses, distract from small-scale technologies, and be vulnerable to repeated failure and corruption. In fact, the Unabomber produced disastrous results by delivering small-scale technology — rigged explosives — to (or through) organization-dependent technologies — the postal service, an airplane, universities.

The people targeted by the Unabomber were not quintessential figures in their fields, by and large they were people working within systems, far removed from the levels of power that provide access to policy directives. Victimized simply because of who they worked for, or what they worked with, not because of what they had actually done or accomplished. After his arrest, the media, unable to portray a criminal as a complex flawed individual and recognize that his antisocial lifestyle did not drive his murderous actions, chose to make all of Kaczynski's life an aberration. Obviously a sociopath, he was cast as a crazy mountain man raging war against modernity through primitive means and wasted efforts. Make no mistake; here the direct path is equal to a proprietary path of moral righteousness. Neither Kaczynski, nor the media who reported on his conditions, despite obvious differences, could imagine a moral system as anything but an effective and efficient machine. The metaphysical divisions in these argumentative logics are appalling.

" ... On the other hand the pursuit of sex and love (for example) is not a surrogate activity, because most people, even if their existence were otherwise satisfactory, would feel deprived if they passed their lives without ever having a relationship with a member of the opposite sex ... "

Let's not recuperate the Unabomber as a martyr for sustainable living, or a valiant, if misdirected, critic of society; nor make the media's crimes to be as heinous as Kaczynski's. They are both alike in one manner, however, their equally flawed inability to step outside of a system. The media's turn away from the obvious if complicated text of the manifesto — a work that explains so much it brings more questions — like the Unabomber's refusal to recognize the individuality of his victims, negated the possibility of an acceptable subject who is not their mirror image. Looking into the darkness, both projected values and needs — relative at best — unto another. Neither the Unabomber nor the media could identify the business end of their broad, blunt interpretive tools.

" ... (But pursuit of an excessive amount of sex, more than one really needs, can be a surrogate activity.)"

Caught within common dialectical reasoning, even an anti-systems pro-individual demagogue like the Unabomber does not escape the reductive conception of a strictly functional basis to life. Reduce necessary function: increase immorality. Keep your hands busy, but not so busy as to engage sleight-of-hand or unmitigated pleasure. It was not enough for Kaczynski to choose his path and have done with it; the Unabomber was compelled to impose his efficiency measures — a perverse sublimation, in

effect — on others. But we are not machines, not even desiring machines, and our morals should not have overtones of Fordist quotas. If we are individuals, there can be no just amounts for whims.

"It is important not to confuse freedom with mere permissiveness." ⁱ

Unfortunately, confuse freedom and permissiveness is exactly what Theodore Kaczynski did in justifying his bombing campaign. Pause now for a small argument in support of those who do not leave well enough alone. There is an old American proverb: If "ifs" and "ands" were pots and pans, there would be no need for tinkers. Well, "ifs" and "ands" are conjunctions connecting as many pots and pans as you desire, allowing you to repair what isn't even broken, should you need. Conjunctions imagine new spaces by constantly adding on. ... *and ... and ... and ...* Engaging the absurdity of necessity and the utility of frustration when the wheel is reinvented with twice as many parts. Make others recognize that if you just needed a wheel, after all, you can get a perfectly fine one. Conjunctions are the duct tape, the rubber bands, the shims, and the scrap wood of language. ... *if ... if ... if ... if ...* Trying to sidetrack the common zero-sum notions of work and living, abandoning this tug of war in favor of a transferal that leaves both sides in excess.

Perhaps, it is something else we seek when we desire to make something again, or to do a task for which there exists a laborsaving modern convenience. Maybe you need a broken wheel, or a reject, a wheel that almost works. Maybe the simple gesture is simply beyond your way of working. Maybe you just want. Small-scale technologies are open to endless variation and adaptability and "surrogate solutions." This is their beauty: setting a trap for yourself. Using the only materials at hand. Having restricted mobility. Attacking the rules. Escaping impotent spectacle. Destabilizing assumptions. Training to be the autodidact. Making your own plans. Finding the limits of your utility. Discovering different methodologies. For an alternative model, consider handing Trevor Gainer the keys to your home. Meanwhile, meditate on these words from a wise man, Buzz Osborne of the Melvins: "Anything worth doing is worth overdoing."

ⁱAll quotations from Theodore Kaczynski, *Industrial Society & Its Future (aka The Unabomber Manifesto)*, online at: http://en.wikisource.org/wiki/Industrial_Society_and_Its_Future

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Gahlberg Gallery

Trevor Gainer

Thursday, Aug. 28 to Saturday, Oct. 4, 2008

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Barbara Wiesen

Director and Curator

Gahlberg Gallery

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Cover, pages 2, 5 and 7: **watercolor on paper**
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