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EDITORS' INTRODUCTION

In assembling this issue of the *IJIS*, we consciously employ process evocative of the *bricoleur*—one who collects seemingly disparate objects, meanings, formulations, then places these together to arrive at new understandings. Such "assembling," however, is neither haphazard nor absent direction. Rather, the *bricolage* itself is a response both to what is and to what can be.

Readers will find a diverse collection of offerings—reflective of the range of topics which Illich himself and his friends (those who thought along with him) considered. Most notable is the collection of writings (19) authored by Illich friend and collaborator, Jean Robert. Organized and introduced by Sajay Samuel and Samar Farage ("A Pedestrian Thinker"), these essays reveal a kind of scholarship that is at once multi-disciplinary (historical, philosophical, sociological, political) and "grounded"—ever mindful of its implications for people and the places in which they dwell. In this latter sense, we learn from Robert even as we learn about Illich.

Learning and thinking with Illich are themes explored in Carl Mitcham's essay, "Teaching with and Thinking After Illich on Tools." As both an account of their teaching collaboration during Illich's visits to Penn State University in the 1990s and an effort to build a philosophical "bridge" joining West and East—something Illich himself endeavored to do—Mitcham's account, his "struggles," provide a much needed and appreciated "thinking after" Illich.

In “Struggling to Live Within the Storm, with Ivan Illich” (Gustavo Esteva) and in “The Elections of 2016: Fears and Hopes of a Brown-skinned Immigrant (Lakshman Yapa), simultaneously commentaries on what has been, what is and on what might be, again we find a “thinking after Illich”—extended reflections on the social transformations, as well as the “reforms”—the turning around of one’s own heart needed in these times of multiple and interwoven crises.

Finally, in Shouse and Bai’s, “Critical Thinking and Convivial Learning in Central China” and Stuchul and Prakash’s, “Joys of Teaching Genius: Walking on Water with Ivan Illich,” themes of learning, of interculturality, and of possibilities beyond social constructions of scarcity bring this issue to a conclusion. We are humbled and delighted to offer this bricolage of possibilities for thinking, for acting, for being.

Dana L. Stuchul and Madhu Suri Prakash

Co-Editors

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A Pedestrian Thinker

Sajay Samuel & Samar Farage

Confronted by the writings of Jean Robert, one experiences, or rather, senses the possibility of the derailment of one's thinking. It is as if, at first, the reader is invited to sample a pleasing smorgasbord of ideas and historical curiosities — the Greek goddess Hestia appears there, Einstein makes a showing here. In one essay, a painting by Turner is proposed as a doorway to understanding the first experience of the railway journey. In another essay, a proportion is set up so that the world of orality is to historical domesticity as literacy is to planned cities. There are some seventeen papers collected here, some published but most unpublished, arranged under broad themes — Architectural Theory, Space, Speed, and Energy— which though distinct are related. Beguiled by these riches on offer, a reader could be forgiven for skimming along the surface of his writings. Yet, when the reader carefully reads these texts, they would pose a challenge, a threat, and an invitation. These essays challenge what we take-for-granted, they threaten our self-understanding, they dare us to think afresh, which is the only kind of intellectual effort worth pursuing. The reader is then impelled to make that exhilarating and perhaps dizzying effort to discover what, if anything, holds these essays together, to uncover the red thread that runs through these writings, to identify the nerve center animating the thought in motion.

We came to know Jean Robert between 1985-1995 during his sojourns at Penn State University. He was then a member of the itinerant group of thinkers and scholars that gathered around Ivan Illich. In one respect, little has changed about Jean in the 25 odd years we have

known him. The shock of white hair atop a ruddy face marked by piercing blue eyes, the lean frame that could unfurl to an imposing height, and above all the inquisitive and fiery intellect devoted to recovering the past as a foreign country. Against the grain of a powerful prejudice to legitimize the present by "retro-projecting" (a term due to Jean) it into the past, Jean insists on tracing the fractures between now and then. This insistence on unearthing the discontinuity of the present is not born of a scholar's conceit. Nor does it reflect the antiquarian's curiosity. Instead, Jean suggests there is no better way to be freed of one's mental prisons than to realize how its bars were formed. Indeed, even the choice of language in which Jean wrote these essays is an element in that cultivated attitude of estrangement. He speaks many languages fluently, but perhaps is most comfortable writing in French or German. Yet, he wrote these pages in English, to both mark the truth of his distance from the historical realities he writes about and to introduce the reader to that frisson of strangeness which, at least on occasion, may require him to sound the texts out loud.

Perhaps this attitude of foreignness to the present was formed when Jean was, as a fresh graduate of the Swiss Federal Institute of Technology (ETH) in the 1960s, involved in designing a bank in Zurich. Or equally when a few years later he was engaged with what then passed for an incipient "urban planning" in Amsterdam. In any case, the post war reconstruction of Europe also meant the definitive erasure of the historically lived materiality of the European city. A man of his acute sensitivities could not have been unaffected by the sprawling modernist dreamscape that was reshaping Europe. But perhaps more poignant must have been the erasure of collective memory, the drying up of the fount of remembrances that once connected the past to the present. The war did not only ruin the physical city; it also obliterated the remembered city.

Some men are lead to the foreignness of the past precisely because they don't feel at home in the present. Is it any wonder that Jean's thoughts on architecture run parallel to and feed off the

works of Richard Sennett (*Flesh and Stone: The Body and City in Western Civilization*), Jane Jacobs (*The Death and Life of Great American Cities*) and, preeminently, Joseph Rywkert (*On Adam's House in Paradis: The Idea of a Town*). The first series of essays in this collection on architectural theory is a remarkable investigation into the coincidence of material culture and modes of perception. But above all, they present a caution to the excesses of an architectural theory that now programs daily life within computer-generated spaces. These essays alert the reader to the profound denigration of man who is coded into a built environment whose first reality is virtual.

In the mid-sixties, working as a draughtsman in an architectural firm in Amsterdam — an Amsterdam suffering the inferiority complex of being pedestrian and desperately wanting to modernize — exposed Jean to the derangement of the modern sensibility. A city full of cars and devoid of pedestrians, a city filled with the roar of buses but emptied of swish of bicycles, is what planners and politicians then wanted. The contrast with the adobe huts and smelly streets of Mexico where he ended up in the early 1970s could not be more stark. And yet, that contrast afforded him a glimpse into the chasm between the present and the past.

What are the assumptions, the cultural warps and wefts, that constitute the foundations of how we think? What are these constructs called *space* and *speed*? Are these unhistorical facts — space as the three-dimensional void to be filled and speed as the ratio of distance to time — or do they belong to a specific historical epoch? The set of essays contrasting the plenitude of place against the void of space is not only a trenchant recovery of a historical truth. It is also a call to wakefulness. The seemingly inexorable metastasis of designed spaces, of planned cityscapes (one need only think of China where some "cities" are built even before people live there) is anchored in the void of space. Spaces, argues Jean, are not habitable as are places. We are now led, as in a dream, into the world of non-places imagined by the planners and architects. In a similar vein, he

uncovers the historicity of speed. “Speed” is the hidden fuel that powers a cityscape built around bullet trains, cars, and information superhighways. Along the vector of “Speed” a pedestrian can be compared to a car driver, a mule to a Maserati. In a world built for speed, what is visible is sundered from what is physically possible. The view from the airplane or from behind the windshield of a speeding car is nothing that can be grasped. As Jean says, “speed breaks the overlapping of the visible world with my motor projects.”

The two essays on energy, while the shortest in total pages, are perhaps the most potent of them all. After all, is not “energy” at the center of our collective predicament in the so-called age of the Anthropocene? Industrial man has reshaped his conditions of existence by the use of fossil fuels. And now, clean energy, electric cars, Rio agreements, and Paris accords are some of the ways that earnest folk attempt to forestall the hour of our destruction. Jean spent a great many hours in the archives of the University of Marburg in Germany to unearth the writings of such forgotten thinkers as Sergei Podolinsky. It is by now well-established that neoclassical economics is but an inadequate copy of 19th century energetics. Yet, the effort to construct economics as a physics of society continues apace. Remarkably, what Jean Robert shows is that mid-19th century physics itself must be understood as a naturalization of economics. That is, the queen of the natural sciences was built on the principle of scarcity (think of the second law of thermodynamics), which is but a figment of economics. But more pertinently, a different understanding of “energy,” as for instance proposed by Podolinsky, could have led to a social geography scaled to man’s capacities. At the scale where man is the measure of all things, the Anthropocene could not have come into being. Nothing less than this radical insight lies at the center of these two essays on energy.

Very recently, the physicist Geoffrey West published a widely acclaimed book titled

Scale.[1] In it he reports some of his work with Dirk Helbing who is now at the very same ETH that Jean graduated from more than 40 years ago! What these scientists mean by scale is the quantitative relationship between city size and other characteristics of a city. For instance, there appears to be stable quantitative relation between the number of gas stations and city size measured in population. Regardless of where in the world these cities are, all of them exhibit a systematic economy of scale: the larger the city, the less it needs per capita of infrastructure — pipes, roads, wires, and gas stations — and the more it produces of so called socioeconomic quantities — number of restaurants, professionals, patents and…crimes!

Such desiccated calculations of power laws are certainly not what Jean means by scale when he writes of Podolinksy's "use of the energy concept as a **scale** to evaluate and measure human labor…" (emphasis in original). Here, scale refers to the objective proportion between the human body and its capacities and the built world. As such, cities built to scale would be those that are able to carry the imprints of its inhabitants, those that are shaped by the daily activities of its inhabitants, those that express the living power of its residents. Such cities would not be enmeshed in the circuits of production, distribution and consumption that now span the earth. Instead, cities scaled to the living power of its citizens would reflect their efforts to grow what they eat, to build where they live, and their search to find the appropriate relation or scale between what they want and what they can do.

For over five hundred years, many have fought the war waged against their subsisting. The expropriation of the commons is perhaps also the best metaphor of the continued stratagem of power to subdue and harness the essentially indeterminate capacities of the human animal. Historians — from E.P Thompson and Eric Wolf to Mike Davis — have recorded the diverse forms that the uprisings of peasants and poets have taken to combat being managed from afar.

[1] Geoffrey West, 2017. *Scale: The Universal Laws of Growth, Innovation and Sustainability in Organisms, Economies, Cities, and Companies*. (London: W&N publishers).

More recently, such struggles against the dispossession of land and labor has prompted a new style of politics: not a politics of office holders, of the articulation of power, of the glorification of laws and rights. Instead, like Jean and the Zapatistas — with whom he thinks and works — these fighters partake of a politics of presence, of attention, of forging in the crucible of mutual presence, a "we" that then constitutes the "you" and "me." That the forgoing could sound mystical to some ears only underlines the extent to which the contemporary mind has been systematically trained to confuse the completely virtual ("friends" on Facebook) for the extremely concrete.

We began this introduction by asking if any principle or idea or notion holds these essays together. We now have a tentative answer: Jean Robert is a pedestrian thinker. In English, the word pedestrian appears first as an adjective (1619) and only then as a noun (1791). The adjective *pedestrian* meant then, what it does now — dull, ordinary, slow. It was first used to describe styles of writing — pedestrian writing was prosaic and ponderous, perhaps in contrast to an "equine" style of writing — which was presumably lighter and more exciting. After all, in the everyday experience of the early 17th century, only horses moved faster than people. The noun — pedestrian — refers to the one who walks or even runs. In either case, the pedestrian is a biped whose feet have not fallen into desuetude. We, English speakers, denigrate pedestrians for being slow and backward, we mock pedestrians for being pedestrian. Our denigration marks the extent to which we have been lifted off our feet. Our mockery reinforces the tar and rail roads that separate the ground from our feet. Thinking with Jean Robert requires nothing less from us than letting the scales fall away from our eyes. To read Jean Robert properly and with propriety demands that we shed the half-millennium long prejudice against being pedestrian.

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Autonomy and Heteronomy in Architecture Theory: Part I

The Potential Conflict Between the Art of Building and the Act of Dwelling
(2000)

Jean Robert

Again and again, architecture theorists like to quote Adolf Loos's parable about "the poor rich man." But, do they really understand the lesson?

As the story goes, a newly enriched man wanted to celebrate his change of status by asking the best architect in town to build him a new house. Everybody worked hard, and after a couple of months, the rich man could move in into his new residence. The architect had thought of everything, for instance, the color of the bedroom's wallpaper was harmonized with that of the man's and his wife's nightgowns, and even with the special slippers that they were supposed to wear in that part of the house.

The rich man was really happy, and, like Emperor Nero in his Golden House, he could have exclaimed: "At last, I feel fully human." Architectural journals widely publicized the mansion and described its owner as a man who had made a work of art out of his life. In fact, there was not a single act of his daily existence that was not art.

This euphoria lasted until the man's birthday. At this occasion, his house was invaded by his new adulators who filled the living room with their gifts, all meant to be contributions to the man's art of living. After they had left, passed midnight, the rich man inspected the gifts and tried to figure out where each of them would fit in his artwork.

Suddenly, the architect emerged from behind a curtain and ordered: "Remove immediately all that trash. You hired me because I am a renowned artist and you wanted me to provide you with a perfect life. Your house with you inside is my major work and I will not let you defile it. Besides, look at your feet: those pink slippers belong to the bedroom, not here in the living room." The rich man realized at once that what his architect called a perfect life was a life to which he had nothing to add. "I am perfect: I am a finished man," the poor rich man moaned.[1]

When he wrote that joke in 1908, Loos wanted to deride the pretentions of the architects who thought of themselves as "general artists of life" ("Gesamtkünstler") while allowing their clients almost no vital decisions over their own vital space.

Yet, in spite of that early warning, more than one modern architect played god with their clients. See for instance what happened to poor Mrs Edith Farnsworth, one of Mies van der Rohe's first American clients. Middle-aged, single and professionally successful (she was a nephrologist at a Chicago hospital), Dr Farnsworth met her future architect at a party in 1945. When she ushered her desire to create a retreat in which to escape the loneliness of weekends in the city, Mies immediately offered her to design it. He would not charge any architect's fees. Mrs Farnsworth had already bought a piece of land in a place called Plano, 60 miles west of Chicago, near the Fox River. A visit to the site with her architect elated both.

> She (in her Memoirs): ."..the effect was tremendous, like a storm, a flood or other act of God."
> He: "I would think that here where everything is so beautiful, and privacy is no issue, it would be a pity to erect an opaque wall between the outside and the inside. So I think we should build the house of steel and glass; in that way, we'll let the outside in."

A project was soon done. It was displayed at the exhibition of Mies's work at the Museum of Modern Art organized by Philip Johnson in 1947. Edith Farnsworth felt proud of the project and

[1] Alice T. Friedman, "Domestic Differences: Edith Farnsworth, Mies van der Rohe, and the Gendered Body," in Christopher Reed, *Not at Home. The Suppression of Domesticity in Modern Art and Architecture*, London: Thames and Hudson, 1996, pp. 179-192.

of her role in it. From that point on and for all the three subsequent years, she felt more a patron than a client.

Construction was started in the summer of 1949 and lasted about one year and a half. When Farnsworth finally moved in, in December 1950, nothing really worked: the roof leaked, the heating reeked, and building costs amounted to twice the original estimates. The patron became an ordinary client again, and she complained. The architect answered by claiming owed fees for architect's and supervisory services, amounting to 20% + 15% of actual building costs. Counterclaims followed claims until the matter was finally settled in 1956. Meanwhile, Farnsworth tried to make a home out of the glass house that one of the world's leading modern architects had built for her. She confessed to a journalist:

> The truth is that in this house with its four walls of glass I feel like a prowling animal, always on the alert. I am always restless. Even in the evening. I feel like a sentinel on guard day and night. I can rarely stretch out and relax....What else? I don't keep a garbage can under my sink. Do you know why? Because you can see the whole "kitchen" from the road on the way in here and the can would spoil the appearance of the whole house. So I hide it in the closet farther down from the sink. Mies talks about "free space": but his space is very fixed. I can't put on a cloth hanger in my house without considering how it affects everything from the outside. Any arrangement of furniture becomes a major problem, because the house is transparent, like an X-ray[2].

The Farnsworth House was to become an emotional *cause célèbre* invested with meanings that went far beyond matters of architectural design[3]. Architectural journals, like *House Beautiful, Architectural Forum, House and Garden*, successively publicized the case until it became the object of a national debate on "Good and Bad Modern Houses." While this publicity eventually contributed to the architect's fame (he could discuss his ideas with famous architectural critics) it was no benefit to his client. Once the case was brought to the attention of the public, crowds of people came on weekends to look at the house "reputed to be the only one of its kind," but in reality

"a one-room, one story structure with flat roof and glass and steel outer walls."[4] In her memoirs, Farnsworth wrote that she found it,

> hard to bear the insolence and boorishness of those who invaded the solitude of my shore and my home... flowers brought in to heal the scars of the building were crushed by those booths beneath the noses pressed against the glass[5].

In spite of all, Edith Farnsworth managed to stay nearly twenty years in the glass house, working to make it a home. But she finally gave up: in the early 1970s, she sold the house and moved to Italy. She had been for too long the object of other people's curiosity, too long a non-conformist. Now, she wanted nothing more than to become invisible: "Now I would prefer to move as the women do in the Old Quarter of Tripoli, muffled in unbleached homespun so that only a hole is left for them to look out of." Best of all, she said, the world outside would not even know where the hole was[6].

Last spring, I visited Mies van der Rohe's Museum of Modern Art at Berlin's Kulturzentrum. Few works of architecture affect me so powerfully. The architectural promenade through the museum lets you with the sensation that every particular space opens to a half mysterious beyond, that you are on transit to the place where the gods play with numbers and proportions (and, as Mies said, reside in the beautifully crafted details). The Cistercian simplicity of the forms, the clever clarity of the composition, the naturalness of the light, the presence of the garden "in the inside" before it becomes physically accessible, all contributes to a feeling of great complexity, a word that here almost means the contrary of complication. A splendid "leçon d'architecture."

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[2] Quoted in Alice T. Friedman, "Domestic Differences...," op. cit., p. 188.
[3] Op. cit., p. 181.
[4] Op. cit. p. 187.
[5] Quoted in op. cit., p. 187.
[6] Op. cit. p. 192.

True, the architecture is so interesting that you almost forget to see the paintings on the walls. As to the sculptures, they seem to engender their own "Eigenspace" and to modify the "metrics" of space perception. Every time I visit a work by Mies van der Rohe, I discover new aspects of it, am elated by the manifestation of always new intentions. His spaces are literally extra-ordinary. They are for very special moments. They put you out of yourself.

Would I like to spend my ordinary life (with its apparent disorder, its need for changing arrangements) in them? No. Yet Mies found patron-clients who have been said to appreciate just that: being put out of themselves, estranged from ordinary circumstances, "defamiliarized." So confirmed Grete Tugenhat, one of Mies first European clients, over the effect her house had on its inhabitants: "A person appears, both to himself and to others, to be more clearly set off from his surrounding." As to Mrs Farnsworth (obviously not a he-person), she experienced this being set off as a repression of her being a woman[7]. Her house was no real home to her.

What are the lessons of Mies van der Rohe's "leçons d'architecture"? Let me try suggest these: A home is what you make of the house that has been made for you. A house is "homeable" when it lets you touch it. A house of untouchable perfection is hardly homeable.

How do contemporary architecture theorists understand this lesson of a lesson?

[7] Op. cit. p. 190.

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Autonomy and Heteronomy in Architecture Theory: Part II

Home and House
(2000)

Jean Robert

I found a striking formulation of the synergy of autonomy and heteronomy in architecture in a paper by Prof. Joseph Rykwert: "House and Home" which I will comment on shortly. In this paper, Rykwert writes:

> Home is where one starts from. That much is obvious. A home is not the same as a house, which is why we need two different terms. Does a home need to be anything built at all, any fabric? I think not. Home could just be a hearth, a fire or the bare ground by any human lair. That may well be the one thing that nobody can quite do without: a fireplace, some focus. After all, if a home had no focus, you could not start from it[1].

House refers to an inert object. On the contrary, home refers to a situation, an activity: it is always in the process of making.

Home does not require any building, even if a house always does. You can make a home anywhere: a little tinder, even some waste paper, a few matches, or a cigarette lighter is all you need.[...]…. But a house must be brick and timber, mortar and trowels, carpentry and masonry, foundation and topping off: and it requires taking thought.[2]

But in Mexico, a home can consist of four poles, some beams and a roof of palm leaves or of tar paper. Or is a shack not a home? House is something that is done for you, home is what you do, by yourself and for yourself, sometimes thanks to, sometimes in spite of the architect.

The Latin word whose meaning is closest to home is *domus*, from which domestic and

[1]Joseph Rykwert, "House and Home," in Ludolf Kuchenbuch and Uta Kleine, eds., *Anthology for Jean Robert, Raum und Geschichte*, Kurseinheit 4, Hagen: Fernuniversität, 1998, pp. 1-11.

domesticity stem. *Domus* never means the physical structure, though it is often translated as house. *Domus* is a notion related to the family, and connotes homeliness, and even "peace": its meaning is social and moral, never material. Home requires stability, spatial and social "recognizableness," that is orientation, and possession, which demands a relation to the soil (to a piece of land, but "land" is an imperial concept) and so a protection against extradition. For the Romans, a man's threshold was so sacred that even the emperor could not trespass it. Another Latin word is *mansio*, from *maneo*, I remain or abide, from which the early Middle Ages derived the word *mansus* (OG *huoba*, modern German *Hufe*, words akin to Greek *kepos*, a garden), which connotes a dwelling place by the soil needed to establish it. In the IXth century, the *mansus's* material complement was called *casa*, a "hut" and was often precarious, dispersed and mobile. The Greek even has a verb for the establishment of such a two-faced dwelling place: *oikodomeo*, I break a piece of land open, for cultivation or building, I found, I edify. That verb combines the root **dom*, meaning to build (or perhaps, only perhaps, to tame?)[3] and *oikos*, the Greek word more akin to home. When the Roman wanted to specify that he meant the physical house, he would say *aedes*, a thing built (hence: *aedifico*, a verb built by learned Romans to translate *oikodomeo*).

The architects' business is to build houses, not to establish homes. It is "with structure, with physical fabric, with limit, with context."[4] Perhaps one of the most doubtful effects of the modern movement is the demise of the distinction between house and home. But, as we shall see later, the

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[2] Rykwert, op. cit. pp. 3, 4.

[3] Émile Benveniste, *Le Vocabulaire des Institutions Indo-Européennes*, Paris: Les Éditions de Minuit, 1969, vol. I, p. 307 (cf. also vol. II, p.90 on *demos*) insists that Lat. *domus*, Gr. *domos* (the physical house as opposed to *oikos*), and Lat. *domare* as well as Gr. *damao* (Engl. tame) derive from three distinct and irreductible, though homophonic roots: 1. **doma*, to exert a "domesticating" violence, to "tame", to establish a *chora*" or cleaned field (hence Gr. *chorites*, country-man); 2. **dem*, to build (hence English *timber*, Greek *domos*); 3. **dem-*, house, family, group sharing a territory (hence Greek *demos*). In spite of their striking homophony, Lat. *domus* (from **dem-*) and Gr. *domos* (from **dem*) do not have at all the same origin nor do they have the same meaning, since *domus* is the home and *domos* the house. As to *oikodomeo*, though it meant to build in classical times, its original meaning can hardly have been the equivalent of *aedifico*, for such meaning would have been rendered by a (non-attested) "*domodomeo.*" In spite of all, **doma* and **dem* might have a common origin. In this context, remember that in German, *bauen* means both to build and to cultivate, two activities that required a founding act.

[4] Joseph Rykwert, "House and Home", op. cit. p. 9.

"postmodern" reaction is as questionable.

> Obsessed with the detailed working of the home where every movement was planned, where a bed would never stand under a window and baby-carriages could be stored under the stairs, they forgot that their business was with house and not with home[5].

This can be seen as a consequence of the reduction of the complexities of the web of *personal* interactions called home to catalogues of "functions" meeting standard "needs." In this respect, Rykwert recalls the lesson that the Austrian writer Karl Kraus tried to instill in architects and planners:

> ... he said that he expected the city to provide him with water, gas, electricity and working roads: *die Gemütlichkeit besorge ich* - I will supply the homeliness, he said[6].

In his article, Rykwert also clarifies an issue blurred by a fashionable interpretation of vernacular building as "architecture without architects" (he is an adversary of the (ab)use of the expression "vernacular architecture"):

> Without wishing to digress, I would like to remind you of a very popular slim book, full of beautiful images, published some years ago, which was called *Architecture Without Architects*, as if such a thing were not a contradiction in terms. It suggested that the shelters of monkeys and the dams of beavers were analogous to those of "untutored builders in space and time,"[7] nomads, peasants and suchlike, whose houses had evolved from those of the animals without any need for deliberation - like the animals, they worked by instinct.[...]
>
> Yet, I suspect that if one were to investigate any of the human dwellings illustrated in Rudofsky's book, however "instinctual" they may appear, one would soon find that many were produced by specialist craftsmen who could be very articulate indeed about what they were doing. Their notions may have been framed in terms of legends - yet their accounts of them would often contain the word "because."[8]

Rykwert further stresses that there is no building that does not involve decision and choice,

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[5] Op. cit., p. 8.
[6] Op. cit. p. 8.
[7] Bernard Rudofsky, *Architecture Without Architects. A Short Introduction to Non-Pedigreed Architecture*, Garden City, NY: Doubleday, 1964, p. 16.
[8] Rykwert, op. cit., pp. 4, 5.

concertation, in short a project, even if it is justified and glossed "in mythical terms, and given some specific legendary weight."[9] Deliberating, making decisions and choices, and glossing, in short, "taking thought about building" is one of the several useful definitions of architecture—which is where I come in."[10] In that peculiar respect, there is no specificity of "vernacular architecture" that would oppose it definitionally to "pedigreed architecture."

Rykwert's essay ends with an indictment of an architecture that "packages a life-style" without thinking of the context because it has lost the sense of its own limits:

> Look at the real-estate advertising in New York papers with this in mind. If a home is offered you on the sixty-ninth floor of a pencil-sharp skyscraper, know for sure that the sidewalks and indeed the surroundings of the building will be the purlieus (if not the homes) of the dispossessed, however many the varieties of the marbles which line its walls, or photo-eyes blink from its cornices[11].

He concludes:

> I must therefore plead with my contemporaries to reassess the conjunction between house and home.[12]

How do other architecture theorists celebrate the conjunction of home and house or ratify their modern and postmodern disjunction?

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[9] Op. cit., p. 5.
[10] Op. cit., p. 4.
[11] Op. cit., p. 9.
[12] Op. cit., pp. 8, 9.

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Autonomy and Heteronomy in Architecture Theory: Part III

The Disjunction of House and Home in Contemporary Architectural Theories (2001)

Jean Robert

Instead of an assessment of the conjunction of house and home, contemporary architecture theorists have raised what they call *the question of domesticity*. As will become obvious in the following pages, this questions in tangential to that which interests us: it cannot be said that it does not touch it, but it does not settle on it. It rather uses it as an entry to some virtual spaces.

Let's thus examine how contemporary architecture theories *touch* the question of the conjunction between house and home. Rather than conjunction, they predicate disjunction, rather than reassessment, dismissal. For example, Marco Diani and Catherine Ingraham write:

> The insatiable and complex demand for physical comfort—for the "axis," which is one of the paths "home"—in all architectural buildings (even the most austere) stands directly against experiments in building, or even thinking, the grotesque, the pluri-dimensional, the ideological, the sublime[1].

It is true that architecture is taking thought about the building of houses, not about homes. But should not a house be the shell of a possible home? Many architecture theorists write as if they were thinking that it shouldn't. But how do they, personally, live that disjunction?

Besides, I don't think that the words physical comfort here mean exclusively a state of

[1]... as Mrs Farnsworth could indeed testify, see Marco Diani and Catherine Ingraham, "Introduction," in Marco Diani and Catherine Ingraham, *Restructuring Architecture Theory*, Evanston, ILL: Northwestern University Press, p. 1.

satisfaction or homeostasis with the surrounding world. It should rather be understood in the verbal sense of comforting. I understand the search for comfort as a longing for an "axis," for what Rykwert calls "focus": the axis that, through the hearth, relates the underworld to the upperworld, and that many cultures symbolize by the tree or the column of smoke that brings the flavor of human libations—fruits of the soil and the underworld—to the gods. Yet, we hear that this longing stands against experimenting and even thinking in architecture. Is a house the abode of *autonomous* dwelling acts by the dwellers themselves (in which case it becomes a home), or is it the laboratory for the architect's experiments with "the grotesque, the multidimensional, the ideological, the sublime," and hence a space whose inhabitants are submitted to the other's law (*heteronomy*)? Most of the architectural theorists reviewed here favor the latter.

In other words, house and home are disjoined and, as I will try to show, each leads a separate existence: the building, or for this effect, the house as an object of experimentation, and the home as the repressed that inevitably resurfaces, as for instance in the search for communitary security and orientation of the Latin American squatters,[2] or, quite differently, in the staging of a dismantled "domesticity" by some artists and architects.[3]

Yet, if architecture theory refuses to settle on the conjunction of house and home, where does it want to head? The answer might be: to some virtual space, beyond all past literary imagination. But again: is such space *inhabitable*?

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[2] See for instance: Lisa R. Peattie, *View from the Barrio*, Ann Arbor, MI: The University of Michigan Press, 1968; John Turner, "Housing priorities, settlements patterns, and urban settlements in urbanizing countries" in the *Journal of the American Institute of Planners*, November 1968; William Mangin, *Peasants in Cities. Readings in the Anthropology of Urbanization*, Boston, Houghton Miffin Company, 1970. More examples in Jean Robert, *(En)trust People*, Mexico: Housing International Coalition, 1996, the bibliography, pp. 127-136.

[3] For a statement of "postmodern," dismanteled and disembodied domesticity, see Christine Poggi, "Victor Acconci's Bad Dreams of Domesticity," in Christopher Reed, ed., *Not at Home: The Suppression of Domesticity in Modern Art and Literature*, London: Thames and Hudson, 1996, op. cit., pp. 237-252. For documentation about the return of domesticity in some contemporary architecture (often by female or feminist architects, see the end of the article), Sharon Haar and Christopher Reed, "Coming Home, A Postscript on Postmodernism," in Christopher Reed, *Not at Home*, op. cit., pp. 253-273.

The Influence of Literary Theories on Architectural Theories

One of the striking things about architecture theory today is how badly it is influenced by literary theories and philosophy. These influences cannot be explained away as mere consequences of the disenchantment—starting in the sixties—with classical modernism. They are new imports, from domains other than the ones in which modern architecture had taken roots. In the heroic period of modernism, in the time of Bauhaus and de Stijl, architecture would import a formal language from the visual arts, mainly painting and sculpture, as well as forge some legitimizing slogans out of scientific metaphors (think of the theories of urbanism since Ildefonso Cerdà,[4] with their tissues, their arteries, nodes and nervous centers), but it had little use for literature or philosophy. Architects then had their own literary and philosophical stamina, think of Le Corbusier.

Or perhaps would it be more appropriate to say that both contemporary literature and contemporary architecture share an interest in semiology? The following quote from Marco Diani and Catherine Ingraham seems to confirm it:

> The implication of the refiguration of representation, which prepares the way for the presence of the past in postmodern architecture, can be seen by noting central insights that emerge in contemporary semiology. Signs, we have learned, do not represent objects or events that once were present. To the contrary, the sign is always the sign of a sign. Forever entangled in the play of signification, we never have access to things themselves and thus can never penetrate naked reality. What we often naively take to be objectivity is actually nothing other than a sign or set of signs whose signature has been forgotten. Inasmuch as we deal only with signs and never with "reality" as such, our knowledge is inescapably fictive. Unlike (almost all) his predecessors, the postmodernist not only recognizes but gaily embraces the fictions among which he is destined to err.[5]

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[4] Ildefonso Cerdà, *Teoría de La Urbanización*, Madrid 1867. Facsimile: Barcelona 1967. Abr. Fr. edition: *La Théorie Genérale de L'urbanisation*, presented and adapted by A. Lopez de Abersaturi, Paris, 1979.
Comments on Cerdà's work: Françoise Choay, *La Règle et Le Modèle : Sur La Théorie de L'architecture et de L'urbanisme*, Paris, 1980; Joseph Rykwert, "House und Home," in Ludolf Kuchenbuch and Uta Kleine, *Anthology for Jean Robert, Raum und Geschichte*, Hagen: FernUniversität, 1998, Kurseinheit IV, pp. 1 - 11;
Jean Robert, *Raum und Geschichte*, Kurseinheit 1, Hagen: FernUniversität, 1998, pp. 31-34.

[5] Mark C. Taylor, "Deadlines Approaching Anarchitecture," in Marco Diani and Catherine Ingraham, *Restructuring Architectural Theory*, op. cit. p. 20.

But architecture theory no longer expects from linguistics or semiology the "explanation" of architectural forms.

> [The Opposition years have] given way with a noticeable loss of faith in the capacity of the linguistic and philosophical model to explain architecture, and thus a loss of faith in the transparency promised by the "age of textuality." Perhaps this is because architecture cannot even be thought apart from "form" and formalisms.[6]

The architectural movement which calls itself "postmodern" vindicates the power to add signs to a world of signs, in absence of a beyond called reality.

Perhaps the literary concept that became most popular among avant-gardist architects is defamiliarization. Here is how Bernard Tschumi, a "deconstructivist architect," justifies the cooption of that literary idea by architectural theory:

> In recent years, small pockets of resistance began to form as architects in various parts of the world - England, Austria, the United states, Japan (for the most part, in advanced postindustrial countries) - started to take advantage of [the current] situation of fragmentation and superficiality and to turn it against itself. If the prevalent ideology was one of familiarity - familiarity with known images, derived from 1920s modernism or eighteenth-century classicism - maybe one's role was to defamiliarize. If the new, mediated world echoed and reinforced our dismantled reality, maybe, just maybe, one should take advantage of such dismantling, celebrate fragmentation by celebrating the culture of difference, by accelerating and intensifying the loss of certainty, of center, of history. [...] In architecture in particular, the notion of defamiliarization was a clear tool. If the design of windows only reflects the superficiality of the skin's decoration, we might very well start to look for a way to do without windows. If the design of pillars reflects the conventionality of supporting frames, maybe we might get rid of pillars altogether[7].

The term *defamiliarization* is a translation of *ostran(n)enie*, a Russian word meaning "making strange," "unfamiliar" popularized by the Russian Formalists, a school of literary criticism that began in two groups, *Opoyaz* (an acronym) founded in 1916 at St. Petersburg and led by Victor Shklovsky and the Moscow Linguistic Circle founded in 1915. Both groups were influenced by the

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[6] Marco Diani and Catherine Ingraham, "Introduction," in *Restructuring Architectural Theory*, op. cit., p.1.

linguistic theories of Ferdinand de Saussure. They stressed the autonomy of the text and, more important for our purpose, the discontinuity between literary and other uses of language. They placed an "emphasis on the medium" and analyzed the way in which literature is able to alter or "make strange" common language. They insisted on the predominance of form and technique over content. Proscribed in 1929 in the USSR, the Formalists had nonetheless a great influence in the West, notably through the work of linguist Roman Jakobson. The following example of the use of defamiliarization by an American writer will suffice to illustrate the point:

> The mirror reflected what seemed at first a priest. A white robe, which fell from his thick shoulders in crescent folds, circumscribed with diminishing accuracy the ponderous art of his great head, and gave to his obesity the suggestion of vulnerability rather than strength as he sat face to face with the fact of himself. This effect was intensified by the resignation with which he suffered what might have been his acolyte, also dressed in white, either to anoint his flourishing, grey-brown hair as if in preparation for some imminent solemnity or to give it a tonsure[8].

What you finally get, is the familiar scene of a man in a hairdresser's chair. Similarly, what you get at the end in "defamiliarizing architecture," is some public building... or a house. Yet, can I transpose the brief definition of literary Formalism quoted above to architecture and speak of "architectural formalism"? This formalism would, I paraphrase, stress the autonomy of architectural space and, more important, <u>the discontinuity between architecture and common uses of space</u>. It would place an 'emphasis on the medium' and analyze the way in which architecture is able to alter or 'make strange' common spatial experience and insist on the predominance of form and technique over content." Is this perhaps the architectural theory of the age of show[9]?

Literature presupposes literacy, that is the fact that a great number of society's members are

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[7] Bernard Tschumi, *Architecture and Disjunction*, Cambridge, MA: The MIT Press, 1997, pp. 237, 238.
[8] Frederick Buechner, *A Long Day's Dying*, 1949, quoted in R.H. Stacy, *Defamiliarization in Language and Literature,* Syracuse: Syracuse University Press, 1977, p. 4.
[9] Ivan Illich, "Guarding the eye in the age of show" (work in progress), in Barbara Duden, Lee Hoinacki, Ivan Illich and Sebastian

fluent in the art of reading.[10] Literacy, and I will say later why the term should be understood as alphabetic literacy, has given us what George Steiner called "the bookish mentality" which in turn gave literature the importance it has in our society.[11]

It is often when an epoch comes to an end that it most obsessively displays the technical prowesses that made it possible, as in a sort of recapitulation. Think of the last generations of gothic builders, of their filigreed towers, their quasi flat vaults and their inversed arches. Or think of the clippers, the fastest commercial sailing ships ever designed, that for some decades could compete with the new steamers.

Do we not assist, in literature, to a recapitulatory display of the technical elements of the trade, the letters themselves and their permutative and manipulative possibilities? Raymond Queneau, for instance, published ten sonnets under the title *Cent mille milliards de poèmes* (1961) and invited the reader to rearrange them in the hundred-thousand-billion ways indicated by the title. With *La Disparition* (1969), Georges Perec was able to write a whole novel without using the letter e. Of what cultural changes these games[12] are the symptom is not quite clear. The omnipresence of screens, as the new, now immaterial, support of the text, the "hypertext," but on the other hand, the resiliency of the book have still to be interpreted in a broad historic and cultural perspective. I share with Ivan Illich the hope that, if the ethology of reading is changing, this change will induce some to cultivate new forms of communitary reading, around old and new "houses of the book"

Trapp, *Zur Geschichte des Blickens*, pp. 97 - 115, available at Kreftingstrasse 16, 28203, Bremen or at www.pudel.uni-bremen.de

[10] Eric Havelock, *The Literate Revolution in Greece and Its Cultural Consequences*, Princeton NJ: Princeton University Press, 1975.

[11] George Steiner, *After Babel. Aspects of Language and of Translation*. Oxford: Oxford University Press, 1975.

[12] The possibility of such games exists since the dawn of the alphabet, and paleography attests that, since the beginning, such games have been marginally played. Erick Havelock, *The Literate Revolution in Greece and Its Cultural Consequences*, op. cit. p. 191, comments on "the habit of manipulating the arrangement of letters". However, such manipulations had decorative rather than "semiotic" purposes. They were limited by the predominance of speech over writs in the pre-classical epoch: Havelock also remarks that in *Frogs* Aristophanes's Euripides represents himself as a poet whose "fluency of diction" is "an infusion stained out of papyri" which may mean that his poetry draws upon expressions favored by the idioms of documental speech, contrary to Aeschylus, whose spoken verse can outweigh not only the corporeal presence of Euripides but also his "papyri." Aristophanes juxtaposes oral and literate styles to the advantage of the former (p. 286, 7).

(similarly, I grope for a rebirth of communitary home- and place-making).

Do we not assist to a comparable "recapitulation" in architecture? I am not only alluding to the "ironic" conjuring up of the past, which is overtly the construction of a fictitious "pastness," but also to the dismembering of the narrative sequences of the *promenade architecturale*, to the influence of cinematographic and choreographic techniques. Meaning in architecture, as in choreography, happens through the body, through what bodily motions conceal and reveal, through the "narratives" that the sequences of these motions construct and deconstruct. In Summerspace (1958), choreographer Merce Cunningham ordered such sequences by chance procedures. In Biped, presented in New York in the spring of 1999, the sequences and the phrases were arranged at random by a computer.[13] "Our knowledge that the scene is not going to develop forces us to view it more sharply. Because A is not flowing into B, we actually see A."[14] A becomes a unique "event."

Architects who use comparable serial manipulations acknowledge the influence of choreography and cinematography, as well as of writers who, like Queneau and Perec, expected singularity from permutations and rearrangements of the elements of (written) language.

What we have to ask however is, how far we can draw the analogies between architecture and literature. Again, you could object that one dwells in buildings but not in the printed pages, but this is questionable: the bookish man literally carves a home in books—though he does not quite inhabit them bodily. The difference is more subtle and profound. It has to do, more than with writing (and more than with building), with reading (and with making a "home," with and without quotes). Modern reading—silent reading[15] --is generally a solitary pleasure. Establishing a home is

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[13] David Vaughan, *Merce Cunningham: Fifty Years*, quoted in Joan Acocella, "The Gambler. Merce Cunningham, at eighty, continues to roll the dice," in *The New Yorker*, New York, August 9, 1999, p. 84-87.
[14] Joan Acocella, op. cit., p. 86.

[15] Ivan Illich, *In the Vineyard of the Text. A Commentary to Hugh's Didascalicon*, Chicago: The University of Chicago Press, 1993 explores the changes in the technology of writing and the ethology of reading during Hugh of St Victor's life time, in the XIIth

not.

> [H]uman dwellings are always more or less communal. However shabby and casual it may look, a rustic dwelling depends on being part of an articulated (I am even tempted to say an organic) layout; often a layout which was understood as a body with head and members into which the homesteads were "integrated." I would argue further - that a house, whether it is rural or urban, can only be a true home in such neighborly circumstances. While the lonely hearth will not quite make a home therefore, yet the erection of the home-house into a castle which defies its neighbors, and may be seen as quite separate from the public realm, makes it much less of a home. Or, in other words - an individual can have many houses, but only a person can make a home.[16]

Perhaps, the primordial reality is relational (the "thou," the "community") and if so, the alleged demise of "reality" is but the shadow of a neglect for "relationality"? If it is so, to make a home is a neighborly activity that engenders a reality.

Illich tells us that reading has passed from being a communitary, to being a solitary activity. This is the true crux of the comparison between literature and architecture, between modern, silent reading and home-negating housing. The reader whom Queneau or Perec invites to manipulate letters and words, multiply interpretations and face polysemies is the solitary, silent reader. Similarly, the "architecture of disjunction" appears to me as a choreography for the "lonely crowd."[17]

The question that concludes this essay is of course: can we historcize the "question of domesticity" and its negation? In other words: what remains of the "disjunction of home and house," if we consider it in the mirror of the past?

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century. As a consequence of these changes, silent, solitary reading superseded loud, public reading. For a funny account of this change and its consequences, enjoy Jorge Luis Borges, "Del culto de los libros," in Prosa completa, Barcelona: Bruguera, 1985, vol.3., pp.119-123.

[16] Joseph Rykwert, "House and home," op. cit. p. 5, 6.

[17] David Riesman and Nathan Glazer, eds, *The Lonely Crowd: A Study of the Changing American Character*, New Haven, Conn.: Yale University Press, 1973.

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Autonomy and Heteronomy in Architectural Theory: Part IV

A Plea for a Reappraisal of Domesticity, A Historic Concept (2000)

Jean Robert

The word, domesticity (from *domus*, home), could define primordial space relations in proximity, the scale at whose home finds place. However, English usage makes this broad historical sense difficult. Domesticity has become an ideologically charged word evoking the "home sweet home ideology," a paradise for *homo oeconomicus*, the prototypical individual[1] sustained by the hard shadow work of *femina domestica.*[2] So we have to try to recover the meaning of "the domestic" under this ideological mask. It is the merit of the already quoted book edited by Christopher Reed to attempt this[3]. Unfortunately, the book limits itself to those aspects of "domesticity" that can be termed modern, what I am tempted to render by a single word: modern-domesticity, a conflicting juxtaposition, as the authors show. This limitation prevents the authors from a fundamental historical questioning of the condition of post-neolithic man as a "domestic being," that is of *oikos, domus, mansus* and their aftermaths as expressions of a long-lasting movement (*mouvance de longue durée*) of history. This questioning should be two-fold: (1) Is domesticity really, as the authors claim, a social construction of the XIXth century? In his beautiful introduction, the editor's answer is:

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[1] Louis Dumont, *Essays on Individualism: Modern Ideology in Anthropological Perspective*, Chicago: University of Chicago Press, 1986.
[2] Gisela Bock and Barbara Duden, "Arbeit aus Liebe oder Liebe als Arbeit. Zur Entstehung der Hausarbeit im Kapitalismus," in *Frauen und Wissenschaft*, Berlin, 1977, pp. 11-199.
[3] Christopher Reed, *Not at Home. The suppression of Domesticity in Modern Art and Literature*, London: Thames and Hudson, 1996, see particularly Reed's Introduction.

> Although often taken for granted, the idea of domesticity is an invention of the modern age. According to [...] Walter Benjamin, it was in the early 1800s that, 'for the first time the living space became distinguished from the space of work.' If we isolate the values that comprise the notion of domesticity—separation from the workplace, privacy, comfort, focus on the family—we find that each has been identified by historians as a defining feature of the modern age. Domesticity, in sum, is a specifically modern phenomenon, a product of the confluence of capitalist economics, breakthroughs in technology, and Enlightenment notions of individuality.[4]

(2) If "modern-domesticity"—separate from the workplace, private, comfortable, the shelter of the solitary nuclear family—is a recent invention, how to call the conflation of home and house (*oikos-domos, domus-aedes, mansus-casa*) that runs through prehistory and history since neolithic times?

I think that more significant than the separation of the dwelling from the workplace is its widening severance from the soil. Historically, the home was a web of traces left on the ground. Women and men dwelled in their own and in their forbears' traces: the past of a dwelling place was part of its presence. In contrast, the modern urban apartment is ground-less (in German *bodenlos*, a term that also bespeaks the uncanny): it is deprived of the "presence of the past." Life in it, estranged from the community of the living and the dead, does not leave traces.

In an essay written in German,[5] I have tried to assess the historicity of space perceptions, particularly of those aspects of a society's spatial constitution which are relevant for proximity and for sedentary everyday life in and around houses, for which I coined the term *technicus* *Domestizität*. Outside of a rare usage in ecological theory, this term was free. It has none of the connotations that plague the English word domesticity, since these connotations are captured in German by the words *Häuslichkeit* and *Heimlichkeit*. I could thus speak of the origins of Domestizität among the mesolithic and then neolithic peoples that inhabited the Eastern shores of the Mediterranean between the Xth and the VIIth millenium B.C. and insist that this was as much

an overall symbolic as a technical innovation: the constitution of a radiant space centered on the hearth and the granary and limited by the grave stones, whose classical iconic representation was Hermes.[6] From the early Natuf settlements to Jericho, Can Hasan, Çatal Hüyük or Hacilar (where the first "full-fledged houses," with interior hearths, doors, peep holes, kitchens and stables are documented), I tried to trace the early history of a world in which the threshold, the window, the roof, but also the field, the grave, the granary, the street and the bridge are not only basic facts of an increasingly sedentary life, but also root metaphors without which social life could not be bespoken. This is the world of "domestic" perceptions of space. It is characterized by the possibility—if not the uniqueness—of a form of appropriation of the soil which I called "*domestisch*."

As already suggested, the true demise of "domesticity" is not so much the separation of home and workplace, but its severance from the soil. However, in Mexico, as well as in all Latin America, the relationship between acts of dwelling and of soil appropriation has not been broken, and is particularly alive in popular urban settlements, as has been documented by innumerable authors. Some of them attribute the contrast between the often joyful initiative capacity of the poor in poor countries and the despair of their counterparts in rich countries to the possibility or impossibility of communal soil appropriation[7]: it is easier to be poor among the poor than among the rich.

For us who live in a country where the poor and not so poor still have that basic freedom, "domesticity" has still a strong meaning grounded in history, so I can only differ on that with the conceptual pogroms of international architectural theory. Le Corbusier, for instance, is known for

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[4]Christopher Reed, "Introduction," in ---, ed., *Not at Home*, op. cit., p. 7.
[5] Jean Robert, *Raum und Geschichte*, Hagen: FernUniversität, 1998, 3 vol + a 3 vol. reader.
[6] This symbolic "domestication of space" is the great feat of the early neolithic period: André Leroi-Gourhan, *Le geste et la parole*, Paris: Albin Michel, 1965. As to the a-iconic meaning of Hermes, it is *hermaios lophos*, a heap of stone (on a grave) and recalls the primitive lithobolic ("stone-throwing") gesture: Jean Robert, *Raum und Geschichte*, Kurseinheit 2, op. cit.
[7] Lisa R. Peattie, *View from the Barrio*, Ann Arbor: The University of Michigan Press, 1968.

his invectives against "the sentimental hysteria" surrounding "the cult of the house" and proclaimed his determination to design instead "a machine for living in." His heroes were engineers, "healthy and virile, active and useful, balanced and happy in their work," as well as "big business men, bankers, and merchants who work in a world where "economic law reigns supreme, and mathematical exactness is joined to daring and imagination." His enemies were conventional architects, trained in schools like "hot-houses where blue hortensias and green chrysanthemums are forced, and where unclean orchids are cultivated." According to Le Corbusier, the old-fashion houses produced by such architects "ruin our health and our *morale*," threatening the heroism of their male inhabitants.[8]

In the heroic days of modern architecture, Walter Benjamin pointed out that the steel and glass aesthetics he identified with Loos and Le Corbusier stakes its claim to modernity on its "antagonism to the conventional function of the home as a refuge of privacy and an assertion of the individual—or family—identity."

> Contrasting to the modernist 'glass houses' the homes of the 1880s, Benjamin notes the way the inhabitant left his trace [spur] in every spot [fleck] of the traditional home.[9]

Remember: making a home is a neighborly activity: it requires some insertion into a community. Besides, it is rooted in some ground: it is a web of living traces on the soil. At least, it is what I observe in the popular urban district where I live, near the village of Chamilpa in Mexico, and it is also what I learned from the history of the domestic appropriation of the soil, of "domesticity," if you accept my historical redefinition of the term. This domestic appropriation of the soil sets "informally" the pattern of many third world cities, making them livable in spite of the planners' grandiose schemes, as has been documented for Brasilia or Chandigarh, for instance.

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[8]Christopher Reed, "Introduction," in ---, *Not at Home*, op. cit. p. 9.
[9] Ibid. p. 10.

This resiliency of historic domesticity in countries that are called "poor" is echoed, in "rich"—but often culturally impoverished—countries by the return of its repressed modern form. Christopher Reed suggests that this repression was essential to what was once called "the avant-garde":

> ...in the arts, the linkage of domesticity and modernism has been obscured by another conceptual invention of the XIXth century: the idea of the 'avant-garde.' As its military-derived name suggests, that avant-garde (literally 'advanced guard') imagined itself away from home, marching toward glory on the battlefields of culture. [...] Ultimately, in the eyes of the avant-garde, being undomestic came to serve as guarantee of being art.[10]

The book just quoted also documents the return of this repressed complement of the house, the home (domesticity) in recent architectural theory, which, I beg you to admit, is also a form of literature. This return of the repressed happens in two ways. Some celebrate the "postmodern" disjunction of house and home and stage a disembodied and soiless ("bodenlose") domesticity as the lingering of a bad dream.[11] Meanwhile, some architects, mainly women, are aware of the woman-unfriendlyness of unhomely houses and apartments. For them, gender becomes a main issue of architecture.[12]

Throughout the entire course of modernism, including its alleged post-lude, [t]he domestic, perpetually evoked in order to be denied, remains [...] a crucial site of anxiety and subversion.[13]

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[10] Christopher Reed, "Introduction," in ---, ed., *Not at Home*, op. cit., p. 8. Notice that Reed reduces domesticity to "modern-domesticity" and apparently ignores its historic dimension as one of the deepest "mouvances de longue durée" of the post-neolithic period.

[11] Anthony Vidler, "Homes for Cyborgs," in Christopher Reed, ed., op. cit., pp. 161-178; see also Christine Poggi´s already quoted comment on Vito Acconci, in ibid. p. 237-252.

[12] Examples in the already quoted article by Sharon Haar and Christopher Reed, in Christopher Reed, *Not at Home*, op. cit., pp. 253-273.

[13] Christopher Reed, "Introduction," in ---, ed., *Not at Home*, op. cit., pp. 15, 16.

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Autonomy and Heteronomy in Architecture Theory: Part V

Architecture Between Orality and Literacy?
(2001)

Jean Robert

Finally, I will drive you home to the hypothesis around which I have been circling. The influence of literary concepts and of philosophy on contemporary architectural theory is not casual. The same kind of recapitulation is at work in literature, philosophy and architecture. The silent and solitary reader of texts and hypertexts on screens is echoed by the traceless solitary resident of the modern apartment.

I suggest that the ongoing historic debate on the conflicting relationships between orality and literacy is not only relevant for literary theory. Home stands maybe to house—or what I call historic domesticity to contemporary anti-domestic architecture—as orality to computer-literacy. And this has been so far overseen by architects and architecture theorists alike. Let's look over the fence behind which linguists, historians and sociologists discuss a fascinating thesis.

This thesis states that true literacy does not begin historically with Egyptian or Chinese ideograms, Mayan pictograms, Mesopotanian cuneiforms or Mediterranean syllabaries and not even with the Northwestern Semitic consonantic "alphabets" from which the Phoenician, the Hebrew and the Arabic scripts evolved. It starts with the alphabet, invented by the Greeks between 720 and 700 B.C.

True, the inventors of the alphabet built on the experimentations of the Northwestern Semitic scripts, that the Greeks received from the Phoenicians, probably in bilingual Cyprus, where

it was first used to engrave prayers in stone.[1] True also that two forms of writing had been known to the Greek previously: the Cretan linear A and the Mycenian linear B, of which only the latter has been approximately deciphered by British architect Ventris. There are no traces of the use of any of them after the XIIth century B.C., which was followed by the so-called "dark age," in fact a period of flourishing oral culture in which the grounds for the classical Greek civilization were laid.

The conservation of memories in an oral culture happens through mnemotechnic formulae rich in assonances, "rhymes," voluntary redundancies: pre-alphabetic speech is "formulaic." Reading Mediterranean pre-alphabetic writs is like searching the garden's grass for eggs on Easter morning: the reader's eye wanders through the lines, looking for common expressions of speech: formulae. This cannot be otherwise, because pre-alphabetic scripts were trapped between two contradictory requirements: simplicity, that is the reduction of the signs to a small number which can easily be memorized, and consistency, that is the possibility to relate every sign with a sound with a minimum of ambiguity. Among the old Mediterranean scripts, the Mycenian syllabary called linear B achieved a remarkable simplicity (about 90 signs) at the cost of consistency: it could only represent open syllables (syllables ending with a vowel), so that a lot of guesswork was left to the reader.[2] Consequently, a "text" could only be a record of what had once been said, and consisted of formulae well known to the reader and to his hearers. Since reading required this "recognizableness," the written documents of the pre-alphabetic period are impoverished memories of oral utterances. They were descriptive (of practical transactions or of heroic feats) and imitative of the oral way to bespeak them.

The interesting question is here whether something of this thesis does not apply to architecture, that is, if there is not an epical, "oral" lore of architectural formulae or archetypes

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[1] Eric Havelock, *The Literate Revolution in Greece and Its Cultural Consequences*, Princeton NJ: Princeton University Press, 1975.
[2] In Mycenian syllabic script, this text's next sentence would approximately read:

whose memory would run through the whole history of architecture. Does perhaps the contemporary practice of "defamiliarization" frustrate a deeply ingrained, atavic ("epic," "pre-literate," "oral") desire for architectural recognizableness?

This is the question that a recent book by Anthony Antoniades endeavors to raise and in part to answer.[3] He recalls that

> ...Rykwert made the deepest dissection to date into the origins and creation of the hut, one of the earliest archetypes. In the process, and furthering his own belief that '... if architecture was to be renewed, if its true function was again to be understood after years of neglect, a return to the 'preconscious'[4] state of building, or alternatively to the dawn of consciousness,[5] would reveal those primary ideas from which a true understanding of architectural forms would spring..." he created his book *On Adam's House in Paradise,*[6] one of the most revealing "pirouettes" between the days of our mythic origins and the applications of today [...]. Rykwert's contribution was an interpretive construct based on one of the architectural archetypes of mankind.[7]

Antoniades discovers other primordial architectural archetypes in the legend of *Gilgamesh*, in the *Ramayana*, the *Odyssey*, *Beowulf*, the *Niebelungenlied* and the *Kalevala*, among other testimonies of oral, pre-alphabetic or early alphabetic lores, and gives, for each of them, illustrated examples of their survival in architectural forms. This confirms, if it were necessary, that architecture is a more primal experience than literacy and literature and invalidates Bernard Tschumi's aphorism that "there is no architecture without texts."[8] This is because architecture is a

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co-se-que-ly a te cou o-ly be a re-co of wha ha o bee sai. Find the Eastern eggs in this pasture.

[3] Anthony C. Antoniades, *Epic Space: Towards the Roots of Western Architecture*, New York: van Nostrand and Reinhold, 1992.

[4] Following Jack Goody, *Literacy in Traditional Societies*, Ann Arbor MI: Bks Demand Umi, the transition from "prelogical" to "logical," or "preconscious" to "conscious" states of minds, from magic to science, from Levi-Strauss's "savage mind" to domesticated thinking can be explained more elegantly as changes from orality to diverse stages of alphabetization. Following Goody's intuition, I suggest to read "pre-alphabetic" where Rykwert writes "preconscious."

[5] Ibid.: "to the dawn of alphabetization."

[6] *On Adam's House in Paradise: The Idea of the Primitive Hut in Architectural History*, Cambridge MA: The MIT Press, 1981.·

[7] Anthony C. Antoniades, *Epic Spaces*, op. cit. p.xii.

[8] Bernard Tschumi, *Architecture and Disjunction*, Cambridge MA: The MIT Press, 1997. I confess that I have been tempted for a while to adopt his restriction as an equivalent of the distinction between epic (oral) narrative and literature, that is between orality and literacy. Tschumi's suggestion would open to a distinction between preliterate, "epic" built forms and architecture as a literate, read alphabetic activity. However, I finally rejected the suggestion because, like Humpty-Dumpty, for whom words meant what he intended them to mean, it does to much violence to linguistic usage: the word architecture recalls the *arche-techton,* the "head-carpenter," by no means a figure limited to the literate realm. Primitive domestic, and epic architectures could be terms that stand vis-à-vis historic architectural forms as orality stands to literacy.

gesticulatory art: it involves the whole body and is perceived in its movements, while reading immobilizes the body to the benefit of the eye: our bodily "memories" are of a more primitive, "oral," or, to retake Antoniades's word, "epic" character than our visual memories. Good architecture could relate modern man to his oral origins, which does not mean that architects should literally "sketch and do 'huts'," as some members of the "Postmodern, Historicist" group have understood Rykwert to enjoin them doing.[9]

The alphabet opened to radically new possibilities. Because of the correspondence of graphic signs and pronounced sounds, it made writing independent from the recognition of spoken formulae. For the first time, things that had never been said could be written. Similarly, forms that had never been built could be thought of, though I surmise that this generally happened much later, perhaps as late as the breach of the great tradition at the end of the 17th century, in the time of "the first moderns."[10] Being a bodily and gestual activity, architecture offered resistance to its utter alphabetization and the oral transmission of architectural knowledge survived far into the alphabetic age.[11]

Writing slowly became less descriptive and more conceptual. It started to look for the ground of things, behind appearances. For Walter Ong, the fact that the Greeks invented philosophy is less due to their specific genius than to the fact that they invented a unique new way of writing, the alphabet. In *Orality and Literacy: The Technologizing of the Word,*[12] Ong insists that philosophy and all the sciences depend on alphabetic writing. They are not the products of the unaided human mind, but of the use of a technology that has been so deeply interiorized that it

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[9] Anthony C. Antoniades, *Epic Space*, op. cit., p. xii.
[10] Joseph Rykwert, *The First Moderns: The Architects of the Eighteenth Century*, Cambridge MA: The MIT Press, 1980.
[11] Joseph Rykwert, "The Oral Transmission of Architectural Knowledge," source lost. "[before the XVth century] there is virtually no record about the transmission of ideas and skills. A great deal must have passed through evanescent gesture; perhaps as much as through graphic records and through words." (p.1)
[12] New York: Methuen, 1982.

became part of the mental processes themselves. And he concludes: philosophy must become philosophically conscious of itself as a technological product. I plead with architects for a similar recognition concerning architectural theory.

The invention that made this "technology" and its interiorization possible is based on an analysis of the speech organ's working: the vowels represent the vibration of a column of air in the larynx, while the consonants (which only "sound-with," which are no sounds in themselves) represent the way the tongue and the lips initiate or stop the emission of sounds. Following Havelock, the alphabet is a "table of elements" of speech, a feat that required a high degree of abstraction. All ulterior atomistic ideas, like Democritus's atoms and Plato's elementary forms (Timaeus) seem to be metaphors of the letters.[13] But is the functionalist reduction of the home to a place for satisfying basic needs supposedly universal and codified in standards not another effect of the alphabetic reduction of human speech and of the letters' metaphorical power? And what are the "postmodern" hesitations about functionalism, if not the expression of doubts about the literate nature of architecture, even if they seek answers in a cooption of extremely literate experiments, or further, in the "simulations" of the system world?

Can architecture really settle in a world of pure signs without a real beyond? I think not. I hope that this reminder of the origin of the alphabetic mindset in a "technology" that was interiorized in modern man's mental processes will contribute to clarify the debate on the nature of architecture. After all, philosophizing architecture theory should also become philosophically aware of being a technological product.

[13]Jack Goody, *Literacy in Traditional Society*, op. cit.

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"Energy," the Rise of the Monistic Worldview and the Demise of Perceived Balances

(Cuernavaca, July 20, 2009)

Jean Robert

A Season Among XIXth Century Physicists

I spent part of the winter of 1981-82 on a cold veranda of the library of the Marburg Physics Institute reading books that were no longer part of the curriculum of modern Physics. There, I delved into the intricacies of the surge of the energy concept, or better of its direct ancestor, *Kraft*, force, and the principle of its conservation. The turning point was a paper of 1842 on the base of which Julius Robert Mayer, a young medical doctor, claimed his priority right on the "discovery" of the principle of the conservation of "force." I write this essay as an exercise in a style of history consisting in interpreting an epoch according to its own concepts. It means that I'll methodologically refrain from reading the modern energy concept in Mayer's formulation:

> Two departments of causes can be found in Nature, and it is a fact of experience, that there are no bridges (*Übergänge*) between them. The first department is constituted by the causes that share the characteristics of "*Ponderabilität*" (the fact of having a "weight," or as a professional physicist would say, a mass) and impenetrability; to the other belong the causes who lack these characteristics […] and that are thus named "*Imponderabilien*" (mass-less entities, that is forces). Forces are thus indestructible and imponderable objects subjects to variations[1] (Trad. J.R.).

[1] "Bemerkungen über die Kräfte der unbelebten Natur," (On the forces of inanimate nature), *Liebig's Annalen der Chemie und Pharmacie*, vol.4, 1842, p.24.

Such dual thinking can be traced back from Antiquity to the eve of modern times. It was part of the "background philosophy" of classical physics until its ideological demise around 1890. My contention is that this background philosophy trained scientists to constant intellectual and moral negotiations between poles of reality that have become incompatible: philosophy and science, human decency and scientific reputation, solidarity and power, tradition and modernity. With the present-day imperative to pu(bli)sh or perish, such balances have been broken by the predominance of one pole over the other: philosophy is tolerated as a servant of science, and moral inhibitions are disregarded for the sake of a career in the sciences. Mayer's claim to the "priority" of the discovery of the principle of conservation of "force"—in reality a *simultaneous discovery*[2]–is a *calculation*, and not an *experiment* performed in 1842. It was more exactly an *experiment in thought* that, according to the constants relating a volume of gas to its temperature and pressure allowed Mayer to calculate the *mechanical equivalent of heat*.

Mayer wanted to align physics with chemistry, paying special attention to the cycles, metamorphoses and mutual conversions of immaterial entities that he called *Kräfte*, "forces," and which later physicists all too easily read as *energy*. For him, a single fundamental principle ruled chemistry and physics: "The quantity of their entities is invariable, only their quality is variable."[3] Unfortunately for Mayer, *his* discovery was first attributed to an alleged competitor, in fact a simultaneous discoverer, James Prescott Joule, who in an *experiment* realized one year after Mayer's *calculation*, obtained a much more accurate value.

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[2] Thomas Kuhn, "Energy Conservation as an Example of Simultaneous Discovery," M. Clagett, ed., *Critical Problems in the History of Science*, Madison: University of Wisconsin Press, 1955, pp. 321-356. Stresses the importance of three general ideas that were so to speak "in the air" : 1. the recognition of circulation and conversion processes; 2. a new interest for machines illustrated by the railroad mania of the 1840's; 3. natural philosophy in the sense of the German idealism.
See also: Jacques Merleau-Ponty, "La découverte des principes de l'énergie: L'itinéraire de Joule, » *Revue d'Histoire des sciences* 32, 1979. Yehuda Elkana, *The Discovery of the Conservation of Energy*, Cambridge: Harvard University Press, 1974. Erwin N. Hiebert, *Historical Roots of the Principle of Conservation of Energy*, Madison: University of Wisconsin, 1962.
[3] P.M. Heimann, "Mayer's 'Concept of Forces': The Axis of a New Science of Physics," *Historical Studies in the Physical Sciences*, 7th annual vol., 1976, p. 284.

Force: Free Gift of Nature or "Nature's Currency"?

After Max Planck's definitive mathematical clarification in 1884, a *force* was to refer to what causes a mass to move or modify its motion, while *energy* was expressed mathematically as the path-integral of a force or, in technically controlled motions with constant speed and straight trajectory, the product of a force moving a mass against gravity and/or friction by the distance covered by it, whose unit for the engineer is the *kilogram-meter*. Mayer took that unit—probably from French railway engineers—and magnified it into the paradigm of what remains constant *and can be quantified*[4] in the conversion of Nature's *forces*. He had calculated the conversion rate of heat into mechanical "force," and suspected that similar conversion rates or "relative values" would be discovered to exist between all the forces of Nature.

Under the term "force," were still looming evocations of "the natural forces" such as the rain, the nourishing soil or the wind inflating the ships' veils. By proposing the kilogram-meter as the expression of nature's free gifts, Mayer submitted them to the law of scarcity, and paved the way to the transmogrification of natural conversions into production processes ruled by money. Unwillingly, he opened the door to "energy accounting," a reinterpretation of economics along thermodynamic lines. Yet, in his natural philosopher's decency, he wrote:

> Let's state it from the start: the rule of the relative values ["conversion rates"] of the different forms of forces is only valid for our earthly economic relations, any application of it to the macrocosm's economy is inadmissible[5] (Trad. J.R.).

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[4] Mayer "quantifies" with moderation, guided by a kind of classical "everything in its place" perception that modern physicists have lost: "In physics, all is Number, in physiology, little is quantifiable, and in metaphysics nothing […] Time is only productive within our time-horizon. God spoke: let become and it became! We do not entirely support our life-world: it grows and becomes more beautiful," in "Consequenzen und Inconsequenzen der Wärmemechanik," *Naturwissenschaftliche Vorträge von J.R. Mayer*, Stuttgart: Cotta, 1871, pp. 3-16. In this conference on the "consequences and unconsequences of the 'mechanics of heat' (thermodynamics)" to the General Assembly of Natural Researchers in Innsbruck, September 18, 1869 [where Mayer spoke just after Helmholtz], he added: "A correct philosophy cannot be anything less than a propaedeutic of the Christian religion" (p. 16). As we will see, Mayer would sometimes transgress his ingrained sense of the right proportion for his scientific reputation's sake.

[5] J.R. Mayer, "*Consequenzen und Inconsequenzen der Wärmemechanik*," op., it., p. 7.

Energy and Force: Free Creations of the Human Imagination or "Ultimate Realities"?

The extraordinary gifted young Heinrich Hertz (1857-1894) first thought that he would dedicate his life to the humanities. He was proficient in Latin and Greek and never traveled without a copy of Homer in his pocket. He exercised himself as a sculptor and, in at least in one occasion, as an architect. It was Hermann von Helmholtz who lured him into physics by proposing a high-level problem to the auditors of a popular lecture on physics that he delivered at the Berlin University. Hertz, then untrained in the matter, solved the problem by sheer logic and intuition, and that sealed his fate: Helmholtz would not let him go before he had signed his inscription at the Physics department and become his student.

Hertz, the humanist and lover of harmony, simplicity and beauty complained about "the unnatural character of the mingling of the concepts of mechanics with extra-sensorial abstractions." The founder of electrodymamics and discoverer of the "Hertzian waves" had the epistemological aim of cleansing mechanics from "extra-sensorial abstractions" such as force and energy. According to him, these concepts ought to be renounced "as independent fundamental concepts"[6] since only with their complete elimination could mechanics be reestablished as the *science of experience*.

The modern certainty that energy is the ultimate "stuff" of everything does not predispose present-day philosophers to appreciate the depth of Hertz's epistemological reflection. Perhaps their prejudice could be eased if they knew of the lasting influence that Hertz had on one of last century's major philosophers, Ludwig Wittgenstein:

> Both [Wittgenstein's] old and new philosophy shared an inspiration he had come across as a teen-ager in *The Principles of Mechanics* by Heinrich Hertz, a German physicist. Hertz had suggested a novel way to deal with the puzzling concept of force in Newtonian physics: the best approach was not to define it but to restate Newton's theory in a way that eliminates any reference to force. Once this was done, according to Hertz, 'the

[6] "*Die Prinzipien der Mechanik...,*" op. cit., p. 29.

question as to the nature of force will not have been answered; but our minds, no longer vexed, will cease to ask illegitimate questions.'
Ludwig's big idea was to apply this method to philosophical problems.[7]

Hertz's attempt "failed" in the sense that it was not the path followed by mainstream physics. Einstein turned the "vexing" character of force around—being "action at a distance" or "not being located at any point in space"—by reducing it to a local geometrical property of a four-dimensional manifold, but that solution would not have satisfied Hertz, who wanted a reassessment of the relation between physics and sensorial experience. In Hertz' sophisticated spirit, the project of reestablishing a common-sense view of physical *phenomena* free of *a priori noumena* must have echoed the scholastic aphorism *nihil potest esse in intellectu si non fuerit prius in sensu* (nothing can be in the intellect if it was not first in the senses), whose various forms were traced back to Aristotle by the Schoolmen and ulterior philosophers.[8] For a thinker of Hertz's intellectual stature, "energy" pretends to be in *intellectu* without ever being *in sensu*, since there is no direct perception of it, but only of hot or luminous objects, of the speed of the railroad or of electric shocks and sparks in the lab. At the end of the XIXth century, energy was still mainly a principle of equivalence that should not lure a skeptical mind to construe all phenomena as manifestations of an underlying, mysterious, unique reality that nobody, *no body* will ever perceive with her, his or its senses.

Half a generation younger than Hertz, Einstein endorsed the energy concept, but without the naiveté of most of his colleagues. By "geometrizing" it, he recognized that it is an entity that is in the intellect before [and without] being in the senses and insisted that it is part of these "free

[7] Anthony Gottlieb, "A Nervous Splendor: The Wittgenstein Family Had a Genius for Misery," *The New Yorker*, April 6, 2009, pp. 70-74.
[8] One of its last expressions is to be found in F. Jacquier's *Instititiones Philosophicae*, Rome 1833: "*Nihil esse in intellectu quod non prius fuerit in sensu*."

products of human imagination" that determine, not *what* we see, but the *way* we [physicists] see.[9]

The "Science of Experience" Loses Both Its Propaedeutic Language and Its Relation to Perception

In the last decades of the XIXth century, physics was disembodying itself from common language into one of its own. After the demise of the old linguistic continuity between science and everyday life, the path was open to *monism*. Scientific monism is the belief that a single principle ought to rule everything without opposition through the utter formalization and mathematization of all forms of once empirical knowledge.[10] It is the dictatorship of one unique form of thought, one unique perception of reality, one unique language, one unique space. It expresses the utopia of a world without conflicts, resistances, distances and dissidences; a world where negotiations, checks and balances, arbitrations between contradictory imperatives, old forms of "coming to terms," and even politics would have become obsolete.[11]

Energetism and the Panderage of Tax-payers By a New Synthetic Language

For Wilhelm Ostwald, a longtime redactor of *Der Monist*, a journal he helped found in 1906, *energy* was not an "invention," an "extra-sensorial hypotheses" imposed on experience (Hertz) nor "a free product of human imagination" (Einstein). Energy was now the ultimate and unique "stuff" of which everything was made. In *Der Monist*, he fought the "fallacious" diversity

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[9] Albert Einstein, "Foreword," Max Jammer, *Concepts of Space. The History of the Theories of Space in Physics*, New York: Dover Publications, 1993 [1954]. For Einstein, the mathematical concept of space was one of these "free products of the imagination" that determine how we see (p. xv). Energy was another.

[10] Michel Foucault, *Les mots et les choses. Une archéologie des sciences humaines*, Paris: Gallimard, 1966, particularly chapter 7. English version, *The Order of Things. An Archaeology of Human Sciences*, New York,Vintage Books/Pantheon, 1970. The formalization and mathematization of knowledge weakened traditional forms of empirical, not formally scientific knowledge.

[11] See Jean Robert, "*Der Verlust der Erläuterungssprache in der Physic von 1840 bis 1900*," Stephan H. Pfürtner, ed., *Wider den Turmbau zu Babel. Disput mit Ivan Illich* (Against the (re)-construction of the Babel Tower. Debate with Ivan.Illich), Reinbek bei Hamburg: Rowohlt, 1985, pp. 116-130, 152, 153.

of the phenomena and called for a recognition of a sole imperative, the "energy imperative" to supersede the diversity of moral imperatives. Hence *monism* was also called *energetism*. According to Ostwald, "[e]nergy comprises the complete reality";[12] it rejects all forms of dualism and no other fundamental concept is needed to describe it. Monism had also linguistic effects. The demise of the physicists' ability and willingness to explain their ideas, discoveries and theories in a language accessible to a general public had made of physics an esoteric parlance only understandable to close colleagues. Ludwik Fleck has studied how esoteric languages also produce esoteric facts that utterly alter the life-world of modern man.[13] Lest physicists become philosophical anchorites, only equipped, like young Einstein, with a pencil and a pad, they must beg tax-payers for funding, and for this, a new synthetic language had to be invented. Modern science is a conglomerate of separated and often conflicting *thought collectives*, each attempting to make its *thought style* prevail. A scientist has hardly any degree of freedom relatively to his collective: belong or perish.

According to Fleck, the first signal of a new *scientific fact* is a line of resistance within a given *thought style*. As long as it has not reached the "public" along a chain of ever less specialized transmitters, the signal is not a "fact." A scientific fact has always a sociological weight acquired through what Fleck calls the *migration of ideas*. This migration from specialized to less specialized circles can be called popular science or *pop science*. Unlike the old propaedeutic language of science, pop science—which for Fleck is sociologically as much a part of modern science as the productions of its most inner circles—does not proceed by careful expositions and explanations. Rather, through apodictic statements, bright colored descriptions, and premature affirmations, pop science makes unquestionable *facts* out of *ideas*. The broad

[12] Wilhelm Ostwald, *Vorlesungen über Naturphilosophie*, (Lessons on Natural Philosophy), Leipzig, 1901, see particularly pp. 146, 146, 377.
[13] Ludwik Fleck, *The Genesis and Development of a Scientific Fact*, Chicago: Chicago University Press, 1979 [1935].

public, most exoteric of the circles, then functions as a mirror that sends a received "fact" back to its circle of origin, where the surprised and flattered scientists tend to accept this sociological transmogrification of their original idea. It is how energy, originally a principle of equivalence between Nature's forces, an extra-sensorial hypothesis, and a free construction of the imagination became, for the broad public and the scientists alike, an unquestionable fact. The difference here between, on the one hand, Hertz and Einstein and on the other, Ostwald, is that while the formers insisted on *how* they saw, the latter dumped one brutal *fact* upon the half-consentient public: *there is nothing but energy*, a universal recipe for intellectual freewheeling. *Monism* helped as well channel further funds toward society's continuous need of ever more *Research and Development* (R&D) on energy "needs," energy-related concepts, processes, resources, systems, economies or wars.

Hugh's *Mechanica* and The Blind "Fleck" of Hertz' Mechanics

In 1983, in a public talk at the *Colegio de México*, Ivan Illich analyzed the linguistic differences between a scientific symbol, *E*, and *energy*, its pop science twin. [14] *E* has a pure denotation, generally compacted into a mathematical formula, while *energy* has only connotations of which physicists tend to prudishly distance themselves in private conversations, while anonymously endorsing them, pertinently knowing that these connotations are part of the propaganda by which their profession panders tax-payers for more R&D funds.

Building on that idea, Professor Uwe Poerksen, a German linguist, compared a denotation with the point of impact of a stone thrown into a pond, and connotations with the resulting concentric waves:

[14] Ivan Illich, "The Social Construction of Energy," opening talk to a seminar on *The Basic Option within any Future Low-Energy Society*, Colegio de México, México, July 1983.

.. …Energy… Energy…Energy … Energy E Energy… Energy… Energy …Energy……

Poerksen discovered with astonishment that *energy* was part of a *new class of words*, rich in connotations and as deprived of precise denotation. In his path-breaking book, *Plastic Words. The Tyranny of a Modular Language,* he identifies how modern society builds its certainties and social theorems through semantic "Lego"-blocks such as energy, information, communication, resource, factor, system.[15]

While I was sitting on the cold veranda in the company of the old physicists exiled from their science's new curriculum, Ivan Illich, who had invited me to Marburg to talk about the history of the energy concept at his table of convivial friends, was teaching medieval history at the university. He was attempting to make his students feel how ill-equipped they were, conceptually and bodily, to understand a twelfth-century pilgrim, or even what the philosopher-monk Hugh of Saint-Victor meant, when he said that reading was a *peregrinatio in stabilitate*, a pilgrimage in stability.[16] In 1980, the author of *Tools for Conviviality*[17] and *Energy and Equity*[18] had written a short essay to honor Hugh as a colleague he had discovered in the XIIth century.[19] In this text, Illich commented the *Didascalicon* written by Hugh around 1127-1128, focusing his attention on Hugh's concept of what he called *mechanica*. In his uniquely radical way, the philosopher of the mechanical arts was interested in the relation between science and society.

> Hugh defined mechanical science as the part of philosophy which studies remedies for bodily weakness, when such weakness derives from humanly-caused disruptions of the environment—science, then, is a corrective for an ecological disorder. Asked to clarify

[15] Uwe Poerksen, *Plastic Words. The Tyranny of a Modular Language*, University Park: Pennsylvania University Press, 1995 [Original: *Plastikwörter.Die Sprache einer internationalen Diktatur*, 1988].
[16] Years later, Illich dedicated a book to Hugh's Art of Reading, *In the Vineyard of the Text: A Commentary To Hugh's "Didascalicon."* Chicago: University of Chicago Press, 1993.
[17] Berkeley: Heyday Books, 1973.
[18] London: Calder & Boyars, 1973.
[19] *Hugh? Or Science by People?*, Cuernavaca: *Tecno-política*, ed. Valentina Borremans, Apdo 479, 62.001, Cuernavaca, Mexico, later reproduced in *Shadow Work*, London, Boston: Marion Boyars, 1981.

> the notion of a new conception of science which underlies the various movements of science by people, I know of no better approach than a confrontation with Hugh of St Victor's thought.[20]

Hugh's *mechanica* was infused with a deep apprehension of sensorial perceptions and their aesthetics and of the fitness of mechanical artifacts to the body. Paraphrasing Joseph Kockelmans,[21] a physicist and a philosopher, I dare say that "modern mechanics is an attempt to say anything meaningful about the physical world without any consideration of the body." What would be a mechanical art that would *start* with the body and the relations of mechanical artifacts to the hand, and relate their power to their scale and their radius of action to their *distality*? How much "abstraction" would it need? It is a contest open to talents.

[20]Op. cit., p. 4

[21]The sentence, with "philosophy" instead of "mechanics" was pronounced by the dean of the Philosophy Department, Professor Joseph Kockelmans, at the occasion of a meeting with Ivan Illich and Barbara Duden at Penn State University.

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Genesis and Development of a Scientific Fact: The Case of Energy[1]

Jean Robert

When he asked me to write an article for the February Special, the editor, Michiel Schaeffer commented on some reactions elicited by the editorial of the 1992 issue. To make a point about the ambiguities facing alternative technologists, he had used the example of a little shoemaker. At the beginning of the story, the shoemaker had a bulb hanging from the ceiling of his shop for some light in evening hours and a three-phasic socket to power his sewing and polishing machines. Though the shoemaker did not specially care to investigate where the *energy* distributed to him by the Electric Power Works came from, he somehow knew like everybody else that it came from the aging nuclear plant whose frightening refrigeration towers were sometimes visible on the far horizon.

Here we have a small, "ecologically innocent" craftsman who is plugged, together with the worst industrial sinners, to one of the most hazardous forms of *energy* production. Isn't it as bad as an Amish farmer using no telephone, no car, but struggling against economic competition with pesticides and chemical fertilizers? For the shoemaker, "salvation" came from a committee of concerned citizens who obtained the replacement of the obsolete nuclear plant by a large scale wind *energy* project. The *energy* that fed the shoemaker's bulb and powered his machines could now come from a cleaner source. Happy end? Listen to what has happened to the little shoemaker:

> After the replacement of the nuclear plant, he lost control forever. Subsidies and economic profits went to the 'big shots' of the electricity cooperative. Prices went up to finance the new necessary (alternative!) technology transfers. Local electricians lost their jobs to Hilton-groomed alternative technologists from abroad.

[1]Originally published in *Wise*, March 1995.

This story made me sad: I too had wished a happy ending for the sound political fight in favor of softer *energy* sources. I have read Armory Lovins,[1] I know Lester Brown's efforts[2] to clean the *energy* landscape from useless gigantism, risk, and the relentless erosion of local ecological and cultural matrices.

By the way, the editor wrote me that the story had the following epilogue:

A month after this publication, we received an angry letter from an American *energy* expert claiming that WISE was opposed to the use of wind *energy*. This was the starting point of a discussion on *energy* and Power.

The editor begged me to frame my article in such a way that it would at least tangentially address that discussion. Though I gladly agreed to try, I am reluctant on embarking on a casuistic of alternative *energy* production, "good" in some cases, "bad" in others. Let's state right away that I find a wind *energy* plant less bad than a nuclear plant, and wind power worth militating for. I would like to say: always. Shall I go on to analyze the cases in which—given that the intention was good—but the unexpected result being such …, had I known it beforehand..., but if not, then...? Clearly, such casuistic has no place in a general article. Are there perhaps general criteria of judgment? Of course: ecological impact and risks assessments, evaluations of the support capacity of the local ecological or climatic matrix (a term I prefer to the globalizing *neutrum*, "environment"). All that remains politically valid. But isn't there more at stake than pollution and risks? The shoemaker's story obliges me to answer "yes!." Armory Lovins suggests a first decision criterium:

To be valid any alternative *energy* production project should not be content with proposing how to produce a constant quantity of megawatts. It should also contemplate the production of "negawatts."

WISE subscribers know that Lovins uses that charade to stress the urge for any alternative *energy* project to present ways of reducing a community's *energy* needs. Another catchword for the negawatt idea is "conservation" (a word that is indeed associated with "*energy*" since this concept's birth!). Alternatives to hard *energy* paths should not consist in aiming at the same thing through other routes, but in changing the goals too. Conservation is one of these "other" goals.

If there can be ecologically dirtier or cleaner forms of *energy*, there is no form of socially quite innocent *energy*, as, again, the shoemaker's story shows.[3] But there is still more to that story. While telling it, I "had" to use the word *energy* 18 times. In less than 2 pages, this is many times. If that had been an exercise in English composition, my teacher would have strewn the margin with red remarks like "repetition!," "find a synonym!," "what do you call so, in *this* context?." It seems that what can be done with any sound common word cannot be done with "*energy*." Try, and then ask yourself: "what are this strange word's characteristics that make it so resistant to *synonymity?*." The German linguist Uwe Pörksen has written a whole treatise to try to explain that phenomenon.[4]

Re-reading my own prose makes me realize more acutely than ever, that underlying the debate on alternative *energy* production, beyond or behind the ecological and the social levels, there is the semantic bottom line from which cultural meanings, symbols and social myths all stem. Mainstream ecologists have thus far managed to ignore that ground. It has been a great mistake. It looks as if the first principle of thermodynamics and the word which is its stenographic token ("energy") has been allowed to be the Trojan horse for a contagion not only by ecologically and socially unsound, but also by culturally and symbolically destructive thought habits. Is perhaps the *energy* concept—the intellectual cathedral of 19th Century physics—a cultural equivalent of AIDS when it escapes from the lab and invades concrete life? Is the synonym-less word "energy" the vector of an acquired cultural

immunodeficiency syndrome, as soon as it ceases to be strictly a technical term of a well-defined science, thermodynamics[5]?

I pretend to address the question raised by the American reader by inviting him to a tour into the epoch that created the concept *energy*.

Can A Scientific Concept Be An Object of History?

This question has always intrigued me. A decade ago, thanks to a friend's generosity, I spent two winters at the Physics Institute of the University of Marburg in Germany. More exactly, I sat day after day on the unheated veranda of its library. There had run aground, like on the strands on a lonely island, the wrecks of past generations of explorers. On the Institute's shelves, I found what remains of the "forgotten grandfathers": the works of 19th C physicists who are no longer part of the curriculum of standard physics. Half-jokingly, half in a spirit of vicarious revenge of the forgotten, I made a sign that said "Marburger Institut für Papierkorbphysik" (*papierkorb* = wastebin). It hung on the veranda's door until I was politely asked to remove it.

One of the two xerox copiers of the institute stood in "my" veranda. Once in a while, I was interrupted by one "Doctorandus" or the other—often a polite German-speaking Japanese—who needed to use "my" machine. I observed that no one ever copied more than five pages, generally concentrating on a single graph or table from a specialized publication. In contrast, I imagined myself snuffling like a scavenger in the landfills of physics. One day, one of the Ph.D. students remained standing near the door and observed me. He exclaimed, "What? You copy *whole books*!" I confess to that misdemeanor, that disrespect of the modern etiquette! Yet, on behalf of those two winters, I possess the entire conserved corpus of several of the great *haemodynamicists* of the mid-nineteenth century: Hagen, Poiseuille, Hagenbach, part of O.E Meyer and Plateau, the Podolinskys, father and son and some more.[6]

But these were the few ones whose works were "*kopiefähig*." Most of the items piled up in the veranda's shelves were under a "*Kopierverbot*." Not that they contained some top-secret information, on the contrary, physicists considered them discarded stuff (never did I see a student pick up one of "my" authors' books). These books and booklets were materially so deteriorated, so gnawed by humidity and generations of bookworms that they would have disintegrated in the Xerox-machine. From those, I carefully made hand-notes and copied illustrations. Some of these sketches illustrate this article. I wonder if the dusty works of my friends materially survived the decade that went by since I frequented them.

It is through these friends ("*durch sie hindurch*," a Heideggerian philosopher would say) that I will now try to find an answer to the angry question of Michiel Schaeffer's correspondent. Physics is not a ukase of nature, not a monologue. At its best, it is a dialogue between man's imagination and nature's intimations. At its worst, it is an arrogant axiomatic construction warded by bureaucratic Cerberes. Ernst Mach (1838-1916), a forerunner of relativity "*malgré lui*" wrote once that scientific concepts are the machinery behind the stage of physics.[7] As different playwrights require different offstage arrangements, the type of concepts that a physicist needs depends on the kind of empirical facts that he wants to manifest. For Mach, the facts of physics had their origin both "in the world out there" and in man's sensorium. Consequently, all physical analysis had to be *impirio-critical*, that means that it had to consider the way in which nervous sensations are construed as perceptions of physical facts. As a consequence, not the abstract atom, but elementary sensations were the conceptual building blocks of physics.[8]

The energy concept is part of the conceptual machinery depicted by Mach. It did not become a cornerstone of the building before the 1840's, when the "law of conservation of the 'force' (energy)" was simultaneously discovered,[9] or invented,[10] by at least three scientists (Mayer, Joule and Helmholtz) who spent part of the rest of their life claiming their "priority

rights." I will first concentrate on the ten years (1842-1852) during which the concept of "force"[11] crystallized into what we now call energy. This is also the decade when what we know as the first and the second principle of thermodynamics (the energy conservation law and the entropy maximization law) coalesced. These principles were no pure edicts of nature but rather the result of a *chassé-croisé* between the epoch's preoccupations, interests, representations, and nature's "*resistance avisos*." Neither is it irrelevant that the energy conservation law was discovered, or invented, a few years after England opened history's first national market for the labor force (1834)[12], Ricardo formulated a theory of value potentially disembedded from concrete costs, or when Liebig made the soil, once "the plant's stomach," virtually obsolete in agriculture by showing that chemicals could substitute for it[13], when the first railroads and the first electric telegraphic lines were built[14], photography invented, and when Marx wrote "Das Kapital"! Nature's intimations entered of course the constitution of the concept, for instance her refusal to be tricked by those who attempted to build machines producing both work and the cause of this work. In fact, the impossibility of the perpetual mobile is a perfect example of nature's avisos of resistance: in itself, it was not a concept, but a physico-logical constraint acting on the formation of the concept to come. The law of energy conservation was that concept. In relation to the impossibility of the perpetuum mobile, the concept, energy, as all works of the imagination, is "overdetermined," redundant of societal and cultural meanings. It is, for instance, the product of a time that considered *scarcity*, the fundamental axiom of formal economics, to be *the* law governing social order, much as the gravity law governs the Newtonian universe.[15]

So, the first question I would like to ask the questioner is this: Do you not consider plausible that the industrial enthusiasm that characterized the time of the railroad mania and of the "energy mania" will *nolens volens* taint every social and cultural reality where the concept energy is imported, today? In other words, since it is a constitutive theme—or an

active connection—of its genesis, will not *scarcity* be transferred together with the *energy* concept? And is this not the bottom line of the debate on "Energy and Power" courageously initiated by WISE?

The editor recalled to me the title of a pamphlet I once wrote, "Cow-dung Is Not Energy." I was thinking then of the Indian villagers who have no other fuel than dry cow-dung. Imagine that a do-gooder from abroad comes to the village with the blueprints of a marvelous bio-digester, importing with them a pop science version of the concept *energy* where people had one hundred words for nature's forces and gifts. If our alternative technologist succeeds in building his contraption, the villagers who can afford to pay for it will have gas in their kitchen. The poor will have no biogas and no cow-dung left. This can rightly be seen as a result of the transmogrification of cow-dung, a gift of a domestic goddess into an input for alternative industrial production: energy. Though it is scientifically correct inasmuch as it confirms the impossibility of tricking nature, the energy concept is more than a correct scientific statement. It is also a conceptual device that transforms all that it touches into gold for the industrial process. If you don't want gold, but cow-dung for everyone, you have to let cow-dung remain a free gift and, among ten dozens, use the appropriate word for it. If you aim at protecting the concrete living matrix of real women and men, "energy" is perhaps not an appropriate word.

It is no hairsplitting to insist that, underlying the debate on the appropriateness of technologies, there is the need of another debate on the appropriateness of the alternative technologists' semantics. In blunders like the one mentioned by the editor or the one just recalled, women are the first victims. So it is not idle either, to ask what the word "energy," when it evades from the lab and invades social reality, says *about* and does *to* the vernacular gender[16] of the ones exposed to the semantic and technological innovations imported from abroad. And here comes my second question to Michiel Schaeffer's correspondent: Don't

you realize that "energy," the concept underlying most alternative technologies, can be the vector of an industrial bias destructive of forms of local self-reliance founded in a place's perception of gender? In an attempt to address that question, I will delve again into the "waste basket of physics" in which I scavenged ten years ago. For, if "energy" imports unwanted industrial assumptions, they must be traced back to the epoch that shaped the concept.

"Energy" and Gender

Before Marie Curie's time, physics was an exclusively and jealously guarded male's realm[17]. Yet, I do not share the opinion of the American feminist physicist Evelyn Fox Keller. Following her, physics is *therefore* tainted with a "gender bias"[18] and she claims that it is the female physicists' duty to cleanse their science from it. I see things differently. Physics, like modern science in general has on the contrary the eminently dis-gendered character of those realms of activity that do not stem from a living interplay between feminine and masculine, masculine and feminine spaces, times and tools. No matter how "macho" an individual physicist may be, the lab is a dis-gendered space because men and women alike are asked to leave their gendered body in the wardrobe in order to become physicists. The history of physics from 1840 to our days does not speak of a more intense dialogue of the genders, but on the contrary, of a steady increase of its dis-gendered characteristics. Yet, be sure that if traces of gendered perceptions are to be found in my old friends' works, they are imports of their inborn decency, that is of their cultural context or matrix, and not the effect of more feminine presences in physics, since the contrary was true.

Motion, its nature, has always been one of the fundamental concerns of physics. In the history of this science since Antiquity, there are broadly two concepts of motion:

1. the Aristotelian concept, that contemplated all kinds of change and always

viewed motion as an affection of the medium, with this medium actively participating, as in Aristotle's example of the arrow, and

2. the Galilean concept of the motion of an individual body in a thought void, obtained by "peeling away" the motion's medium.

What do my friends have to say about that? Was perhaps a less dis-gendered concept of motion at home in physics before this was reshaped as "the science of energy"? I will show that around 1840, two contrasting concepts of motion, both *analytically correct* were at odds. One was thematically, if not mathematically, Aristotelian since it started by considering the medium's affections and changes. The other, inherited from Galileo, saw motion as a sheer *displacement* of individual bodies in a thought void. It only conceived motion disembedding it from its medium and finally succeeded in reducing even this to the individual displacements of "atoms" (till the mid-19th century, physicists called the molecules "atoms").

The Skinning of Nature

In the construction of the energy concept, a broad movement analogous to that of the social construction of the *public fetus*[19] occurred. Barbara Duden has convincingly shown how the fetus, now a dominant public emblem, was progressively arrived at by a process of elimination of the motherly body.[20] From the drawings of early 18th century midwifery books showing the correct position of the midwife's hands and the right delivery gestures that emphasized with all detail the concreteness of the motherly body, to William Hunter's pictures at the end of the same century, half the way to that disembedment was laid down (Figs. 1 and 2). The other half of the road leads to *Life Magazine*'s famous picture of the fetus as a small cosmonaut floating freely in amniotic liquid and culminates with our days'

sonographic images ("Hello, I'm Jimmie, I'll be born in 4 months from now."). Hunter pictured the dead fruit in a dead motherly body whose fabrics were surgically removed layer by layer to lay bare the dead fruit *as* fetus. It will take the masculinization of midwifery into obstetrics, X-rays and the sonogram to socially construct the public fetus that we "have" nowadays and that often seems to be the common object emerging from the confrontation between the "reproductive rights" and the "pro-life" movements.

Something very similar to this scanning or skinning process can be observed—at least by the "epistemological eye"—in the genesis and development of the energy concept between 1842 and 1852. One question was of paramount importance in the first sketches of the concept that we now call energy: it was the question of the origin of bodily heat. That is to say that the matter was more a concern of physicians than of what we now call physicists. In fact, the very first known formulation of the "law of conservation of the 'force'" was due to a modest doctor of the poor, Robert Julius Mayer from Heilbronn in Bad Wurthemberg.

Around 1840, most of the "compound" of German physicists thought that bodily heat was mainly caused by the friction of the blood with itself (internal friction layer upon layer) and with the inner surface of the blood vessels (external friction). The generally accepted explanation was that the mutual friction of neighboring layers affected with different speeds "ground," so to speak, the body's heat. The branch of physics associated with this concept was called *haemodynamics*, which was an "internal kinetics" of the blood and, by extension, of every fluid that happened to be affected by internal, also called *molar*-motion. There was, for instance, a "haemodynamical" meteorology in search for some ordered patterns in the majestuous, but seemingly haphazard celestial landscapes of towering cumulus, whirling nimbus or raveling out stratus clouds.[21] *Haemodynamics* was the branch of physics in which, before 1845, a young physicist had more chances to illustrate himself and gather the laurels of academic awards. (Besides speculating about the origin of bodily heat, haemodynamicists

also gave the first precise mathematical formulations of a liquid's viscosity coefficient and of the dependence of this on temperature[22]).

In contrast, by 1850 all the odds were in favor of the opposing school, which postulated that an oxidation of the food's juices taking place in the blood was the cause of bodily heat as it was of muscular "force." This new physico-physiological doctrine was called "*die Wärmelehre*" (the "doctrine" of heat). Its adoption of the steam engine metaphor and of the mechanics' technical terms—viz. the kilogrammeter[23]—as well as its reconceptualization of internal motion as occurring in a thought void was to originate the postulates of what we now call thermodynamics.

On the subject of bodily heat, haemodynamics was partially wrong and thermodymanics was right in part, by default. The last haemodynamicists had to retire or to convert to the tenets of the new doctrine. The "thermodynamical truth" had won over the "haemodynamical error." Was it really so? Though it of course corresponds to the victors' perception, this is a naive view of the "progress of science." In fact, a complex change occurred that an observer, Ferdinand Rosenberger has expressed in the following terms:
At the beginning, almost every experimental physicist followed on the path that was his (before the invention of the *energy* concept), dedicating himself for some more years to the same tasks. However, these tasks were subtly inflected by the new theory, often without close notice of the concerned worker himself (sic) ....[24]

This particularly applies to experimental haemodynamics. After an eclipse around 1845, it flourished again in the 1850, as if the "late haemodynamicists" had wanted their theory to usher in an ultimate thematic protest against the growing grasp of atomicism on physics.

The rise of the thermodynamical view of the body, and of the world, was an epistemological landslide that gave the Young Turks the occasion for breaking off with old

authorities. Along with the haemodynamic conception of bodily heat, the "vital force"[25], the separation between a "translunar" world of ideal realities expressed in pure concepts (see Lagrange's mechanics) and a "sublunar" realm of birth, growth, corruption and friction as well as the concept of the soil as the plant's stomach succumbed. Since its very beginning, "*die Wärmelehre*"—soon to be rechristened "mechanische Wärmetheorie"—was much more than a way to "correctly" explain the origin of bodily heat. Not unlike heliocentrism in Galileo's time, it was part of a worldview for which some, new Brunos and Galileos, suffered a true martyrdom and, more often, vilified their adversaries[26].

We have seen that thermodynamicists conceive first motion as *motion in a void* "peeling away" its concrete earthly matrices (e.g. the atmosphere) and then eventually ask the lubrication and the hydro- or aero-dynamical lab to re-introduce "the medium's constraints"[27]. Haemodynamics had sustained itself on a contrasting worldview for which everything was *embedded in concrete*, *terrestrial matrices*, rejecting explicitly Galileo's abstract view of motion along with atomicism.

Such an opposition between two worldviews embodying thematic bundles is what Gerald Holton has called a Q-Q confrontation.[28] Such confrontations use to end up with the victory of one theta or thematic bundle, with the "valid tenets" of the loser—e.g. the superior analytical skills of the haemodynamicists—being subordinated to the victor's paradigm. Exactly that happened with haemodynamics, whose "valid tenets," rechristened "fluid mechanics" are still an important but accessory branch of industrial physics (like research in the lubrication department of the transportation industry is today subordinated to R.& D. on engines and fuels). Haemodynamics lost first its short-lived hegemony on physics and then its epistemological autonomy to its victor. Since the epoch was imbued with the notion that the "law of scarcity," the founding axiom of formal economics, was the cause of all social order,

energy, the concept that arose from the confrontation, was a reformulation of the forces of nature under the assumption of scarcity.[29]

The victor's interest in economic rentability—translating into the concept of a machine's duty!—became an implicit tenet of 19th Century physics. Concomitant with the emergence of the energy concept occurred the mathematization of the language of physics[30] and what Ferdinand Rosenberger already described as a specialization that did no longer allow inter- and intra-disciplinary conversations. Some of the most dangerous tendencies of 20th century physics (its blind specialization, its thorough surrender to industry and the military, its lack of recognized meta-physical authorities, its disdain for concrete matrices like the atmosphere) can already be detected, as if it were "in the egg" in that change.

The "Gender of Physics"

The German haemodynamicists of the 1830's called the internal motion of the medium "*molare Bewegung*" (molar motion), using an adjective that is very appropriate on three different grounds:

1. until the end of the 19th century, molar *denotes* physical processes "relating to a mass of matter as distinguished from the properties or motions of molecules and atoms" (Webster, vol. II, p. 1454): the haemodynamicists were convinced continuists, which means that they did not ignore, but actively rejected the atomistic hypothesis on the ground of their belief that matter was continuous until the infinitely small[31];
2. "molar" *connotes* a sense of grinding inherent to its Latin origin: let me recall that molar motion was described analytically as the mutual "grinding" of the medium's layers through which internal friction converted mechanical motion into heat (fig. 3);

3. from its (casual?) homonimity with molar as "related to a uterine mole" (Webster, ibid.), the term seems besides to have been endowed with an implicit uterine *connotation*.

Insofar "Galilean" motion is disembedded from concerns for the medium that it affects and derives its themes from ballistics, it can be termed "phallic." Here is the core of the thematic difference between the Galilean and the molar sense of motion: molar motion is "uterine," if this means that it is completely *embedded* in the *terrestrial* medium of which it is an affection and describes concrete "matrices of physical existence" rather than their raping, transformation or annihilation.

Beyond these gender metaphors, I ask the reader to make the effort of imagining this alternative as a line of radical epistemological rupture: around 1840, a physicist could still either *choose* to consider motion in the Galilean, disembedded way, or he could stick to a molar sense of motion that starts with the consideration of how it affects its terrestrial medium. Though physics in the broad "modern" (= post scholastic) sense was born with Galileo's decision to disembed motion from its medium and ignore secondary qualities,[32] the other path remained theoretically walkable and analytically describable *in the sublunar world*. It was the path—*thematically* if not analytically more akin to Aristotle's, against which Galileo built his kinetics—that haemodynamicists chose to go.

The emergence of the energy concept is contemporary and concomitant with the closing of that path, as if the thermodynamicists had re-written Galileo's Dialogues Concerning the Two New Sciences (1638)[33] taking the haemodynamicists for their Simplicios (Simplicio, the Aristotelian physicist, was the laughing stock of the Dialogues). Only that the haemodynamicists of 1840 were extremely well skilled experimenters and that their analytical descriptions (their math) were highly sophisticated and generally flawless. An

epistemological gulf separates these "two new sciences." As Gerald Holton would say, the thematic origins of both scientific approaches are heterogenous. The first is "trans-lunar" in the sense that it is fit for the description of frictionless motion occurring in the thought void of outer space. Applied to terrestrial, "sub-lunar" motion, it first has to reduce it to an equivalent of the motion of the ethereal spheres, reintroducing stochastically certain terrestrial factors like friction as constraints (as in Stokes' and Langevin's versions of Newton's equation of friction and of the stationary speed of fall of a body of given dimensional characteristics in a homogenous viscous medium at constant temperature).

The second method is *physical* in the original sense: it takes terrestrial motion for what it is: a relation between a moving mass or mole—which can be part of the medium itself—and a medium *affected* by it.

Epistemological Reflections

Did haemodynamics contain the seed of an alternative *understanding* of energy and entropy? Such a question can of course not be answered, all what can be granted is that the haemodynamicists' concept of motion, their "active connections" in general, were distinct from those of the thermodynamicists. As to the obtention of the viscosity coefficient, and of the analysis of the average stationary speed of fall in a viscous medium, it can be said that it makes them *retrospectively* forerunners of Stokes, Langevin or Painlevé,[34] but again, that would miss the point of their epistemological specificity.

Haemodynamics could have reached an independent formulation of the law of energy conservation—and even more, of entropy—*if it had given a full analytical description of Joule's experiment*[35] of 1845 (fig. 4). It failed to do so. What happened in reality is that, once agreement was reached about the "exchange rate" of the "bank of nature," this rate (confirmed analytically and experimentally in one sense and only experimentally in the other)

was simply used both ways in all the physicists', and physiologists', equations and experiments to come. Clausius elaborated the entropy concept in order to deal with the experimental fact that friction can convert all the mechanical work (energy) imparted to a medium into heat,[36] while a thermic engine can only convert a relatively small part of the caldron's or cylinder's heat into useful mechanical work.[37]

The controversy was closed by the victory of a "*mechanische Wärmetheorie*" that associated atomicism and the Galilean disembedding of motion with an insistence on economically useful energy conversions (viz. the "useful" conversion of thermic into mechanical energy) and considered the opposed conversions as nuisances to be minimized (friction, residual, "useless" heat, "entropy"). This economic bias has become such a built in thematic part of the energy concept that many physicists pretend not to notice it. I suspect that it is because their whole worldview is imbued with the notion that the cosmos is ... a scarce place (in that respect, the whole "heat-death" ideology of the late 19th Century, its echo in a physiological theory of fatigue and of social degeneration that became the subject of novels, and the speculations motivated by the ambiguities of the entropy concept would deserve a psychoanalysis). As the conversion of heat into mechanical work (the economy of the steam engine) became the stereotype of all conversion processes, in organisms as well as in machines, it metaphorically transformed nature into a giant "*arbeitende Maschine*" (economically working machine).[38]

Instead of the expression of nature's "idleness," that is of "cosmic" scarcity justifying economic assumptions, the haemodynamists of the mid 19th Century, a time when the energy concept was still "in flux,"[39] discovered that the conversion of mechanical work into heat in a viscous fluid generates patterns of molar motion of which many of Plateau's experiments in the 1850's expressed the visual aesthetics.[40] In other words, a concept that has been taken as a paradigm of chaos (entropy) would have found a complement in an order-manifesting

principle (fig. 5). The crucial difference between both schools is beyond error or correctness. Its essence lies in a radical difference in *intellectual interests* (Fleck's active connections) concerning nature.

I hope to have encouraged the reader to recover a sense of the fluidity of the energy concept in the decades in which it coalesced. However, our reflection must now concentrate again on the transfer of the energy metaphor as a Trojan horse for pre-, trans- or meta-scientific themes. If I am right, it will export scarcity together with thermodynamical rationality to cultural contexts in which it was not a dominant perception.[41] It will besides contribute to break the asymmetric complementarity of the genders.

Podolinsky: A "Molar," Matricial ... or Easteuropean View On Energy

Would a concept of motion (and hence of "energy") genuinely respectful of living matrices because it shares their embeddedness have more benign social consequences when it evades from the lab than the thermodynamicists' motion in a void and its conceptual aftermath? The question is concretely whether the energy concept—and in this case: which energy concept?—can be used in a judo-like fashion to limit the destruction of *self-reliant communities* by the industrial package of which "energy" is always a part. *This* is in my opinion the intellectual project that Sergej Sergejevichtch Podolinsky succeeded in formulating if not in realizing.[42] In his attempt to enroll the energy concept for the protection of communities embedded in a cultural tradition, rather than for their exploitation or transformation, I found many fundamental *molar* intuitions. It is no wonder if one knows that Podolinsky's interests were haemodynamical and that he learned thermodynamics relatively late.[43]

Yet, Podolinsky has been thus far depicted as a pioneer of "ecological economics,[44] of "social energetics" or of "energy accounting." I think that more can be read in his work.

Social energetics has regained actuality in the 1960's, since it was seen as a possible antidote to a destruction of nature not quite wrongly ascribed to monetary economics. The concept of "energy accounting" was then presented as the truly ecological way of bargaining with nature, reckoning its forces and assessing the ecological costs of economic development. For a reading of Podolinsky *in that light*, I recommend Juan Martinez-Alier's seminal paper, which introduced the "green academia" to Podolinsky as a forerunner of Lotka, Cottrell, Leslie White or even Georgescu-Roegen.[45]

I will not repeat here what Martinez-Alier has so competently said. I will rather focus on one aspect that has thus far not been sufficiently highlighted: it is Podolinsky's use of the energy concept as a scale to evaluate and measure human labor and to limit it when it becomes industrial.

It is nowadays trivial to recall that: Every square meter of land receives daily between 2000 and 5000 kilocalories of solar energy. Some of it is *conserved* by the plants in the form of "affinity energy" (chemical energy), which constitutes the first circle of biological energy conservation, of which coal—Podolinsky does not speak of oil yet—*must be considered an integral part*. Animal life can be visualized as a smaller cycle "feeding" on the first and conserving energy as carbohydrates and proteins. Man contributes to conservation in both cycles, not only in agriculture and the raising of life stock, but also through the making of clothes, shoes and heated and well-insulated houses. Within this circle, man needs 1500-2500 Cal a day to keep himself alive and can transform one tenth of it into useful work. Yet, unless one tolerates the death of the soil—and Dutch-style industrial hydropony on dead soil—he has to remember that man ultimately derives his alimentary energy from the soil. So, as economics is scaled by the measure of a man's work output (some 200 Cal/day), social geography must be scaled by the amount of cultivated land required to feed one person (about one acre in intensive agriculture). No wonder that Podolinsky pretended to have unified the

views of the Physiocrats, of the Marxists and of the thermodynamicists! Yet, man's labor can contribute either to the conservation or to the dissipation of energy. It will inevitably do the latter if his industry is based on the exploitation of fossil energy. But the evaluation of his work as conservative or dissipative depends also on the knowledge of his immediate or mediate relation to the soil that feeds him. Following Podolinsky, man's activity only deserves the name labor if it is conservative.[46] Dissipative activities do not deserve that name and must be sanctioned as undue withdrawal of a common good from a community's existential matrix. Heavy industry, which rely on conserved solar energy in the form of fossil organic compounds exhausts a common good and is not sustainable in the long run. As the over-exploitation of the soil, it is not legitimate labor and must therefore be sanctioned.

The question that Podolinsky did not address directly is how illegitimate work must be sanctioned. Ulrich von Weizsäcker has recently suggested that all forms of tax raising ought to be replaced by a single tax on energy conversions. In other words, all "labor" that involves an industrial conversion of energy must be taxed in proportion to that conversion's intensity. I think that it is a practical complement to Podolinsky's embedded view of energy and the use of it as a *factor of proportionality* to evaluate man's productive activities.[47] Under the shield of this radical protection of self-reliant communities, their commons and their ecological-climatic matrices, an economy in the true sense of "administration of one's own house" could flourish again. A sustainable world of austere hedonistic activities, freed from the energy-entropy form of the obsession with scarcity, in which the soil would be the generator of plant life, wheat would again be allowed to be the substance of our daily bread, and cow-dung to be a goddess' gift.

NOTES

1. *Soft Energy Paths*. Cambridge, Ma: Ballinger, 1977.
2. For a list of the Worldwatch papers edited by L.Brown, write to Worldwatch Institute, 1776 Massachusetts Ave., NW. Washington, D.C. 20036, USA.
3. Illich, Ivan, *Energy and Equity*. New York, Harper & Row, 1974 (or: London: Calder & Boyars, 1974) .
4. Pörksen, Uwe, *Plastikwörter: Die Sprache einer internationalen Diktatur*. Stuttgart: Klett-Cotta, 1988 (an English abstract can be obtained by the author).
5. Rahnema, Majid, "De l'homo oeconomicus au développement et à l'aide: l'histoire d'un autre SIDA," in Gilbert Rist, Majid Rahnema et Gustavo Esteva, *Le Nord Perdu. Repères Pour L'après-Développement*. Lausanne: Editions d'en bas, 1992, p. 115-166.
6. See for instance: Hagen, G., "Ueber die Bewegung des Wassers in engen cylindrischen Röhren," in *Poggendorff's Annalen der Physik und Chemie*, 46, 1839, p.423-442. Poiseuille, Dr, "Experimentelle Untersuchungen über die Bewegung der Flüssigkeiten in Röhren von sehr kleinen Durchmessern," in *Poggendorff's Annalen der Physik und Chemie*, 58, 1843, p. 424-448. Hagenbach, Ed. "Ueber die Bestimmung der Zähigkeit einer Flüssigkeit durch den Ausfluß aus Röhren," in *Poggendorff's Annalen der Physik und Chemie*, 109, p. 385-426.
7. Mach, Ernst, *The Analysis of Sensations and the Relation of the Physical To the Psychical*. (English by Sydney Waterlaw, with an introduction by Thomas Szasz), New York: Dover, 1959.
8. This position was violently attacked by Lenin, V.I., *Materialism and Empiriocriticism*. Saint-Petersburg, 1908.
9. Kuhn, Thomas, "Energy Conservation as an Example of Simultaneous Discovery," in M. Clagett, ed., *Critical Problems in the History of Science*. Madison: University of Wisconsin Press, 1955, p. 321-356. Simultaneous discovery is the rule, single discovery the exception (or, in Merton's phrasing: multiples, not singletons are the rule). The search for the pioneer and the resulting "priority struggles" are part of 19th Century's naive theory of science.
10. Merleau Ponty, Jacques, "La découverte des principes de l'énergie: l'itinéraire de Joule," in *Revue d'Histoire des Sciences 32*. 1979, p. 315-333. Insists on the invention character of Joule's itinerary. Truesdell, C., *The Tragicomical History of Thermodynamics 1822-1854*. Heidelberg: Springer, 1980. Einstein, in a letter of January 6 1948 to Besso: "I see [Mach's] weakness in this, that he more or less believed science to consist in a mere ordering of empirical material; that is to say, he did not recognize the freely constructive element in the formation of concepts. In a way, he thought that theories arise through discoveries and not through inventions (quoted in Holton, Gerald, *Thematic Origins of Scientific Thought. Kepler to Einstein*. Cambridge, Ma: Harvard University Press, 1973, p. 231). Thaddeus J. Trenn, in his preface to the reprint of Fleck's *Genesis and Development of a Scientific Fact*. op. cit.: "The conceptual creation of science, like other works of the mind, become accepted through a complex process of social consolidation. These thought products, and the thought style under which they arise, are never finalized but can undergo transformation through intra-collective or even inter-collective interaction whereby symmetry is democratically preserved between the esoteric circle of the experts and the exoteric circle of the wider society, and marginal men participating in diverse thought collective can create something new from the conflict." (p. xiii) Not long ago, Michaela and Augusto Odone, the inventors of "Lorenzo's oil" gave a striking demonstration of the truth of this last sentence.
11. I know that strictly speaking, the unity of force corresponds (now) to the dimensional expression C^1 G S^{-2} while the unity *energy* has the dimensional expression C^2 G S^{-2}. But this distinction was not clearly admitted before 1887, after the Beneck Foundation of the

Göttinger Fakultät had invited, in 1884, to a competition whose program was phrased in the following words: "Since Thomas Young (Lectures on Natural Philosophy, London 1807, Lecture VIII) many physicists ascribe to the physical bodies a property called energy. Since William Thomson (Philosophical Magazine and Journal of Science, IVth Series, London, 1855, p. 523), the notion of a principle of the conservation of energy valid for all physical bodies has gained acceptance, which **seems** (emph. mine) to correspond to what Helmholtz had understood under the name "Principle of Conservation of the Force." The Beneck Foundation asked to answer the question whether Young's and Thomson's concept of "energy" was equivalent to what Helmholtz called "force." There were two entries, but no first praemium was awarded. The young Max Planck won the second praemium with a book-length essay entitled "Das Prinzip der Erhaltung der Energie," Leipzig: Teubner Verlag, 1908 (1887).

12. Polanyi, Karl, "*The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon, 1957 (1944), p. 102.

13. Dubiel, Ivo, "Cambios de relevancia social en el transplante de teorías. Los ejemplos de la teoría económica y agronómica," manuscript, 1984.

14. Postman, Neil, *Amusing Ourselves to Death*. New York: Methuen, 1988.

15. Polanyi, op. cit., on Edmund Burke's and Jeremy Bentham's belief in a "law of scarcity" governing society more efficiently than any political law, p. 117: "To the question 'What can the law do relative to subsistence' Bentham answered 'Nothing directly'."

16. Illich, Ivan, *Gender*. New York: Pantheon Books, 1982.

17. This is true for the 19th Century, the century during which physics became a profession. It is not quite true for the 18th Century, when enlightened aristocratic ladies performed physical experiments in theirs salons.

18. Keller, Evelyn Fox, *Reflections on Gender and Science*. Yale: University of Yale Press, 1985.

19. An expression coined in Pollack Petchesky, Rosalind, "Fetal images: the power of visual cultures in the politics of reproduction" in *Feminist Studies* 13, no 2, Summer 1987.

20. Duden, Barbara, "*Disembodying Women: Perspectives on Pregnancy and the Unborn*. Cambridge, Ma: Harvard University Press, 1993.

21. Babinet, "Ueber einen neuen Neutralpunkt in der Atmosphäre, in J.C. Poggendorf, *Annalen der Physik*, Vol. 51, 1840, S. 562, p. 618.

22. This was the feat of Meyer, Oskar Emil, "Ueber die Reibung der Flüssigkeiten," in J.C. Poggendorf, *Annalen der Physik*, Vol. 113, Leipzig, 1861, p. 55 ff., 193 ff and 383 ff (experimental results). Meyer (with e!) is a "late haemodynamicist," long reluctant to convert to the tenets of the opposing school. He however did so around 1875 and was as successful as in his haemodynamical studies, since, as a precursor of Perrin, he gave the first sketch of what is now known as the "Avogadro Number": Meyer, Oskar Emil, *Kinetische Theorie der Gase*, Beslau, 1877, p. 232. His brother underwent a similar "late conversion" and, before Mendeleiev, gave the first blueprint of what had to become the periodic table of the elements. About the Meyer brothers and their dramatic change of "philosophy of matter," see Rosenberger, Ferdinand, *Die Geschichte der Physik*, 3rd part, Brauschweig: Vieweg, 1887-1890. Notice that the passage from haemodynamical to thermodynamical views generally implied a shift of interest from the internal kinetic of liquids—with the mutual dependence of neighboring infinitesimal layers—to the kinetic of gas molecules conceived as individual Galilean bodies on a kind of 3-D "billiard board." I suspect that the motif for such changes of "matter philosophy" lies in the lack of a "scaling element" in continuistic considerations, probable reason of the haemodynamicists' failure to give a full mathematical analysis of the caloric equivalent of mechanical work.

23. The following, incredible statement by Mayer must be quoted in the original: "Den unproduktiven Druck haben wir umsonst, die Kraft aber, oder das sogenannte Kilogrammeter kostet immer Geld. In noch höherem Grade, womöglich, als für die Physik, ist für die Physiologie, welche bekanntlich in der Wärmelehre ihre wissenschaftliche Grundlage erst gefunden hat, das Kilogrammeter ein notwendiger Lebensbedürfnis" (Mayer, R. J., *Kleinere Schriften und Briefe*. Edited by Weyrauch, Stuttgart, 1893, p. 419.
24. Rosenberger, Ferdinand, "Die Geschichte der Physik in Grundzügen mit synchronistischen Tabellen," Braunschweig: Vieweg, 1887-1890, 3rd vol., p. 386.
25. Dubois-Reymond, Emil, "Die Lebenskraft" in *Reden von Emil Du Bois-Reymond*. Leipzig: Veit Verlag, 1887, p. 1-28. This article is a historical summary of the decline of the concept of the vital force after energetism substituted mechanical metaphors for it.
26. See in this respect the incredible performance of Dühring, when he passionately took side with Mayer, "the true German physicist"—not like Joule, a stranger, and unlike Helmholtz, (the "Bismark of physics"), free of "English ideas"! The old German-English "Prioritätsstreit" became three-national in the 1880's, as France entered the arena with Hippolyte Carnot brandishing an old sheet of paper meant to prove that his brother Sadi had already calculated the mechanical equivalent of heat before 1824. Dühring, Eugen, "Robert Mayer, der Galilei des neunzehnten Jahrhunderts," Chemnitz: Ernst Schmeitzer Verlag, 1880.
27. Applied to social matters, the thermodynamicists' Galilean recipe reads: "Disembed from the context. Make abstraction of its reality. Re-introduce it as controllable abstract constraints." No wonder that outside the lab, such practices could only lead to the A-bomb and to the climatological catastrophe, which in the strong sense is a negation of the atmosphere and its climatic horizons. For an ambiguous attempt to take the atmosphere and a place's climate at face value and as the starting point of all ecological discussion, see Murota, Takeshi, "Heat economy of the water planet earth: an entropic analysis and the water-soil matrix theory" in *Hitotsubashi Journal of Economics*, vol. 25, no 2, Tokyo: Hitotsubashi University, December 1984. The strong part of the Japanese theory of the soil-water-air matrix is its repeated reference to the historical climatic concept of *fudo* as scaling element of geography.
28. Holton, Gerald, *Thematic Origins of Scientific thought: Kepler to Einstein*. Cambridge: Harvard University Press, 1973.
29. See Illich, Ivan, *The Social Construction of Energy*. op. cit. "I am interested in the history of 'energy' because I discover in the emergence of this notion the means by which 'nature' has been interpreted as a domain governed by the assumption of scarcity, and human beings have been redefined as nature's ever needy children. Once the universe itself is placed under the regime of scarcity, **homo** is no more born under the stars but under the axioms of economics."
30. Schickel, Joachim, "Die Sprache der Physik," in B.P. Kurier, 3.4.1982,p. 26-28. Robert, Jean, "Der Verlust der Erläuterungssprache der Physik von 1840 bis 1900," in Stephan H. Pfürtner, "Wider den Turmbau zu Babel. Disput mit Ivan Illich," Reinbek bei Hamburg: Rowohlt, 1985, p. 116-130, 152-153. The commented bibliography of this disarmingly naive essay is still interesting.
31. This is not so extraordinary, if one thinks that as late as in 1913, Mach wrote: "I gather from the publications which have reached me, and especially from my correspondence, that I am gradually becoming regarded as the forerunner of relativity. (...) I must, however, as assuredly disclaim to be a forerunner of the relativists as I personally reject the atomistic doctrine of the present-day school or church" (quoted by Holton, Gerald, op. cit., p. 230).
32. Quoting Alexandre Koyré, Gerald Holton writes: "... Galileo's work was an experimental proof of Platonism as a methodology of science ('La découverte galilénne transforme l'échec du platonisme en victoire. Sa science est une revanche de Platon'). The scholastics had

always been able to point to the two main failures of Platonism: on the one hand there was no good theory of **terrestrial motion** (...) and on the other hand there was no successful mathematization of quality.(...) What of the second challenge? The mathematization of quality had proved possible for such qualities as motion and size, but not for others, such as taste, the sensation of heat, color (though most of these subsequently were indeed also found to have quantifiable aspects). Galileo's decision was simple: to **banish** (emphasis mine) the unquantifiable qualities from science—or more properly, to withdraw the attention of science from the realm of the unquantifiables" (Holton, op. cit., p. 439).
33. In Robert M. Hutchins, ed, "Great Books of the Western World," Chicago, *Encyclopaedia Britannica*, 1952, Vol. 28, p. 129-260.
34. One of the humidity and worm-gnawed documents I could save during my "trip to the grandfathers' country" was a handwritten version of Painlevé, Paul, *Leçons sur le Frottement*. Paris, 1895.
35. It has not been sufficiently noticed that Haller's haemodynamics, as exposed in his Physiology was the main source of inspiration of Joule's first experiments. The young Joule quoted Haller in the following terms: "... the hypothesis that blood is heated by friction in veins and arteries would account for that part of animal heat which Crawford's theory had left unexplained." See: Wobmann, Peter, "Albrecht von Haller, der Begründer der modernen Haemodynamik," in *Archiv für Kreislaufforschung*, Vol. 52, Fasc. 1-2, 1967, p. 96-128. Haller, Albrecht, *Physiology*, vol.ii, p. 304. In 1845, Joule built a machine in which the conversion of a liquid's molar motion could occur practically without heat losses, what allowed an experimental measurement of the *caloric equivalent of mechanical work*: Joule, James Prescott, "On the caloric equivalent of mechanical work" (communicated by Michael Faraday, Foreign Associate of the Academy of Sciences, Paris, &c. &c. &c.) in *Philosophical Transactions* 1850, Part 1, p. 298 ff. "In 1843, I announced the fact that 'heat is evolved by the passage of water through narrow tubes' and that each degree of heat per lb. of water required for its evolution in this way a mechanical force represented by 770 foot-pounds. Subsequently, in 1845 and 1847, I employed a paddle-wheel to produce the fluid friction, and obtained the equivalents 781.5, 782.1 and 787.6 respectively from the agitation of water, sperm-oil, and mercury."A question that historians of science have thus far not answered with due precision is this: why did the haemodynamicists repeatedly fail to formulate **analytically** the **caloric equivalent of mechanical work** (= to describe Joule's experiment mathematically without starting a priori from the inverse of the mechanical equivalent of heat), while Mayer, who was by no means a skilled mathematician succeeded in giving a conceptually—if not numerically—flawless analytical formulation of the **mechanical equivalent of heat**? The reason is this: nature is "scaled," which means that every creature is morphologically related to its size. The haemodynamicists failed to identify the scale at which a "mole" of liquid will necessarily cease to grind heat between its layers. Some still thought, like Leibnitz, that "the 'force' can disappear from particular bodies (falling into the 'abysses of the infinitely small') without being lost for the universe": "*Etsi enim pars potentae ab impedimentis absorbeatur, non destructa tamen, sed in impedimenta translata est, quae in effectum integrum computantur*." In other words, Leibnitz thought that friction can occur ad infinitum between smaller and smaller moles, the "force" not disappearing, but being unlimitedly fractalized, as if we would change good money for cents and these cents for hundredths of cents and so forth, until, without having "less" we would no longer have anything that means something in monetary terms. Wouldn't it be interesting to open a forum for those who will attempt to do what the haemodynamicists were impeded to complete by the victory of the opposing school? The epistemological wager of the exercise is this: While it is impossible, within one school or "theta" to disentangle the active from the passive connections, it is possible, knowing nature's resistance avisos, to compare the active and the

passive connections of two schools engaged in a ?-? controversy. Wise could provide the mail-box. Please, don't try alone!
36. It was only stated much later that, in the conversion of a liquid's internal mechanical work into heat, there **must always be** a remnant of macroscopically observable mechanical motions, named—after the Scottish botanist who observed them around 1840—Brownian motions. These are explained by stating that, for a very small body floating on a liquid's surface or in suspension within it, the resultant of the pressures on the body's immersed surface at any moment due to the shocks of the liquid's molecules' haphazard thermokinetic motions, is generally not zero and greater than the resultant of the resistance factors like inertia and friction. As a body of increasing dimensions is considered, these shocks tend to statistically equate themselves, leaving at any moment a resultant that can be neglected in relation to the body's inertia and the surface interactions (capillary adherence, friction). Einstein, Albert, "Ueber die von der molekularkinetischen Theorie der Wärme geforderte Bewegung von in ruhenden Flüssigkeiten suspendierten Teilchen," in *Drudes Annalen der Physik*, Vol. 17, May 1905, p. 549.
37. Clausius, Rudolf, Abhandlungen über die mechanische Wärmetheorie, Braunschweig: Vieweg, 1864.
38. Breger, Herbert, *Die Natur als arbeitende Maschine. Zur Entstehung des Energiebegriffs in der Physik, 1840-1850*. Frankfurt: Campus Verlag, 1982.
39. Elkana, Yehuda, *The Discovery of the Conservation of Energy*. Cambridge: Harvard University Press, 1974. "I consider this case as an illustration of that general aspect of scientific change which, to make it thought-provoking by the image it creates ... I will call concepts in flux" (p. 12 ff).
40. Plateau, Joseph, "Recherches expérimentales et théoriques sur les figures d'équilibre d'une masse liquide sans pesanteur" in *Mémoires de l'Académie des Sciences*, Vol. XXXI, Paris, Brusell, 1857.
41. Dumouchel, Paul, "L'ambivalence de la rareté" in Paul Dumouchel and Jean-Pierre Dupuy, *L'Enfer des Choses. René Girard et la Logique de l'Economie*. Paris: Seuil, 1979.
42. His son's commitment with the idea of protecting the Russian *mir*—peasant commune with its commons—by defining its horizon and legally limiting what could cross it both ways can be seen as a striking application of his father's ideas. A member of the Ministry of Agriculture led by his cousin Pyotr Stolypin, Podolinsky jr was the intellectual author of the tsar's last agrarian reforms. Podolinsky, Sergej S., *Rußland vor der Revolution: Die Agrarsoziale Lage und Reformen*. Berlin: Berlin Verlag, 1971.
43. While in Marburg, I have found Podolinsky's doctoral thesis: Podolinsky, Serge, "Beitrag zur Kenntniss des pancreatischen Eisweissfermentes," in E.F. W. Pflüger's, *Archiv für die gesammte Physiologie des Menschen und der Thiere*. Bonn: Cohen Verlag, 1876, p. 422-443.
44. Diwan, Romesh, "Ecological Economics: A Dangerous Myth or a Noble Vision? Notes on Gandhian Perspective," State College, 1968: Penn State Seminar October 14-16, 1988, manuscript.
45. Martinez-Alier, Juan, "Energy accounting and the notion of 'productive force'," Barcelona, Berlin, 1984, manuscript. Isn't it symptomatic that this work about a thinker from a region of the industrializing world that was despised as "marginal" was first published in Catalan? See also: Martinez-Alier, Naredo, J.M. and Schinepmenn. K., "Research Project: Energy Analysis and Economics - Studies on Neglected Interdisciplinary Currents of Thought," Berlin, 1984, manuscript.
46. Podolinsky, Serge, "Menschliche Arbeit und Einheit der Kraft" in *Die Neue Zeit*. Stuttgart, 1883, p. 413 ff.. The most important passage for my interpretation is: "We hope to have succeeded in burying the so-called doctrine of abstinence or 'negative labor' [of the

capitalists]. For labor is always a positive concept denoting the expanse of mechanical or psychical energy for the sake of energy conservation" (p. 423).
47. Another modern complement to Podolinsky's alternative "social energetics" comes from Bettina Corves, who has recently written a thesis in which she shows the clash between East-European and West-European ideas in the formation of the energy concept. The victory of the utilitarian-thermodynamical paradigm attests the predominance of West-European, pro-heavy industry conceptions. Corves, Bettina, "Energie in der westlichen Industriegesellschaft. Geschichtliche Entwicklung des Begriffes und die Bedeutung in der Umweltdiskussion," Nürnberg: Wirtschafts- und sozialwissenschaftliche Fakultät der Friedrich-Alexander Universität, 1986.
In an old essay, Georgescu-Roegen, who had been himself an agrarian activist in his native Romania, deplored this catastrophic Western predominance and saw it as a threat for socialism: Georgescu-Roegen, Nicholas, "Economic Theory and Agrarian Economics" in *Oxford Economic Papers*, 1960, 12: 1-40 (on this theme there is an older, more interesting paper by G.-R., a statement of the "agrarian specificity" of East-European socialism which I was unable to retrieve in my files).
Clausius' response to Podolinsky is a striking illustration of the rightness of Georgescu-Roegen's point over the Western despise for East-European agrarian practices and theories: Clausius, Rudolf, *Ueber die Energievorräte in der Natur und ihre Verwertung zum Nutzen der Menschheit*. Bonn, 1885. "We now live in a marvelous period with respect to the consumption of mechanical energy. In economic relations, it is usually taken as a rule that of anything, only as much is consumed as can be produced in the same period (...). In reality, we go about in a totally different manner, having at our disposal under the earth stocks (...) formed in periods compared to which all historical times vanish. These we are now using and we behave just as the happy heir eating up a rich legacy." The tone of the several references to Podolinsky to be found in the Marx-Engels correspondence is in tune with Clausius': there are no reasons for limiting industrial progress in its tapping of nature's forces: "What Podolinsky has completely forgotten is that the laboring man is not as much a conserver of present sun energy as he is a waster of past sun energy." Marx, Engels, *Lettres sur les Sciences de la Nature*. Paris: Editions sociales, 1972, p. 109. The book contains 4 pages of comments on Podolinsky, the largest from Engels, dated Dec. 1882.

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Recovering A Sense of Place

(2001)

Jean Robert

Though shadow-less space overwhelms me, I still dwell among traces of lost boundaries. My flesh—the flesh of my "lived body"—still does not coincide with the charts of anatomy. Though a light imperative soaks the epoch, I cherish shadow.

The tracing of a bounding circle is the first act of founding a place to dwell. A "place" is not a portion of "space" enclosed by an arbitrary frontier. A place is "where it began" (cf Greek *archein*). It is a local, peculiar and unique union of landmarks and skymarks. I live among the traces of broken boundaries. Can I still trace boundaries?

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History of Space

A Plea for a History of Space Perceptions (1991)

Jean Robert

Is it possible to write a "history of space"? Is such an attempt justifiable? Doesn't it amount to the pretension of historizing a "universal." There are precedents. Foucault, of course, and his "historization" of sexuality.

I prefer to situate my attempt in reference to another, more modest precedent: the series of historical studies recently published by the *Fernuniversität* of Hagen, Germany. These studies successively attempt to historize labor, "the text," money, literacy, and space perception.[1]

The latter is my theme. I have to de-limit it. I am interested in the history of popular space perceptions. I do not deal with mathematical spaces, less with the conquest of "outer spaces." I am little interested in the constitution of the conceptual frame-space of science, not at all in science fiction.

What I do:

- Attempt a "phenomenological" description of modern space, mainly after the introduction of motorized transportation: I study, for instance, the railroad mania of the 1840's in England and the changes of perception that it fostered.
- Pinpoint some certainties through which modern men and women apprehend space.

[1]These courses can be obtained at the following address: Dr F. Helms, FernUniversität - GHS - Postfach 9 40, D-58084 Hagen,

- Let these certainties in the wardrobe and travel to history.

Though they are flat and "superficial"—in the sense architecture theorists give to this term: reflected by "surfaces"—for the historian, modern certainties have a hidden historical depth. For instance, the writings of ldefonso Cerdà echos our own certainties in a way that a distance of a century makes almost caricatural, a little as a Dolphin Water closet of 1880 looks today as a caricature of our flush toilets. Ildefonso Cerdà planned the first street cars of Barcelona and wrote a monumental *Teoría de la Urbanización*. Allow me to quote from this book, which represents the opposite of what I'm attempting:

> The first task of the first man was to find a shelter. Then necessity led him to look for help and company; shelters were put into communication, and it is this process which constitutes urbanization.[2]

We recognize here implicit assumptions of modern planning:

- individuals have two main needs: to be housed and to be transported
- the provision of houses and their communication through transportation are the two tasks of urban planning.

A further hypothesis is implicit in this text:

- the needs of modern man are satisfied by institutions, while primitive man had to provide himself.

In other words, the hut is a forerunner of the modern apartment, walking and being transported are basically the same activity. For the author of this text, the history of <u>all</u> human settlements could be reconstructed from the knowledge of these two elementary needs: to be

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Germany.

[2] Ildefonso Cerdà, *Teoría de la Urbanización*, Madrid, 1867. Facsimile edition Barcelona, 1967. French (shortened) translation: *La*

housed, to be transported. A human settlement is nothing else than

> ... the association of rest and movement, or rather, of spaces to rest and spaces for the motion of humans, that is of buildings and roads.[3]

To know it, we don't need to study the traces of the dead in old texts and ruins. Who will give us the necessary information over these times for which there are no witnesses? "... [A]nswer: man, his nature, his innate instincts, his needs."[4]

Man's nature makes of him, since ever a potential "commuter." Once accepted, that there is that "nature," with its corresponding "needs," history can be developed without break, in perfect continuity and harmony with our "certainties."

This continuity is in reality an illusion resulting from the projection of two certainties of industrial man into the past. The "history" which is thus written is a colonization of the past that serves to legitimize present institutions. What is called "urban planning" is founded on that falsification. It does not recognize the existence of radical breaks in the history of perceptions. The separation between home and work (and, perhaps more important, between home and soil), between a sphere of consumption and a sphere of production, waged labor as the condition of survival, belong to the certainties of modern existence, and these certainties in their turn take the concrete form of an organization of space.

The speed of transportation or the artificial climate of our houses are expressions of progress and development. At another level though, they are the mirrors of anthropological axioms about our "innate lacks." We falsify history, when we ascribe our needs to the dead. Few of us have ever built a roof over their head. The freedom of the historical poor to conquer a place in the

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Théorie Générale de L'urbanisation, présentée et adaptée par A. Lopez de Aberasturi, Paris, 1979.

[3] Ildefonso Cerdà, op. cit..

commons in one night is only known to us by hearsay. The modern poor can only claim to be billeted in planned square meters. He can put his name on the waiting list of the housing commission, he is not allowed to rehabilitate a ruined house in the old quarters of the city. Ivan Illich writes:

> Both the Indian tribe that moves down from the Andes and the Chicago neighborhood council that unplugs itself from the city housing authority challenge the now-prevalent model of the citizen as *homo castrensis*, billeted man. But with their challenges, the new-comer and the breakaway provoke opposite reactions. The Indios can be treated like pagans who must be educated into an appreciation of the state's maternal care for their shelter. The unpluger is much more dangerous: he gives testimony to the castrating effects of the city's maternal embrace. Unlike the pagan, this kind of heretic challenges the axiom of civic religion which underlies all current ideologies which on the surface are in opposition. According to this axiom, the citizen as *homo castrensis* needs the commodity called 'shelter'; his right to shelter is written into the law.[5]

The historian of space perception is still another kind of "unpluger." If he doesn't question his age's certainties, he will impute them to the dead, let their imperceptible voice be covered by the rumors of modern banality. He will colonize the past with the axioms of modernity. And yet, before he hangs these certainties in the wardrobe like empty clothes, he must examine their own hidden historic constitution.[6]

Homo castrensis claims a right to be billeted without giving shape to one's place through bodily acts of possession. Similarily, I will call him, who claims his right to daily kilometers in the traffic, *homo transportandus*. The "specificity" of modern space can be matched against both these anthropological models: *homo castrensis*, the billeted man and *homo transportandus*, the commuter.

The historian cannot satisfy himself with an assumption of continuity of experience and

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[4] Ibid..
[5] Ivan Illich, "Dwelling", in Ivan Illich, *In the Mirror of the Past*. London: Marion Boyars Publishers Ltd, 1992.
[6] Otto Gerhard Oexle, "Sozialgeschichte - Begriffsgeschichte - Wissenschaftsgeschichte. Anmerkungen zum Werk Otto Brunners," in

perception between walking, yesterday, and the rhythm of the motor, today, between founding a house and getting a flat.

An unbridgeable gap severs the foot-bound landscape of yesterday from the motor-possessed present. We can no longer understand the articulation of a region in homogenous and heterogeneous spaces perceived by him who could only travel it by foot or on horseback. Reciprocally, our speed-pregnant perception of space and time would be an enigma for him. "La coupure," the cut of which E. Garrin and E. Panofski spoke of in the history of thought, must be transposed to the history of perceptions.

The space that the modern commuter perceives daily is the space in which he is billeted to a flat and in which he commutes to work. It is differently structured than the go-able and inhabit-able places of the past. It reflects dependences that have become "natural" to us and that we do no longer question. The distance between home and work, between a sphere of consumption and a sphere of production belong to our "obvious" world. All these daily certainties are inscribed in a spatial organization. The "where?" of our activities determines and confirms unquestioned anthropological assumptions about who we are. Education to these assumptions takes the form of an education to the correct behavior "in space": education to survival in traffic, or to life "in the seventh floor."[7] Our experiences and perceptions are so different from that of our forebears that we have the greatest difficulties putting ourselves in their place. Our vision is much less than theirs dependent on hand, foot and nose. Our life world is no longer limited by the concrete horizon of a village or of a valley.

The speed of traffic or the artificial climate of the flat are expressions of progress and

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Vierteljahrshefte für Sozial und Wirtschaftsgeschichte 71 (1984), pp. 305 - 341.

[7] Ivan Illich, "Erziehung im siebten Stock," in Ivan Illich, *Vom Recht auf Gemeinheit*, Reinbeck bei Hamburg: Rowohlt, 1982, pp. 53 - 63.

development. But they are also technical mirrors of anthropological assumptions about our "innate" lacks. Speed determines a spatial order for people in need of transport. We falsify the past when we ascribe our needs to the dead. The speed of mechanical transportation has made us used to space-time relationships that were simply unthinkable before the transportation revolution of the 19th century. The comfort of our climatized housings bring about a kind of homeostasy of the senses, that makes us flee temperature differences that previously were an expression of the hardship of life. We no longer expect the coming winter with a mixture of resignation and good humor. It no longer conveys warm records of gatherings around the fireplace in cold nights. It is no longer a time of counting.

The motorized consumer, whose mobility warrants accessibility to attractive destinations as an unquestionable "right" can hardly imagine a world that was accessible but not "communicated," inhabitable but not planned. During his holidays, he might meet people that do not have his "rights" and for that reason "must" build their own huts.

If we try to look into the past through the glass of our certainties, history appears to us as a catalogue of lacks. We have great difficulties to conceive that "there," or "then," spatial relations were quite different from what we know. We believe to "see" that people, then, had no right to a warm apartment, nor to jobs and resorts connected to a general system of communication.

Intransitive and active going—I cannot "be gone"—and passive "being transported" define very different spatial relations. Urban planners cannot quite ignore that difference: on occasion, they are still pedestrians, and when they cross a highway, they are exposed to the same dangers as everybody. They only do not give it any theoretical preeminence, and they forget it when they sit behind their drawing table. Then for them, quite as for Cerdà in 1860, the foot and the motorized wheel belong to the same category and are instruments for the satisfaction of the same need: being

transported, be it by institutional means or by "self-help."

The pedestrian still evaluates distances in the calf of his legs. He instinctively translates Anaxagoras' maxim, "man is the measure of all things" into "my step is the measure of all distances." Traffic experts and planners measure the city with the motor and the wheel.

Pedestrians meet each other with the naked face. In spaces accessible to the feet, the outsider is visible: he can be received as a guest or ignored as a stranger. In streets where people hardly meet, because they hide in private tanks, the image of the stranger becomes easily a phantasm or a taboo.

On highways and parking lots, men and women compete for the same scarce space. Traffic planners are kinds of plumbers who try to make traffic jams less viscous. They do not document the public over the influence of motorized transportation on the habits, the perceptions and the image of man which raise in the shadow of their practice.

Illich calls "counterfoil research" a research on "who loses and who wins," of the changes of personal empowerment, of habits and perceptions induced by technology. This research can, in my opinion only be led by citizens whose vision is not impaired by professional glasses. It is to this research that I want to invite you.

I will start with a challenge: an attempt to apprehend relations to space and space perceptions which are not permeated with the images of *homo castrensis* and *homo transportandus*. For that, I invite you to let your certainties in the wardrobe and undertake a trip into history.

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Hestia and Hermes: The Greek Imagination of Motion and Space (2001)

Jean Robert

"You live among men's and women's beautiful dwelling places"

On the foot of the big statue of Zeus in Olympia, Phydias represented the twelve Olympian gods. Between Helios, the sun and Selene, the moon, he arranged them in six couples: Zeus-Hera, Poseidon-Amphitrita, Hephaistos-Charis, Apollo-Artemis, Aphrodite-Eros and Hermes-Hestia.[1]

Hestia and Hermes are not husband and woman, nor brother and sister, nor mother and son either. They are neighbors, or better: friends. Where Hermes loiters is Hestia never far. Where Hestia stays, Hermes can appear at any moment.

In its polarity, the couple Hestia-Hermes expresses the tension which is proper to the archaic representation of space. Space needs a center, a fix point from which directions and orientations can be defined. But space is also the locus of motion, and that implies the possibility of transitions, of passage from any point to any other.

Hestia and Hermes belong to very archaic, pre-Hellenistic representations. Hestia is the hearth. In modern Greek, *istia* still means the hearth or the household. The name Hermes comes from *herma(x)*, *hermaion* or *hermaios lophos*, heap of stone. Before he became an Olympian god, Hermes was the personification of lithoboly, the gesture of throwing stones on tombs. He was the heap of stone or the wooden pole on a grave, but also the *phallos*. Hermes unites death and fertility in one figure.

[1] Jean-Pierre Vernant, "Hestia—Hermès. Sur l'expression religieuse de l'espace et du mouvement chez les Grecs:, in Jean-Pierre Vernant, *Mythe et Pensée chez las Grecs : Étude de Psychologie Historique*, 2 vol., Paris, 1974, pp. 155 - 201.

Hestia and Hermes, personifications of the hearth and of the protecting grave are the gods of the domestic domain. They are also the symbols of the gestures of women and men and of their interplay. Through that interplay, the house becomes a unique place in the world, a *topos* in a *cosmos*. Hestia and Hermes allow us a glance into Greek domesticity. In their interplay, we can understand something of the Greek household and its works and of hospitality. "You live both on the surface of the soil, in the beautiful dwelling places of men and women, and you are filled with mutual *philía,*"[2] said a Homeric hymn.

Hestia and Hermes are the *Epichthonian* gods, the gods of the dwelled soil. They are everywhere where people make fire, trace limits, build walls and a roof over their heads. Together, they are the gods of orientation and of the tracing of limits.

Hestia sits in the middle. She stands still, but she is ubiquitous. Hermes, the quick one, can never be caught, like Mercury. He never appears where he is expected and reigns over the space of travelers. Hestia embodies the gestures of settling down, of enclosing and of keeping. Hermes manifests the gestures of opening, trespassing, and speaks of mobility and of the encounter with the other. He is the god of transitions.[3] He keeps guard on doors and limits, the entrance of cities as well as crossways and has for this reason many heads: Hermes *trikephalos, tretrakephalos*. Since graves are doors to the underworld, he is in necropoles and cemeteries. He accompanies the souls of the dead to the Hades: Hermes *psychagogos, psychopompos*. He is the protector of thieves, but he also protects houses from thieves. He is the messenger between gods and humans: Hermes *angelos*.

All those different aspects of Hermes's activity become only coherent in relation to Hestia's. Hermes makes mobile, Hestia centers. Hestia's place is the hearth, whose deeply rooted stone is a symbol of constancy. Hermes's place is near the door, that he protects from his companions the

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[2] Jean-Pierre Vernant, op. cit.
[3] Arnold van Gennep, *Les Rites de Passage: Etude Systématique des Rites*. Paris: 1909.

thieves: Hermes *pyloros*.

Hermes's characteristsics and activities are the asymmetrical complements of what Hestia is and does. Hestia personifies the *charis*, the force or the "spirit" of the gift. Since "gifts make friends" and facilitate the encounter with strangers, should not Hermes, instead of Hestia be the god of gifts?

Hestia reigns over the cycles of festive meals within the *oikos*. During these meals, the *oikos* was, so to speak, closed upon itself. The ones who sat at a common table were often called *homokapoi*, the ones that breathe the same smoke. Strangers had no access to it, and it was said that the food taken during these Hestian festivities was poisonous for them. But there is a verb which is formed after the name Hestia: *hestiain*, which means to receive a stranger into the closest circle of the house, there, where no stranger can be accepted. The guest had to squat before Hestia, the hearth, and through this act he ceased to be a stranger. He was taken into the hierarchy of the *oikos*.

Yet, there was another, "equalitarian" form of hospitality which was placed under the sign of Hermes. The Greek name that refers to it is *xenos*, which means the same as the Latin word *hostis*: the one with whom gifts and countergifts have been exchanged and who is therefore "equal." *Xenos* is the stranger who is not integrated into the domestic hierarchy, but received as an equal. Originally, it's an oriental, not a Greek concept, proper to a world of caravans and itinerant merchants.

Asymmetrical Complementarity

At every step of our analysis, we have acknowledged a polarity, or better an asymmetrical complementarity between constancy and change, center and periphery, the closed and the open, the

interior and the exterior. That complementarity shapes all places, as well as the condition of their occupants. We are introduced into a world where by telling me which place you occupy and how, you tell me who you are. Neither term of the polarity can be understood alone, but always only in complement to the other.

The tension between these two poles mirrors itself even in the definition of everyone of the terms: there is a Hestia in Hermes, a Hermes in Hestia. As we have already seen with the paradox of hospitality. Hermes's activities can always be interpreted in a Hestian light, and vice-versa. In this Hestian light, activities like bartering, buying and selling, which are Hermes's prerogatives, can be seen as extensions of the logic of the gift, over which Hestia reigns.

Inversely, Hestia reigns over keeping activities in the house. In Hermes's light, these activities look like an accumulation, an interpretation that became widespread in classical times, where the granaries of the *polis*, managed by men, were called the Hestia *Koinê*. So Xenophon compared Hestia with the bee queen, "that stays in the middle of the beehive and sees that honey be well kept." He gives the cells of the beehive the same name that was given to the chambers in which precious goods were kept: *thalamoi*. As Hestia *Koinê*, Hestia becomes the symbol of the accumulation of power of the city and of the union of their inhabitants around their granaries.

Hestia and Hermes in Greek Philosophy

Plato gives us a striking example of the absorption of Hermes by Hestia. Hermes is, you remember, the stone heap, the wooden pole on graves. As such, he personifies the central pole of a house, the stem of the big tree in the house patio or the *phallos*. Hestia is the stone of the hearth, that roots the house into the soil, but also the column of smoke that relates the underworld with the sky. Plato lets the two figures merge into one. Hestia is for him the axis of the world. He plays

with—etymologically not quite founded—homonimities, allowing himself to compare Hestia with the pillar (*histiê*), the mast of a ship (*istós*), the woman at the loom, whom he called *histia*. In the *Republic*, he compares Hestia with the spinning Goddess Anankê, who sits at the center of the universe and whose spindle's motion regulates the revolution of the heavenly spheres. Anankê also means necessity, or the erected phallus. Plato even invents two poetic etymologies for Hestia: *ousia*, the essence, and *hosia*, motion.

Hestia, who is originally the principle of stability, becomes here the principle impetus of all motions, as if she would give birth to Hermes himself. Hestia's philosophical priority reminds us that the peculiar place which the house can only be brought forth by the woman, because she is it, who gives birth to the living body. Since myths are much older than philosophical ideas, this predominance can be a reminder of a time which gave women a kind of prominence.

For the Greek, space and motion were not the neutral concepts that they are today. They were loaded with the asymmetrical complementarity between female and male domains: they were gendered.

The Historical Interpretation of a Myth

Now we can go to ancient Greece, and try to interpret dwelling relations in terms of the asymmetrical complementarity that we saw at work in a fundamental myth, rather than in the light of the neutral space of modern planning. But before this, we must reflect on the use of myths in the interpretation of social realities. Beate Wagner-Hasel, a German historian, writes in this respect: "...the analysis of myths never 'allows to draw conclusions on effective relations' but only to interpret the leading symbols of a society."[4]

[4] Beate Wagner-Hasel, "Das Privat wird politisch. Die Perspektive 'Geschlecht' in der Altertumswissenschaft," in Ursula Becher u. a. (Hrsg.), *Weiblichkeit in geschichtlicher Perspektive*, Frankfurt a. M., 1989, pp. 11 - 50.

Yet, this interpretation of symbols can prevent us from colonizing the past with our certainties. We must avoid, B. Wagner-Hasel writes, to co-opt the past as the model or the origin of the present. On the contrary, we must meet it in its otherness and be ready for the almost unimaginable.

> The unimaginable is a society shaped by gender, a category that Ivan Illich choose as the title of a book (...) and by which he means an articulation of social spaces following gendered categories, without stipulating *a priori* hierarchies and relations of submission.[5]

When one looks at society through the prism of gender, he is led to speak of the relations between men and women in a way that does not reduce them to a discourse about their position but rather considers "the gendered occupation of spaces."[6]

Relations of domination can arise, but they must be studied on the background of gendered spaces. They must be considered different from the *power relations* which characterize modern disgendered space. The moments in which relations of domination are instituted or transformed must again be matched with changes in the gendered occupancy of spaces and of its symbolic meaning. Such moments are for instance the introduction of the alphabet or, close to us, of motorized transportation, which is the foundation of modern forms of power.

This understanding opens, following B. Wagner-Hasel, to a new conception of old history, namely to "a conception of society which is not organized following the categories of law, economy, politics, the religious and the social, private vs public."[7]

In another essay, we will check this by contrasting the homeric house with the house of the classical *polis* in the 5th century. In the mean time, the meaning of alphabetic writing underwent a fundamental change.

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[5] Beate Wagner-Hasel, op. cit.
[6] Ibid.
[7] Ibid.

The myth of Hestia and Hermes allows us to look at modern space as it were from the other end of the glass. We begin to glimpse by means of which go and fro between the present and the past, ‘to-day’ can be a matter of historical inquiry.

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Place in the Space Age[1]
(2001)

Jean Robert

We were lying
deep in the macchia, by the time
you crept at us last.
But we could nor darken over to you,
light compulsion reigned.[2]

To my ear, the title, "Place in the Space Age," has the same ominous ring as this excerpt from a poem by Paul Celan. We groped for obscurity, but we were struck by light. A light that does not admit its contrary would be unbearable. The very idea of day without a night, of a sun without moon and stars, of light without shadow, makes me shiver and painfully reminds me of the vulnerability of my inwards: such must be the light of the dissecting room. But I feel that the *Lichtzwang*, the light compulsion of which Celan speaks is still more frightful. Against it, the dragon of the Book of Revelation is a naive metaphor for an unspeakable horror. The dragon hit the stars with its tail and turned them off. I feel that, to understand Celan's intuition, the apocalyptic image must be exactly reversed. The poet speaks of the extinction, not of light, but of darkness. As if the carrier of a merciless, global light would now threaten to erase all zones of shadow, all shades that protect tender, local existence.

I wrote this essay in the conviction that *space* has become the carrier of a conceptual light that exposes the hidden and the not yet, equalizes the interior and the exterior, and penetrates every

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[1] This paper was originally shared at host Oakland Mayor Jerry Brown's Oakland Table, June 23, 2001.
[2] Hamburger, Michael, ed. and transl., *Paul Celan. Poems*, New York: Persea, 1980, p. 235. German original on p. 234: Wir lagen / schon tief in der Macchia, als du / endlich herankrochst./ Doch konnten wir nicht / hinüberdunkeln zu dir, / es herrschte Lichtzwang.

nook of my home and my heart. It ends with a question: Where shall my friends and I find the courage to make our places in the age of space?

I have to confess that I have been a believer in a strange natural religion that doesn't worship Ge, Ra, Helios, Tonatiuh or Ouranos, the earth, the sun or the sky, or any of the elements, but *space* itself, as if it were the primordial element. The brand of believers in the religion that seeks ex-stasis—literally: a stand outside of any concrete inside—in space are called *architects*, or at least were they called so in my days. They designed houses as if seen from a distant shore; they built them as enclosures for universal beings that would maintain particulars at bay; they eliminated as vain ornaments all what was not as universal as space itself. They did not satisfy the desires of concrete persons, but the needs of human beings, as one of them, Le Corbusier said, "the same everywhere and in all times." They first reduced persons to the role of clients, the subjects of needs, and thought that this *reductio ad absurdum* exhibited Man's true primary relation to the world. Like the paintings of Mondrian, the architects' pet painter, their designs eventually captured, beyond all accidents and singularities, the ideietic plastic powers of pure space. This caused them, again in Le Corbusier's words, "so intense an emotion that it could be called unspeakable," a state that, for him, was one of the roads to happiness. Can one say more clearly that, for this and other oracles and their Pythons, being muted by space was a religious experience?

Some of the space-struck guardians of the masters' teachings became in their turn my masters.[3] I was initiated in the sixties, at the "Sektion Eins" of Zurich's Federal Polytechnical Institute, the ETH. To tell you how the initiation process began, let me report on one of the first exercises. Provided with plans of a building by one of the Great Masters (beside the superstars F.L.

[3] Tom Wolfe, a non-architect but a talented ironist has made fun of these defenders of the sacred oracles and their claim to infallibility, calling their guardians or "Pythons" the *compound*, so I will try to spare offended susceptibilities. Wolfe, Tom, *From Bauhaus to our House*, New York: Farrar, Straus, Giroux, 1982.

Wright and Le Corbusier, these included Mies van der Rohe, Alvar Aalto, Walter Gropius, Max Breuer, Gerrit Rietveld and a handful more, down to the more local Max Bill), future initiates had to construct a hardwood reverse model of it. A reverse model is the three-dimensional equivalent of a photographic negative, an object in which the void appears as full and the full as void. This exercise and others of the kind had been devised in one of the highlands of Modern Architecture, the *Bauhaus*. All such exercises were meant to teach neophytes that space, and only space, was the substance that they had to learn to knead. Later, much later, meditating on that dissolution of matter and materialization of nothingness helped me understand why some architects of that tradition could not only feel at ease in American balloon-frame architecture, but even praise its material vacuity in their books![4] Obviously, it is the closest thing to pure, immaterial space that the history of architecture can offer. However, I was not long to be intrigued by another recurrent question that no master could ever answer: why do certain clients of the architects develop such a genuine and profound hate for the space they had purchased, sometimes at rocketing monetary costs?[5]

As a common man, I was repeatedly confronted with situations that questioned my teachers' space worship and made me see again matter as full, and void as empty. I spent part of the years 1963 and 1964 in Amsterdam, as a draftsman in an architectural firm. Something remarkable, sad but strangely joyful happened. There were almost no cars in the city in those years, a "backwardness" for which Mayor van Hall felt ashamed in front of his European colleagues. He and the municipal council behind him (he had been a hero of the Dutch Resistance) wanted to catch up with Essen, Frankfurt or Milan: build roads to irrigate the city with vehicular traffic, a sign of

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[4] Tschumi, Bernard, *Architecture and Disjunction*, Cambridge MA: The MIT Press, 1997.

[5] A particularly sad example is the depression and near bankrupcy suffered by Edith Farnsworth's, Mies van der Rohe's first American client, after she moved into her piece of pure space. Alice T. Friedman, "Domestic Differences: Edith Farnsworth, Mies van der Rohe, and the Gendered Body," in Christopher Reed, *Not at Home: The Suppression of Domesticity in Modern Art and Architecture*, London: Thames and Hudson, 1996, pp. 179-192.

economic development. This impending threat gave Amsterdam an atmosphere of delicate vulnerability, a quality that it was about to lose forever. I have not ceased to meditate about that awareness of an imminent loss, of something unique that would soon be gone forever, which pervaded the city during the hot summer of 1964. My colleague Hajo van Wering took me for nostalgic walks after work. One evening, he would lead me under a bridge from where we could catch a glimpse of the encounter of quiet pedestrian life with water, stone and sky that must have inspired Ruisdael. The next day, he had me climb on a church steeple to see how deftly the bell player hit the keys and hear how the crystalline music fell on a city still free from the racket of motorized traffic. It is Hajo who told me about the name by which very old families still refer among each other to their beloved city—*Mokum*, a corruption of the Hebrew word *makkom*, meaning a place where God has spoken His word, or a refuge for threatened folks.

In a joyful atmosphere of precarity, young people began to make things happen in the streets. One group called themselves *Provo* and wanted to provoke the municipal authorities into avowing their anti-pedestrian bias. To demonstrate the uselessness of cars, they put free, public bicycles in all street corners and were arrested for this. Another group compared Amsterdam with an apple and asked people to gather at its center. Several centers came into being through the ensuing gatherings. Alas, that popular resistance was crushed by Progress' war against people's commons, and Amsterdam ceased to be a *makkom* for pedestrians. I felt as if I were becoming schizophrenic. While I was initiated as a believer to the ecstatic powers of space, I was also increasingly seduced by the delight of streets, by smelly, shadowy, vibrant and, as I had just discovered, vulnerable street life. Full it was, but not of the hardwood fullness of the reverse model. And what should I think of car traffic, after what I had lived through? Was it not the unavoidable

corruption of "unspeakable space"? New questions assailed me: What is there in architecture that destroys streets? What is there in space that destroys places?

I finished my initiation and became one of them: an architect. Most of the places I had to make unspeakable can still be visited in the Swiss-French city of Neuchâtel, and the street that fell victim to my art is called *Rue des Épancheurs*: a mono-functional bank now stands where there had been the diversity of unspoken relations of mutual support among close neighbors. But I had given myself a limit. If I had not solved my riddle in two or three years, I would do something, perhaps take a trip.

I landed in Mexico in 1972. I rediscovered matter in the form of Mexican *adobe*, the unburnt, sundried brick of clay and straw. I was especially delighted to discover that, in the best adobe, the "straw" comes as donkey droppings. Lo, I first took adobes for primitive bricks! Self-made they were, but also more repair-intensive than the ones burnt in an oven until they turn red; unwieldy and heavier than hollow cement blocks, cheaper but less durable. It took me long to free myself from the reverse model. On one occasion, I dematerialized them into something—a space?—unspeakable for my neighbors' solid common sense. Well, I made an architect's house out of them. *Su casa, mi casa*.

It took me some time to grasp that these frail, irregular elements of most Mexican village houses wanted to engender a kind of place of which no one had talked to me at the ETH in Zurich. When I touch the walls of my house I still feel the oozing of their lament, but now, I try to listen. I came to realize that it was a violence, almost a rape, to use adobe to generate space.

The whimpering adobes made me sensitive to the abuse of the word "politics," "city-" and even "community-building" when these activities transfer the merciless light of global space into people's places. I spent some time in libraries with my questions in mind and soon discovered that

the belief in space is not only the myth of architects and city-planners. It has become the endemic superstition of the most modern, rational persons, one of the *sueños de la razón* that generate monsters of which Goya spoke.

I welcome this unique opportunity to come to terms with an old but rarely bespoken dilemma and to do it publicly. Perhaps it may help pose a new question: what happens to politics when and where space is prevalent?

The Historicity of a Modern Certainty

Space is a historical critter. "One hundred years after Newton, space was taken for an *a priori*, while, one hundred years before him, nobody had known it." If these words of the German physicist and philosopher Carl Friedrich von Weizsäcker[6] are true, Kant was wrong: space is not a universal *a priori*. It is not something evident that was present everywhere from the beginning. Euclid did geometry without knowing space.[7]

Weizsäcker's claim is startling. Here is a professional physicist who tries to convince us that before the birth of modern physics, a certain event took place and that event is nothing less than the birth of space! Expressed in a less dramatic and more technical fashion, he argues that space is a historical construct; he defends the *thesis of the historicity of space*.

However surprising it might sound, space, strictly speaking a perfectly homogeneous nothing, is a historical construction. As all historical constructs, it had a beginning and it might soon

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[6] Quoted in Kvasz, Ladislav, "Was bedeutet es, ein geometrisches Bild zu verstehen?," in Dagmar Reichert, ed., *Räumliches Denken*, Zürich: Hochschlverlag AG an der ETH, 1996, p. 95.

[7] Euclidean geometry is about the properties of figures traced on a surface, not about that surface or any other constructed space. Since Euclid did not know space, it is an anachronism to speak of Euclidean "space." Space is "retro-projected" into Euclid's geometry by stating, first that, in this geometry, the shapes of figures remain constant under motion and, second, that any "space" in which the shapes and functions of objects remain constant under motion is "Euclidean." For an example of this use of the term "Euclidean space," see Heelan, Patrick, *Space-Perception and the Philosophy of Science*, Berkeley: University of California Press, 1983, especially p. 41.

reach its end. These, at least, are the ideas that I propose to explore in this essay. But my arguments in favor of the historicity of space will also lead me to ask three lancing questions about the space-dominated society we have lived and still for a great part live in:

1) I want to understand how the notion of homogeneous space became a crucial element to develop modern management as it is taken for granted in technological society.

2) I will ask how the belief in "space" as an *a priori* of all perceptions has affected the much older notion of "place." A citizen's "home" meant the place beyond the threshold of which the commons started. Home stood to commons in a qualitative relationship that vanished when the threshold was reduced to a mere boundary that separates two domains of the very same "space."

3) Further, I want to recognize in which way the formal, abstract *a priori* of space affected the ethical and political perception of place as the outcome of reciprocal recognition and mutual devotion; as the atmosphere people create when they dwell together in a spirit of hospitality.

These questions are generally met with stubborn resistance by most people who have spent more time sitting in schools, in traffic jams or behind computers than talking to their neighbor. They have learned to think of space as the ultimate enclosure. For them, existence is a routine in planned spaces and freedom is an unlimited expansion of these spheres. In 2001, when a computer freak says "space," he might well mean the multilayered container of hypertext in electronic nowhere. But for most alphabetized commoners, space still means *background space*,[8] the universal background

[8] Schild-Bunim, Miriam, *Space in Medieval Painting and the Forerunners of Perspective*, New York, 1940. Modern background space—the mental machinery behind every painted scene—was absent from antique and medieval paintings. Even the Pompeyi painters, who knew various sophisticated techniques to evoke depth and farness, ignored it. These techniques, thus, are not antecedents of perspective. The words "absent" and "ignore" should not suggest that premodern painters *did not know* something

of all particular existence, separate from them and yet ever-present in and behind them, somehow like the blank page behind the letters. What they call "space" has become so much part of the mental machinery that informs their perceptions that they lack the necessary distance to question it.

A Historical Critter...That Might Come To An End

As I already suggested, the realization that space is historical implies that it had a beginning and therefore might now approach its demise. This idea would hardly have upset people a generation ago. It would just have seemed ludicrous to those who had labored at high school math and abstruse to those who commuted between home and work. By the twentieth century, the reality of Cartesian, three-dimensional space within which all movement happens had become a "given." This made it impossible to recognize space as an epochal critter.

However, at the dawn of the twenty-first century, the innocent certainties about everything's enclosure, or, as Foucault would say, *renfermement* in space, is no longer as absolute as it was at the time of Sputnik. Since then, the status of space as a natural given has started to become questionable. Doubts have arisen from two sides. On the one hand, the transition from instrumental to informational techniques, from the government of people to the management of populations has weakened the intuitive certainties supporting "modernity." On the other hand, historians have assembled much evidence for the thesis that abstract, *a priori* space only became part of popular wisdom long after Newton's time. This two-pronged threat to the belief that space is the natural box

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that was *discovered* later. They rather adhered to their world in a radically different manner than modern men do. To this, Veyne, Paul, "The Roman Empire," in Philippe Ariès and Georges Duby, *History of Private Life*, vol. 1, states that no man could glare at the naked background behind the scenes that he was inhabiting, for there was no background. Bochner, Salomon, "Space," in *Dictionary of the History of Ideas*, New York: Charles Scribener's Sons, 1973, v.5, pp. 294-306 analyzes several ancient words for "place," "divinely protected place," "openness," "cleared land," "void," "freedom of movement," "absence of limits and hence of form" and concludes that classical premodern languages have an abundance of terms to designate "placeness" and "breaking away from a place," but none for what we call "space."

that contains all that exists can either invite me to a new liberty or strengthen a new tyranny. It can free you from the naive dream that *space* can be made inhabitable—that is, that women and men can found their dwelling in planned space—and make it easier to stress the perversity of any nostalgia for a comforting cage. But it can also make me crash into a virtual "space" in which the far and the close, the center and the periphery, the self and the other, collapse into a wired *erehwon* in real time.

The "something" still called "space" has no tactile qualities, no orientation, no smell, no taste, no memories. It is immune to the colors or shadows, the rhythms and sounds of anything immersed in it, while it strips both things and persons that it encloses of their aura. Yet, I attempt to persuade you that this no-thing is a social construct that characterizes a period of history—modernity—a period that I propose to dub "the space age." The space age is the epoch in which the Cartesian coordinates of mathematics and physics have become the ultimate beyond of all reality. It is the period of history in which schools and highways have induced most people to reduce the world's inexhaustible perceptual richness to a system of measurements of relative distances.[9]

Let's summarize: space that Kant took for an *a priori* of perception, is a relatively recent mental construct. That means that *there* is a "before" and an "after" its invention. The invention of space is perhaps one of the great watersheds of history: modern men cannot recover the perceptual modes of the men who lived *before* that invention, nor could these possibly understand the vision of the generations who came *after*. How deeply strange our *space age* is to the premodern mentality is manifest in the visceral rejection of its enclosures by people recently engulfed by it. For instance, a Mexican peasant's confidence that any object that has touched the soil is free to be taken as a

[9] Poincaré, Henri, *La Sience et L'hypothèse*, Paris, 1968, pp. 77-94. At the dawn of the 20th Century, this mathematician and physicist expressed his conviction that the "Euclidean" (or better: Cartesian) space of classical mathematics and physics is not identical with the "spaces" of our perceptions. Cartesian space is a highly artificial construct.

commons, often survives long after he has become a mason in the capital; hence the so frowned upon custom of many urban migrants to let whatever they no longer need fall to the ground to be picked up by others. Finally, for the modern mind, universal background space is the non-transcendent beyond of all reality.

Disciplined Agnosticism and Asceticism

To pursue this inquiry into a modern certainty, I had to practice a discipline that I name *space agnosticism*. By this term, I mean an ascetical effort to disentangle myself from the aggregate of notions and perceptions foisted by the enclosure of all realities into the homogeneous space of science and management. In a world of highways, airports, educational precincts and penitentiary wards, this enclosure is *technogenic*—either generated or enforced by technology. It is why the practice of agnosticism among the certainties of the space age calls for an asceticism with its technologies. While I cannot abstain from being involved with motorized wheels that numb my feet, with wires that cancel distance, with TV that looks everywhere from nowhere, I still can cultivate a skeptical attitude and resist becoming their slave.

I am by far not the only doubter, but it has become necessary to distinguish doubters from one another. Indeed, space skeptics are of two kinds. On the one side, the irreflexive net-surfers, science fiction addicts, New Age mystics and system managers wired to virtual reality have abjured the space age without even being aware of it. On the other side, those whose skeptical view on space is rooted in historical study have been my guides.

Patrick Heelan, a philosopher and a physicist is one of them. According to him, the still dominant concept of the twentieth century, space, is a product of technological mediation and visual

education.[10] He argues that great painters like van Gogh and Cézanne have understood that nobody naturally sees in the space of linear perspective, but rather in a strange geometry that "curves" all straight lines and is perhaps non-Euclidean.[11] Heelan also explains why space agnostics are so few: educated modern man fiercely resists the revelation of the arbitrariness of his certainties.

The philosopher of science Yehuda Elkana claims that every form of thought is "space specific", e.g. that it is determined by the kind of "box" within which it was generated.[12] He examines how different spaces—the lab, the emergency ward, a museum, a cinematographic studio—generate characteristic forms of knowledge and he understands that these spaces all stem from the same "universal and context-free institutional assumptions," which, for him, ought to be the main theme of research into the illusory obviousness of space. However, Elkana seems unaware of the fact that any space planned for a modern professional institution, be it medicine, education, government or social service is radically heterogeneous to any place created by the very act of inhabiting it. For instance, he is insensitive to the radical difference between a monk's cell and a lab. The first is a place engendered by daily gestures fitting a community rule, while the second is a technogenic space needing professional control. In contrast to most modern precincts, the monastic cell, the guild chapel and the little red school-house are eminent examples of places that owe their existence and atmosphere to the stance and relation of persons.

Space agnosticism takes still another form with Ladislav Kvasz.[13] For this mathematician,

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[10] Heelan, Patrick, A., *Space Perception and the Philosophy of Science*, Berkeley: University of California Press, 1983. The visual space is not Euclidean. It is rather "hyperbolic" or "Lobachevskyan." But, what is Euclidean space if Euclid knew no space but figures?

[11] Contrary to what happens in Euclidean geometry, motion (and changes of size) in non-Euclidean space affects the shape of figures. According to Heelan, the visual space is such. See Heelan, *Space-Perceptions...*, op. cit., pp. 41, 57-77, 98-128, 281-319.

[12] He is the chief editor of *Science in Context*, and has dedicated a whole issue of this journal to this idea: 1991, Vol. 4.1, "The Place of Knowledge: The Special Setting and Its Relation to the Production of Knowledge." See also Sennett, Richard, *Flesh and Stone*, New York: W.W. Norton & Co, 1994, and "Something In the City: The Spectre of Uselessness and The Search for a Place in the World," in *Times Literary Supplement*, 22, September 1995, pp. 13 - 15. Modern institutional spaces delete the flesh of experience. They are not inhabitable places.

[13] Kvasz, Ladislav, "Was bedeutet es, ein geometrisches Bild zu verstehen?," in Dagmar Reichert, ed., *Räumliches Denken*,

physicist and epistemologist, space is inseparable from the concept of "projective equivalence." Imagine that, sitting at your table at night, you observe a cup and its shadow under your lamp's light. As you near your eye to the source of light, the shapes of the cup and of its shadow tend to overlap. If you could see them from the exact point occupied by the lamp, their overlapping would be perfect: the cup and its shadow would then be *projectively equivalent*. In general, two figures are said to be projectively equivalent if there is *any* point from which they can be seen to overlap. This point is called the "center of the projection." Its construction, Kvasz argues, always defines a special subjectivity. For instance, if one of these figures is a real object and the other a drawing on a surface, the center is the eye of a Renaissance painter practicing linear perspective. From this subjective vantage point, Renaissance painters constructed an ideal space in which they computed point by point the projection of real objects and then pretended that what they had drawn was what their eye had really seen. This is how linear perspective could become the paradigm of the visual representation of reality and even of objective observation for centuries. It inaugurated a thought style for which only what could be compressed into a constructed space was real. According to Kvasz, all further applications of the principle of projective equivalence are examples of the diversity of mental boxes in which space can enclose reality. He comments on Gérard Desargues's projective geometry, Lobatchevsky's non-Euclidean geometry and then the way Beltramy, Cayley and Klein successively verified it in projectively equivalent Euclidean surfaces. For Kvasz, every one of these conceptual feats bears the seal of an epochal form of subjectivity.

The Dutch philosopher Jan Hendrik van den Berg, creator of a radical form of phenomenology that he calls "metabletics,"[14] the doctrine of changes, is interested in the form of subjectivity that, he suspects, accompanies every kind of space. Since the same specific subjectivity

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Zürich: Hochschlverlag AG an der ETH, 1996, p. 95-123.

[14] van den Berg, Jan Hendrik, *Metabletica of de leer der veranderingen*, Nijkerk, Netherland: Callenbach, 1974 (1956).

informs an epoch's construction of space (if there is one!), the style of its architecture and the kind of illness that people suffer (sic), broad connections can be traced between these apparently separate realms. So, van den Berg sees a correlation between the demise, starting in the eighteenth century, of the inside-outside relationship that was typical of the Baroque style in architecture, the emergence of non-Euclidean geometries,[15] and, at (about) the same time, the first clinical description of a neurosis under the name, "the English malady."

Catherine Pickstock, a theologian, approaches the modern obsession with space from a completely different side. She interprets it as equivalent to the sophistry that Socrates denounced in the Phaedrus.[16] While they were walking along the river Ilissus, outside of Athens, young Phaedrus pretended to entertain Socrates with a discourse on love that he had learned by memory from a scroll. Socrates teased him into confessing his sham and had him read instead of feigning to converse. Then Socrates improvised two discourses, one that mocked the Sophists who reduced speech to an equivalent of written language and another, genuinely spoken, that celebrated the *logos* as an ana-logy of love. Contrary to the first, the oral discourse of Socrates established a concrete relation with Phaedrus and also with a well in which they bathed their feet, the nymph that inhabited that well and the season's perfumes.

In 1574, in the introduction to his *Logike*, Peter Ramus[17] wrote that his "lytle booke" was to be more profitable to the reader than all the years spent studying Plato. What he proposed was a "calculus of reality" in which all topics were divided in successive and ordered stages, beginning

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[15] The date of the first publication on non-Euclidean geometry is 1829. It was a work in Russian by Nikolay Ivanovich Lobachevsky, followed in 1837 by a work in French ("Géométrie imaginaire") and, in 1840, by a book in German (*Geometrische Untersuchungen zur Theorie der Parallellinien*). Lobatchvsky was rector of the University of Kazan. His ideas were rooted in his opposition to Kant, who maintained that such ideas as "space" and "time" are *a priori*. For Lobachevsky, space was an *a posteriori* concept. He thought that he could evidence it by demonstrating that different axioms can generate different spaces.
[16] Pickstock, Catherine, *After Writing. On the Liturgical Consummation of Philosophy*, Oxford: Blackwell, 1998.
[17] Ramus, Peter, *Logike*, Leeds: The Scholar Press, 1966 (1574).

with the most general and progressing towards the more particular. These stages were mental boxes that immobilized objects in their definitions and excluded the comprehension of knowledge "as an event which arrives."[18] According to Pickstock, Ramus's calculus of reality is the subjection of logic to spatial thinking. Space, she points out, has become a pseudo-eternity which, unlike genuine eternity, is fully comprehensive to the human gaze, and yet supposedly secure from the ravages of time. Without genuine transcendence, space *must* be absolute. This absolute is also the result of an attempt to bypass human temporality and subjectivity, and yet, it generates its own phony time and subjectivity. "Sophistic spatialization" propagates the illusion of an unmediated apprehension of facts and has, as such, become normative in science and, above all, in its vulgarizations. The mechanical manipulations made possible in Cartesian space provide modern man with an all too seductive *facility*. If he takes this facility for "the real," he is led to imagine that the ease and predictability of operations within that artificial sphere exhibit his true, primary relationship to the world.

Every one of these space agnostics focuses on a certain aspect of the historicity of space. Space, for Heelan, is a product of visual education and technology. Once constituted, according to Elkana, it confines people into mental crates whose remarkable differences mask the fact that no matter how diverse the rules governing their construction, they are boxes that box them in. This form of enclosure leads to the spatialization of thought: according to Kvasz nothing that remains unenclosed is considered real. Since space includes the self, the distinction between interiority and the exterior collapses. In the analysis of van den Berg, through this collapse, a new form of subjectivity comes into being, a subjectivity that knows no interiority, that is "soulless." Finally, Pickstock claims that space functions as a pseudo-eternity: to people uprooted from soil and place, it

[18] Pickstock, Catherine, *After Writing...*, op. cit., p. 51.

provides the phony insurance that something will remain when everything else has passed away. Seen by these authors, the invention of space seems to be concomitant with the birth of the modern sense of the self and its relation to the other. But they say little about the steps of this invention.

An Idea and Its Proto-ideas

The origin of modern scientific concepts often loses itself in a magma of non-scientific ideas that some philosophers of science call *proto-ideas*. The task of tracing phylogenetic lines of the concepts back to their sundry *proto-ideas* is often an exercise in inspired guesswork. For example, Ludwik Fleck sees a proto-idea of the Wassermann reaction (a blood test invented in 1906 to diagnose syphilis in the lab) in the premodern belief that the "carnal scourge" was a corruption of the blood.[19] I confess that I have sometimes dreamt of searching history for proto-ideas of space and I present here some of my guesses. In the best case, every one of my findings summarizes a specific aspect of the improbable assemblage that was to become space.

Focusing on special things looking forward, the body protected or hidden, as in a cave or a bush, might be the hunter's prototypical posture. Selecting a field of vision in which something special is expected to surge reenacts, in a way, the hunter's directed gaze.[20] When this act is performed by a person sitting in a chair in front of a page, as I am in this moment, it is sometimes called "research."

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[19] Fleck, Ludwik, *The Genesis and Development of a Scientific Fact*, Chicago: University of Chicago Press, 1979 [1935].

[20] Wartofsky, Max, "Sight, Symbol and Society: Towards a History of Visual Perception," in *Annual Proceedings of the Center for Philosophic Exchange* (SUNY) 3(1981):23-38. "One may argue that seeing things in front of one is hardly a cultural or historical phenomenon, since binocular vision throughout the vertebrate kingdom is in the main forward-looking. That is true. But the visual posture which is culturally and historically derived from this biological constraint is the unnatural one of watching from a fixed position. [...] The determination of a scene as a frame visual plane becomes a dominant object of visual activity only with the historical introduction of pictorial and theatrical representation in a certain form. Moreover, I would suggest that the introduction of drawing and painting on a *surface*, i.e. a two-dimensional representation, is a radical means of transforming human vision into the pictoralized mode. For what becomes the object of vision is then what appears as if on a picture plane: the world comes to be seen as picture-like; and the variation of pictorial styles then acquires a general purchase on the shaping of visual perception." (p. 34)

Comparable to the protection of the body's rear part, but laden with its original symbols, is the act of looking through a window.[21] Another proto-idea of space might be the capacity to describe a territory without acknowledging any contiguity between a "there" and the describer's "here." In other words, map-making must entail an essential aspect of the space idea. While pondering this, remember that Roman and medieval "cartographers" did not draw maps in the modern sense, but *itineraries*.[22] Itineraries speak of successive steps on *lines* of contiguities and not of the *surface* of territories represented as seen from above.

Among the Antique proto-ideas of space, the horizon deserves a special mention. Though it designates an individual's subjective view of the limits of her field of vision, it has its origin in the local and communitary perception of the "world's limits." These limits defined, *inside*, a homogeneous realm of familiarity, the domain of a "we," while whatever lay beyond or *outside* them was in a way or another considered *taboo*. Koschorke[23] has shown how the subjective notion of a limit of the visual field that moves at the walker's pace resulted from the progressive disembedding of people from their native boundaries. According to L. and R. Kriss-Rettenbeck and I. Illich,[24] it was a call to the experience of "spatial heterogeneity"—a lived contingency in God's hand that launched the great medieval pilgrimage movement—and contributed to make the

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[21] Horn, Hans-Jürgen, "Rescipiens per fenestras, propisciens per cancellos. Zur Typologie des Fensters in der Antike," in *Jahrbuch für Antike und Christentum* 10, 1967, pp. 30-60.

[22] An itinerary or *itinerarium* is a description of the relevant features of the road between here and there with indications of the time it takes a walker to go from one to the following. *Itineraria* have no "depths," they do not attempt to represent a territory. The best known Roman *itineraria* were the *itineraria Antonini* and the *itinerarium Alexandri*. The *Peutinger table* is a 13th Century copy of a lost Roman map.
ogar 'Weltkarten' waren für die Römer Wegeverzeichnisse. Keine originale römische 'Weltkarte' wurde erhalten. Es existiert aber eine Kopie aus dem 13. Jh. von einer solchen 'Weltkarte'' nl. die *Peutingersche Tafel*. The first Christian itineraries such the *Itinerarium Burdigalense* and the *Itinerarium Hierosolymitanum* gave pilgrims indications over the successive stages of the roads to the Holy Land. See Grosjean, Georges und Kinauer, Rudolf, *Kartenkunst und Kartentechnik vom Altertum bis zum Barok*, Bern, Stuttgart: Verlag Hallwag, 1970

[23] Named after the Greek verb *horizeo*, I separate, I divide, recalling the crest of the mountains that separates the small world of our valley from the others, the horizon was originally a world limit. Koschorke, Albrecht, *Die Geschichte des Horizonts. Grenze und Grenzüberschreitung in literarischen Landschaftsbildern*, Munich: Suhrkamp, 1990.

[24] Kriss-Rettenbeck, Lenz and Ruth, and Illich, Ivan, "Homo Viator: Ideen und Wirklichkeit," in Lenz Kriss-Rettenbeck and Gerda Möhler, eds., *Wallfahrt kennt keine Grenzen*, Munich, Zurich, 1984, p. 10-22.

subjective experience of limits, walking with the walker, everybody's experience.

For some space agnostics, the invention of linear perspective is the true birth of space. According to Koschorke, perspectivist space was engendered at the end of the fourteenth century by the introduction of the horizon into the womb of Renaissance painting in Northern Italy.[25] The pictorial "horizon," however, was no longer the crest of the mountains or the bottom of the heavenly vault but the abstract line of the points at which the viewer's eye would meet his feet, were he to reach them, an impossible feat. In other words, the horizon was now the mathematical construction of the infinite on a finite surface.

In the twelfth century, words on parchment had started to be separated by clear intervals, an innovation that made silent reading possible. The new hiatus over which the eye had to jump from word to word is perhaps another proto-idea of space. Isn't it thinkable that the hollowing of the density of the written page by these regular gaps opened the way to the idea that the letters are mentally detachable from their material support that now looms between them? In other words, did this technical innovation lead to the later idea that the *text* and the *page* are separable?[26] In fact, it did not take scribes very long to detach the now separated words from the rugose and smelly skins that had been their supports for millennia and to transfer them to the more sterile surface of paper pages.

However, it took long for the space idea to seep into popular language. Until the time of Shakespeare, "space" was still emphatically a lapse of time. It indicated a reprieve or one more opportunity. It also designated expanse: the openness of ground, sea or sky, or the room still left for you in a crowded place. People lived in a world that God had created by separating Heaven from

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[25] Koschorke, Albrecht, *Die Geschichte des Horizonts...*, op. cit., see also Panofsky, Edwin, *Renaissance and Renascences in Western Art*, Stockhol: Almqvist and Wiskel, 1960.
[26] Illich, Ivan, *In the Vineyards of the Text*, Chicago, University of Chicago Press, 1993.

Earth and Day from Night without needing a box to hold them.

It seems that "space" could not become a universal container until the concentric transparent planetary spheres of Antiquity dissolved into elliptical orbits, routes along which planets moved around the sun and the sun itself became just one more star in a dimensional universe. Space could not become predominant before the harmonic cosmos dissolved into the world system. But then, it took just a few generations for this drab abstract critter to be taken for granted, embellished by poetry and exalted as an attribute of God. *Space* had become the crate of the world, the supreme enclosure.

The Ultimate Enclosure and The Propagation of Scarcity

When I think of enclosure, what comes to mind is the enclosure of pastures that turned commons into private space. Or I think of the specialized spaces where children, the sick, and the mad are put to be among themselves. However, all too often, people forget that the replacement of self-governed commons by managed space provides the ultimate rationale for this fundamental aspect of modernity. The enclosure of being itself within space is at issue for us: the historical event in which space came to be conceived as an *a priori*.

The enclosure movement has alternatively been dubbed a "war against subsistance,"[27] the "tragedy of the commons,"[28] the "demise of people's moral economy,"[29] or the "social construction of scarcity."[30] All these definitions also apply to the enclosure of all enclosures: space. Space impoverishes local realities up to the point of perceptual starvation; it expropriates people from their

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[27] Muchembled, Robert, *Culture Populaire et Culture des Élites dans la France Moderne, XVe - XVIIe siècles*, Paris, 1978.
[28] Polanyi, Karl, *The Great Transformation*, New York: Rinehart, 1957 [1944]. Hardin, Garrett, Baden John, ed., *Managing the Commons*, San Francisco: Freeman, 1977.
[29] Thompson, E.P., *The Making of the English Working Class*, New York: Pantheon Books, 1964.
[30] Dumouchel, Paul, "L'ambigüité de la rareté," in Paul Dumouchel and Jean-Pierre Dupuy, *L'enfer des choses*, Paris: Seuil, 1979.

common sensual apprehension of the world; it severs the economy (*oikonomia* = the ruling of a house) from all concrete *oikos* (house); it contributes to the propagation of scarcity as the prevalent modern experience. Yet, the fact that space is the acquired perceptual deficiency syndrome at the root of the experience of scarcity[31] has still not been publicly recognized.

An important historiographical truth has been overlooked thus far: the invention of space is the other side of a yet untold history. While historians celebrate the successive achievements that made the modern mastery of space (and the control of people *by* that mastery) possible, another story, one of successive losses, must also be told. Sometimes, when I try to tell this story, I have the impression that *a priori space* is an endemic disease. It is a strange malady, because those who are infected by it in turn affect reality, render it shallow, cause it to dwindle and fade, make it uninhabitable for themselves and for others. Above all, I get the impression that things and people lose their relatedness to each other and fall apart.

Inquiries into the Obvious

I have started out on an inquiry into something that most of my contemporaries consider much too obvious to be questioned. It has led me to follow the reasoning of half a dozen thinkers especially skeptical of the given, "natural" character generally attributed to space. In doing so, I have untangled some of the steps by which this mental artifact came into existence. Yet, does the acknowledgement of its historicity drive it back into inexistence? In other words, is space agnosticism the belief in the non-existence of space? No, space cannot be wished away any more than scarcity can. Airports, highways, hospitals, educational enclosures, supermarkets, jails, city

[31] That scarcity is *the* symptomatic modern experience has been argued by: Dumouchel, Paul, "L'ambigüité de la rareté," op. cit. and Achterhuis, Hans, *Het rijk van de schaarste. Van Thomas Hobbes tot Michel Foucault*, Baarn (Netherland): Ambo, 1988. Nonetheless, none of these authors has seen that the history of scarcity runs parallel, or better, "anastomosically," to the history of space.

halls, the radical monopoly of vehicles on urban streets, up to suburban residential areas and their well mown lawns are all outcomes of space management. Planned spaces are scarce by definition. Space, virtually the ultimate field of deployment of the market forces has become "projectively equivalent" with the economy and the viewpoint from which they are seen to overlap is scarcity, the iron law of modernity.

Erewhile, we have looked at several of the possible historical ingredients of the space concept and called them *proto-ideas*. I invite you now to a diametrically different exercise. The space concept has reorganized *aspects*[32] of a perception that, in other times and places had been configured in radically different manners. This new organization is so specifically western and modern that I am almost ready to argue that it is a nutshell for all that is western and modern. I see it as a radically unique way of fragmenting, configuring and monopolizing experiences which in other times had been part of the human condition that is of an essentially localized existence.

Is there a way to name these localized experiences which does not subject them to the monopoly of spatial thinking? And if so, does the chosen name stand for something that can claim some ancestry of space? Or on the contrary, would such a claim be illegitimated because it would cloak the Western specificity of the space concept? Faced by this conundrum, I have decided to give this experience the name, *places*.

Fully aware of the many dictionary meanings of *place*, I also know that German *Ort*, *Platz* or *Fleck*, French *lieu*, *endroit* or *localité*, Spanish *lugar*, *sitio*, *ámbito* all have their own,

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[32] Fuchs, Thomas, *Die Mechanisierung des Herzens. Harvey und Descartes - Der vitale und der mechanische Aspekt des Kreislaufs*, Frankfurt a/M: Suhrkamp, 1992. Contrary to Kuhnian paradigms and Fleckian thought styles, *aspects can be seen as being in or of the things themselves*. The multiplicity of possible—and even contemporaneously perceived—aspects is an expression of the perceptual and conceptual inexhaustibility of reality. However, to fully adopt the Fuchsian, "Chinese" view of simultaneous aspects would lead us to a non-linear exposition resembling Ts'ui Pên's endlessly bifurcating novel in Borges, Jorge Luis, "El jardín de caminos que se bifurcan," in *Prosa Completa*, Barcelona: Bruguera, 1985 (1953), pp. 163-173.

characteristic fields of meaning and that no two overlap. Consequently, I understand that, by using the English word *place* as I do, I coin a technical term.

The use of an old, meaningful word to designate something which stands in contrast to a new certainty is almost unavoidable when researching the birth of the obvious, especially when these are undertaken on the basis of historical distancing. An example is the adoption of *gender*, a term that until two or three decades ago had a meaning in grammar and only there. Then, *gender* started to be used to name a reality that was so much taken for granted that it had needed no name: the fact that there are women and men. *Gender* has thus been used to stress a historical perception of this fact that is radically different from modern *sex*. Sex, universal and contagious, is a secondary characteristic, noticeable as protuberances in the jeans or under the blouse, affecting standard human beings. Gender, vernacular and local, different in every valley, is an interplay of feminine and masculine domains, of masculine and feminine activities that engender unique styles of living. Is, perhaps, place to space what gender is to sex?

Recovering a Sense for Place

Remember that I wanted to tell a still untold story. Or to retrace the history of the losses that accompanied the conceptual conquest of space. This history is made of stories about vanished places. Yet could it be, or is it too farfetched to hope, that the telling of the story can also lead to a certain recovery of the lost sense for place?

Imagine that you step back in history in the manner of a crawfish and see the ingrained certainties of modernity wane at your sides. When the certainty of *a priori space* becomes hazy, what are you going to see? To answer "places!" is just to name. What is there, under the name?

Liberty of movement and openness are certainly going to be there, but also orientation and limits, without which there is no orientation. The essence of these experiences is perhaps the frequency of complementary pairs of opposites: open and closed, far and near, free and bound, visible and hidden, now and not yet. Many of these pairs mirror the human body's asymmetries: right and left, fore and back, up and down. Or relate my body to the world: the center of the world under my feet, and the horizon. Others are material: the firmness of the soil versus the thinness of the air.

Still others become manifest in motion. Mechanical locomotion in space unleashes a succession of fleeting images in a never-ending dream, like the "landscapes" through a train window. But walking from place to place unveils the substantial depths of the visible world, brings things into my body's presence "in the revelation of their materiality."[33] The walker's movements bring existence which was at best potentially there (in thought or in memory) into the realm of his perceptions. It is by my movements that objects facing me reveal their hidden face and become seizable and that things presently behind the horizon will unveil themselves. Conversely, nature seizes me in her motions. The world is an experience of mutual seizure, Bachelard wrote, and this mutual seizure of two *vis-à-vis* is another aspect of being in places.

What I see is complementary with what I can, Merleau-Ponty added.[34] What I see cannot be disembedded from what I can reach, seize, taste, smell, hear; no ideal image can be abstracted from these powers and their challenges by nature's moves. It is only by a kind of ellipsis that one can say that the senses "overlap" in a joint action, for they were never severed in the first place. In this joint perception or *synasthesia*, things are present before any hypothetical reduction of their perception to

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[33] Bachelard, Gaston, *Water and Dreams: An Essay on the Imagination of Matter*, Dallas: Dallas Institute of the Humanities and Culture, 1983 (1956), p. 6.
[34] Merleau-Ponty, Maurice, *The Primacy of Perception*. Northwestern University Press, 1964, pp. 162 ff.

separate "sensorial data": eyes eavesdrop, words enlighten, feet see and the nose touches the body's aura. Synaesthesia is another aspect of the perception of places.

Histories of Places

I could now multiply the stories of places, each illustrating a certain aspect of what it means, to be in a place: asymmetrical complementarities, mutual seizure, synaesthesia. Some would be meaningful for you but I fear that others would be so remote from your experience that, instead of evoking possible places, they would just sound weird. I confess that, for years, I have searched the works of such authors as Mircea Eliade, Georges Dumézil or Joseph Rykwert for stories about the founding of places in ancient times. I believed that the effect of estrangement of these intimations from lost worlds would be to stress, in comparison, the strangness of modernity. See, for instance, this account of a founding ritual around 1500 B.C. as recorded by the Rig-Veda, India's oldest book of religious precepts: "He who wanted to found a place had first to start a fire with embers taken from a peasant's hearth. This fire—the fire of the earth, of the peasant or of the house-lord—had to be round."[35]

Then, the Rig-Veda goes on, the founder stepped eastward. When he stopped, with stones he marked a square on the soil: the hearth for a second fire. The round and the square fires are in a relationship that conjures up the one existing between the earth and the sky. If the first fire is round, it is not because the earth is a globe, but because the line of the horizon is approximately a circle in the middle of which one stands: the visible earth is a circle. The same in all directions, a circle cannot orient. A cross in a circle expresses the union of earth and heaven. Then the founder steps backwards as a crawfish until the middle of the distance between the two fires, counting his steps.

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[35] Dumézil, Georges, *La Religion Romaine Archaïque*, Paris, 1966, p. 308.

He then faces the South and makes again as many steps as he has made backwards. There, he establishes a third fire, smaller than the first two and which, the Rig-Vida expresses, "must be formless."

This story reflects the way immigrants from the Iranian plateau in what is now India engendered dwelling places more then three millennia and a half ago... or at least how Georges Dumézil understood it in the twentieth century A.D. I have loved this story and, above all, the way Dumézil told it, showing how the three proto-Hindu fires foreshadowed the three main castes of Hindu society, and, beyond, the division of the prototypical (and hypothetical!) Indo-European society into three basic orders: the priests, the warriors and the cultivators. However, trying to tell it at the first Oakland Table made me wake up from these historical reveries: I came to realize that it was as strange, there, as an okapi in Jack London Square. Interesting story if well told, but about as familiar as the living chimera (part giraffe, part zebra, part donkey) would be there.

More than a millennium later, the Greek and Roman versions of foundation rites were like dromedaries. Still too bizarre to really surprise, as the sight of a camel in Harrison Street would induce passersbys to think that a circus is arriving in town.

The Greeks called the primordial figure of a cross in a circle *temenos*, the Romans called it *templum*. It was the original orienting device resulting from an act of foundation. In Rome, the *haruspex* contemplated the templum of the future city in the sky, somatized it and expectorated it on the soil, where it became the visible sign (also called "templum") of the union of heaven and earth (a hierophany) that instituted an inhabited place.[36] A place was limited in extension but opened to the cosmos, it touched the heavens like a tree with its branches and had roots in the underworld: it was a topocosm.

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[36] Rykwert, Joseph, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World*, Princeton: Princeton University Press, 1976.

But displaced okapis and dromedaries are meant to be seen in zoos and menageries, not in an Oakland neighborhood. The danger of illustrating the characters of places with such remote examples is that they might induce the listener into antiquarian nostalgia or, worse, into the belief that ancient rituals can be revived under modern myths. Any attempt to reenact place founding rites in space is like establishing a reservation for the last Ohlones behind the Mayor's house. Nonetheless, doesn't the following story ring a distant bell? It is about the Greek gods Hestia and Hermes, the gods of dwelling and of hospitality.

In its polarity, the couple Hestia-Hermes[37] expressed the tension which is proper to the pre-spatial asymmetrical complementarity. This needed a center, a fixed point from which directions and orientations could be defined. But it was also the locus of motion, and that implied the possibility of transitions, of passage from any point to any other. Hestia and Hermes were the gods of the domestic domain. They were also the symbols of the gestures of women and men and of their interplay. One could only be understood through the other. For instance, it is only in relation to Hestia that all the different aspects of Hermes's activity became coherent. Hermes made mobile, Hestia centered. Hestia's place was the hearth, whose deeply rooted stone was a symbol of constancy. Hermes's place was near the door that he protected from his companions the thieves. Hermes's characteristics and activities are the asymmetrical complements of what Hestia is and does.

But, no more okapis or dromedaries. The places that interest us here are the ones that can be saved from the monopoly of spatial truths. The ones that can be established in inconspicuous niches and protected from the contagion of space. Humble, without folkloristic appeal, they have nevertheless most of the characteristics that places have and space does not have.

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[37] Vernant, Jean-Pierre, "Hestia – Hermès : Sur l'expression religieuse de l'espace et du mouvement chez les Grecs:, in Jean-Pierre Vernant, *Mythe et Pensée chez las Grecs: Étude de Psychologie Historique*, 2 vol., Paris, 1974, pp. 155 - 201.

So let us dedicate this essay to Jerry's table. Let it be a place. From such a place, three or four can question the radical monopoly of space that transforms people into packages to be transported, citizens into clients to be served, neighbors into numbers.

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A Sense of Place:

Some Historical Symbols, Myths and Rituals of "Placeness" (2001)

Jean Robert

He who wanted to found a place - the Rig Veda tells us - had first to start a fire with embers taken from a peasant's hearth[1]. This fire - the fire of the earth, of the peasant or of the houselord - had to be round.

Then, the founder stepped eastward, making as many steps as his 'rank' or varna[2] allowed him. When he stopped, with stones he marked a square on the soil: the hearth for the second fire. The round and the square fires are in a relationship that conjures up the one existing between the earth and the sky. If the first fire is round, it is not because the earth is a globe, but because the line of the horizon is approximately a circle in the middle of which one stands: the visible earth is a circle. The same in all directions, a circle cannot orient. The implied meaning of that, is that nobody (no body) can gain orientation from the earth alone. He needs signs in the sky. The square fire is the fire of the sky. It is not equal in all directions: it has four corners. Between them, the two median lines draw

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[1]Julius Pokorny, Indogermanisches etymologisches Wörterbuch, Bern/Munich, 1948-69. Hearth: Pokorny I, 571, ker-, 'brennen' glühen, heizen'. Zweifelhaft, lat. carbo.
Ahd herd, as. herth, ags. heord, 'hearth'. (Abstract: hearth would derive from the Indoeuropean root ker-, meaning 'to burn).

Hestia: Pokorny, I, 1170: ues-, 'verweilen', wohnen, übernachten'; ues-ti-s, 'Aufenthalt'. Gr. haesa ep. Aor. (stets mit nychta verbunden) 'zubringen'. mit unerklärtem a-Vokalismus, asty, 'Stadt', astós, 'Städter', asteios, 'städtisch'.
got. wisan, 'sein, bleiben'. (Abstract: The word hestia - Greek for hearth - would derive from the Indoeuropean root ues- , 'to abode', which also gave the archaic Greek word for city and town, asty, and perhaps the old Germanic word for 'to be': wisan - viz. popular Dutch: wezen).

[2]Pokorny, op. cit., 1161, ueru, 'Schützer, Schirmer'(Varna would come the Indoeuropean root ueru, the protector). See also Georges Dumézil, La Religion Romaine Archaïque, Paris, 1966, p. 308.

perpendicular axes: a cross, whose branches indicate the cardinal points.

A cross in a circle expresses the union of earth and heaven. The Greek called such a figure temenos[3], the Roman called it templum[4]. It was the original orienting device resulting from an act of foundation. Let us suppose that the templum is drawn now, exactly between the two fires: the west-east line is the inversion of the sun's path in the sky, the north-south line is the partition between earth and heaven. Like the founder's body, space knows now back and fore, up and a down. But the templum cannot be just drawn by the hand. It must be 'acted out' by the founder's body.

Indeed, the story could almost finish here: very roughly, a place has been established, or, shall we rather say that a sense of 'placeness', on earth and under the sky has been embodied? The west-east axis recalls which relationship is prior to all the others. With the two primordial fires, the two poles (the 'up' and the 'down') of any place have been, so to speak, 'thrown together'[5]. A place on

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[3]François Anatole Bailly, Dictionnaire Grec-Français, 1904 (1899), p. 1913: temenos, 1. primitif, portion du territoire qu'on réservait au chef, enclos servant de résidence. 2. Portion du territoire avec un autel ou un temple. (1. Primitive meaning: part of the territory that was allotted to the chief, his precinct. 2. Part of the territory occupied by an altar or temple).

[4] Pokorny, op. cit., I., 1064: temp-, 'dehnen' ziehen' spannen',Erweiterung von *ten-, tempos, Spanne, 'drehen, wenden, spinnen'. Lat tempus -oris, Schläfe (von der dünn gespannten Haut). Lat. templa, die gespannetn Querhölzer auf denen die Spindeln kommen, contemplari, 'atenes blepein', tempto temptare, 'betasten, befühlen, angreifen, untersuchen, auf die Probe stellen'. (Templum comes from the hypothetical Indoeuropean root *ten- meaning 'to stretch').

[5]Georges Dumézil, op. cit., pp. 308 - 9 "Les deux feux axiaux, qui se trouvent sur une ligne ouest-est, séparés par des distances variables selon le varna du sacrifiant, ont des missions et des signalements distincts. L'un, appelé garhapatya, ou feu du grhapati, du 'maître de maison', représente sur le terrain le sacrifiant lui-même, avec ses attaches familiales et économiques. Il est l'origine et support de tout; c'est à partir de lui que sont allumés les autres feux et, s'il s'éteint, le sacrifice ne peut être continué, alors que, si l'un des autres feux s'éteint, il peut, lui, servir à le réanimer (...). L'autre feu axial, à l'est du premier, est appelé ahavaniya ou feu des offrandes, proprement '(ignis) aspergendus', et c'est lui dont la fumée porte aux dieux les dons des hommes(...)" (Abstract: The two axial fires, the first round and the second square, were called respectively garhapatya (or fire of the grhapati, the householder), the other ahavaniya, fire of the offerings. The garhapatya was the primordial fire from whose embers the others had to be started).

the earth - Greek ge - is rooted in the deep soil - chthôn - and open to the sky - ouranos. 'To throw together' is what the Greek verb symballein means, from which our word symbol comes.

Most symbols for a place combine an intimation of rootedness in the deep soil with a hint of openness to heavens, an image which can almost literally be inversed in openness to the deep soil, rootedness in the sky. One such symbol is the powerful tree, whose trunk conquers the height and unfolds a crown of endlessly ramifying branches which are like roots in the sky. Sucked by the earthly roots, the juices of the deep soil climb through the trunk and imbibe the sky. Or inversely: the 'roots of the sky' collect the sky's powers and bring them down to earth, so two opposed flows cross themselves, so to speak in the trunk, 'symbolizing' a double dependency between earth and heaven.

The straight climbing smoke column of the sacrificial fire, that conveys the smell of libations to the gods is an immaterial tree and another symbol for a founded place. Abel's sacrifice was blessed with a straight column because it was agreable to God. His brother's column could not rise, and the envious Cain killed Abel. The Hebrew tradition made of the cursed sacrifier the founder of cities and of agriculture, so to found a city and to domesticate nature (both actions are expressed, in Greek, by the verb oikodomeo, to tame, to domesticate or break a land open for building or planting) is always a precarious enterprise, threatened by the world's essential contingencies.

In the gentile traditions in change, cities were to be founded by certified founders and the brother that died was the one who had failed to perform the rite. While Yahweh was prayed for his grace, the gentile gods were acted upon by precise rituals.

Yet - the Rig Veda goes on - the earth-sky relationship, though complete, is not stable in itself. It is exposed to internal and external dangers: the north wind or an ennemy from the south, or inner dissention between brethern. Weather[6] and war[7]: it is to that double danger that Hobbes still referred to with the word 'warre', the war of all against all, which settles in grim times (in the dies mali), "like bad weather," says Hobbes[8].

So, after the first sacrifice on the sky's square fire, the founder steps back at mid axis and then goes as many steps to the right as he has gone backwards. He starts a third fire which, according to tradition, must be 'shapeless' and is generally vaguely reniniscent of a crescent. It is the fire of the weatherward, of Ares[9] and of Mars[10].

With that last act of orientation, space has not only a back and a fore, up and down, but right and left. Right and left are fundamentally assymetrical[11]. The right (south) is warded, so your right side

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[6]Pokorny, op. cit., I, 81, ff.: au(e)-, aue(i)-, ue-, 'wehen, blasen, hauchen'. Gr. aos. ue-dro-, vermutlich in anord. verdr, 'Wind, Luft, Wetter', as. wedar, 'Witterung, böses Wetter' (The word weather - German Wetter - supposedly comes from the Indoeuropean root au(e)-, meaning 'to blow', from which 'wind' also derives).

[7]Pokorny, op. cit., I., p. 1133: ueis, 'drehen' auch bes. für flechtbare Ruten, daraus gebundene Besen und dgl. ; uoiso-, Rute. Aisl vichr', Wirbelwind (*uesura-, lit. víesulas ds., russ. vichat'), 'erschüttern, bewegen'. (The word 'war' supposedly comes from the Indoeuropean root ueis, meaning 'to whip'. Though not deriving from the same root, the words weather and war both express the same idea: to whip, wipe violently, shake, disrupt a balance - see also the root of Gr. polemos, same meaning).

[8]Marshall Sahlins, Stone Age Economics, Chicago, New York: Aldine-Atherton, 1972.

[9]Pokorny, op. cit., I. p. 337: eres-, 'zürnt, will übel, benimmt sich gewalttätig', 'ist neidisch'. Arès= Gott der Rache. (Pokorny suggests that the name of the Greek war god Arès's could come from the Indoeupean root eres-, meaning to act violently or be envious. Arès is so the god of vengeance. The proximity to arèn, the lamb, of course suggests also an association with the sacrifice).

[10]Pokorny, op. cit., I, p. 1175: uet-, 'jährig', in Ableitungen auch für jährige, junge Tiere. Gr, fetos, heuer. Viteliú, Italia, woraus durch unilat.-gr. Vermittlung lat. Italia, eigentlich 'das Land der Itali (junge Rinder)', nach dem Stiergott Mars. (As to the Italian war god, he is originally the Mediterranean bull god. The "bull" associates to Italy via the Indoeuropean root uet-, which gave Gr. fetos, from this year (viz. the new lambs) and Lat. vitellus, calf. Italy is the land of the vitelli. A sacrificial association is not excluded).

[11]Rodney Needham, ed., Right and Left: Essays on Symbolic Classification, Chicago, 1973.

is protected. When the third fire was lighted, the Roman said "fas est," it has been pronounced (favorable). By contraction, the expression became fastus, favorable. Is it not logical to think that the right (side)[12], warranted by an oral pronouncement, is the forerunner of the 'right' in the sense of French 'le droit' or Spanish 'el derecho' (but also of the law, lat. lex)? If we take that origin serious, before any written law, there is an oral meaning of the right as 'the settled side of life'. Historically and, as I will argue, philosophically, the 'fas est' is prior to the 'scriptum est' and cannot be reduced to it.

If the main axis were a rope on which the founder progresses like a rope-dancer, the fire of the right would be his pendulum.

The left is left[13] unprotected, it has no ward. From there blows Aquilon, the Northwind, winter announces itself[14], danger looms, perhaps in the form of a storm, of an an ennemy, the impredictable.

So life in a founded place has two sides: the protected right, side of rectitude, order and continuity, of settled things about which one 'came to terms', and the unprotected left, side of danger, bad omens, the threat of rupture and discontinuity. Apart from heraldics, sinister (from one of the Latin words for left, the other being laevus) has lost the denotation and kept the connotation. But the left is also the side of the heart: the impredictable 'torridity' of passions, weighing the cool

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[12]Pokorny, op. cit., I, p. 854: reg-, 'gerade, gerade richten, lenken, strecken, aufrichten (auch unterstützend, helfend)'. ('Right' has its origin in the Indoeuropean root reg-, meaning 'straight', to 'stretch', but also to 'support'. Because of a frequent transformation of r into l, it is possible that the Indoeuropean roots reg- and leg- (whence lex, 'law') are originally one).

[13]Greek laios, lat, laevus: Pokorny, op. cit. I, p. 652: laiuo-, links; ursprünglich krumm?; vielleicht Sinn von 'verkrümmt', schwach (unbeholfen?, verlassen?); cf angels. lyft, schwach, mndl. 'luft', 'lucht', link, ofries. luf, 'schlaf, müde'. (The word 'left'- Gr. laios, Lat. laevus - could derive from the Indoeuropean root laiuo-, left but perhaps originally 'distorted', 'weak', 'abandonned').

[14]Pokorny, op. cit. I, p. 79: udro-s, 'Wassertier'. Quelle, Brunnen. Slav. voda, Gr. hydor, lat, unda. Got. wato (vgl. mit Lat. unda) wahscheinlich Got. wintrus, aisl vetr, ags. winter, als 'nasse Jahreszeit' (The word 'winter' would come from the Indoeuropean root udro-s, meaning originally an aquatic animal; the name of the 'wet season' would also derive from the same root as 'water'. Why not?).

reason of the shady right (keep in mind that, in a valley, the north is the coveted sunny side, and think that in Latin, torridus expresses extreme warmth or extreme dry coldness). So, the bilaterality of left and right also reflects the basic tension of time: regularity and rupture, equinamity and tension, German Zeit and English tide (from a root meaning regularity) and time (tension and rupture), follwing the double root of the Indoeuropean words for 'time'. With that, the newly founded place has time, a history begins. Mars, the ward of the right, god of the weather and of war is also, internally, the keeper of social stability. He summarizes the two dimensions of time that account for history: the repetition of the same and the emergence of the unexpected, security and danger. As the personification of bad weather and war (as Mars proper), he has an answer to trouble makers (and he more than often starts stories of his own). As Quirinus (the name comes from quiris, 'common man', member of the *co-viria), he keeps internal peace, eventually sacrifying (like Romulus, who also took the name Quirinus) the brother that breaks the rule. Quirinus, sometimes called the internal Mars or the peacekeeper is the god of the rules of good habits and cohabitation, the protector of custom, the keeper of customary ways, corresponding, in the Greek and the vedic traditions, to the keeper of the èthos and of the dharma. His designation as 'the common man' (the vedic grhapati), speaks about the oral, prelegal meanings of any 'right' that is settled by the 'coming to terms' of common men.

We now tend to understand rights as faculties warranted by law rather than by custom. This is relatively new. MacIntyre[15], for instance, shows that this was hardly the case before the 15th century, and that, previous to our century, this 'literate' and legalistic meaning of the word right was restricted to Europe, a judgement confirmed by the OED. The asymmetry of left and right in founding rituals allows us to make the people the subjet of 'rights' and to understand these as the

[15]MacIntyre, Alasdair, After Virtue: A Study in Moral Theory, Notre Dame: University of Notre Dame,

security arising from 'having come to terms'.

In the act of foundation, the union of earth and heaven, which is the essence of orient-ation passes through the body. Ge (orgas in archaic Greek) and ouranos are made one by the soma (body)[16]. In Rome, city founders relied on certified technicians, augurs[17], and haruspices, who generally were Etruscans. The Etruscan haruspex practiced the most extreme form of condensing earth and the sky. He in-corporated them into his flesh by the the con-templation of an ideal templum in the sky and by its projection into the landscape[18] and then, he 'expectorated' both, united into the image of the city to come. Founding was an act of marriage and birth. The organ of that union, gestation and birth was the liver. The harus-picium is a form of divination from the inspection of a liver (the root from which 'harus' comes means inwards, see German Garn). The haruspex expelled his own liver and read, on its rugose surface, the contours of the new landscape resulting from the union of earth and heaven. This - and not just earthly topography - was the landscape in which the city had to be found. Since it resulted from things of several realms (chthonian, epichthonian, that is earthly, and celestial), 'thrown together'[19], this landscape can be

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1981.

[16]Joseph Rykwert, "Uranopolis or Somapolis?," in RES, 17/18, 1989.

[17]Ivan Illich, H2O and the Waters of Forgetfullness, Dallas: The Dallas Institute of Humanities and Culture, 1985, p. 13: ."..neither the vocation of a founder nor a mandate from the oracle at Delphi nor even the actual settlement of a site suffices to make a locality into a town. The intervention of a recognized seer is required, an augur who creates space at the site discovered by the founder. The social creation of space is called in-auguration."

[18]Bernd Jager, "Horizontality and Verticality. A Phenomenological Exploration into Lived Space," in Duquesne Studies in Phenomenological Psychology, Ed. E. Giörgi, 1971, pp. 212 - 235.
Bernd Jager, "Imagination and Inhabitation: From Nietzsche via Heidegger to Freud," in E. Murray, ed., Imagination and Phenomenological Psychology, Duquesne Univ. Press, 1987.

[19]Ivan Illich, Im Weinberg des Textes. Als das Schriftbild der Moderne entstand, Frankfurt a.M.: Luchterhand, 1991, p. 35: "Für unsere Generation, die mit Freud und Jung großgeworden ist, ist es fast unmöglich zu begreifen, was das Symbol bedeutet hat. Das griechische Wort symbal(l)ein bedeutet 'zusammenbringen, -werfen oder -setzen'. Es kann die Nahrung meinen, die die Teilnehmer zum Mahl am festlichen Tisch mitbringen. Es ist etaws Zusammengefaßtes, dinglich Bedeutsames, das erst in der Spätantike zum semeion, Zeichen, wird." (Our generation can hardly understand what the symbol has meant. It comes from a Greek word meaning 'to throw together' and evoked something concrete, resulting of an act of composition - think of a meal. Only in Late Antiquity did the word come to mean semeion,

called ‘symbolic’. Since it united the topographic features with the cosmos, the landscape in which the founder operated - and that resulted from his operations - can also be called topocosmic, a word coined by Bourdieu[20]. It was not a ‘map’, a ‘plan’ or a ‘blueprint’, but a somatic image of a place in a cosmos and, as we will now see, of a cosmos in a place: it was, we could say, both a topocosm and a cosmotope. The templum (heaven and earth, united) is shorthand for this topocosm-cosmotope. Among other indications, it defines the perpendicular directions (Latin regiones) to be given to the new city’s main streets.

One year after Rome’s foundation, Romulus offered the gods the first-fruits of the city: wheat, fruits, flowers, the newborns of all the herds. He ‘threw them together’ into a hole in the center of Rome, a natural or an excavated cove. This cove was called the mundus. Mundus, here, does not mean the world. The word comes from the Indoeuropean root meu[21] (or, perhaps from mei-[22]?) and its basic meaning is clean, or orderly. In French, this sense survives in immonde, unclean, not worth of belonging to the mundus, doomed to elimination, to be thrown away beyond the city limit. In Spanish, we have the word inmundicias, things to be swept away. A similar kinship exists in Greek:

‘sign’).

[20]Pierre Bourdieu, “La maison ou le monde renversé,” in Esquisse d’une théorie de la pratique, Genève: Droz, 1972. Defines the Berber house of South Marocco as a topocosmos: a place in a cosmos or a placed (oriented) cosmos, or still a “monde renversé.”

[21]Pokorny, op. cit., I, p. 741: meu-, mu-, feucht, moderig, unreine Flüssigkeit (auch Harn), beschmutzen, aber auch: waschen, reiningen. Mu-n-dos in der Bedeutung von ‘gewaschen’, auch lat. mundus, ‘schmuck, sauber, rein, nett’, Subst. ‘Putz der Frauen’, Weltordung, Weltall (nach Gr. kosmos). Holl., niederd. mooi, Gr.: kosmos. (Pokorny hypothetizes that the Latin word mundus and the Greek word kosmos both have their origin in the Indoeuropean root meu-, which in turn adquired its meaning of ‘clean’ through a strange inversion. Pok. thinks that the root meu- meant originally humid, dirty liquid, and even urine and that the inversion ocurred thanks to the notion of ‘washing’. Dirty things are in need to be washed and so the root came to stand for ‘washed things’. Ingenious, isn’t it? Yet look at the following note: it seems to me that an etymology of the kom-moini- type is not to be excluded, think of kosmos).

[22]Pokorny, op. cit., I, p. 710: mei-, ‘wechseln, tauschen’, daraus Tauschgabe, daher gemeinsam; moi-ni-, Leistung, kom-moini-, gemeinsam, osk. múínikad-, umbr. muneklu, ‘munus, Sporteln’. (In the hypothetical ‘Ursprache’ called Indogermanisch by the old German philologists, it is possible that there was a root, mei-, meaning more or less ‘to exchange gifts’. Why not think that the word kosmos could derive from the idea of an order resulting from gifts and countergifts and have so the same origin as ‘common’ (hypothetical Indoeuropean kom-moini-), and ‘the commons’? Could it be? Isn´t it a nicer hypothesis than the previous

kosmos; the derived adjective kosmetikos meant clean or orderly long before it became kosmikos.

The mundus was the city'_ secret navel, a notion still alive in classical times in the umbilicus, the point or origin of the decumanus and the kardo, the two perpendicular lines, one broadly west-east, the other north-south with which all land survey started.

Three times a year, each time during a day, the mundus remained open: mundus patet[23]. When mundus patet, Pandora's box is open. It is prudent to shut oneself up. No contract, no council, no public debates, no war can happen these days. Festus, a writer of the 2d or 3rd century A.D. tells us:

> Cato, in his Commentaries on civil law, explains so this name: the mundus derives its name from the mundus (vault of the sky)[24] which is above us; indeed, so I heard from those who went into it, it has a shape similar to that of the other mundus[25].

For him, the mundus was already a semeion of the world. Things can be classified by dualities: hot and cold things, masculine and feminine, dry and wet, luminous and dark, high and low, right and left, living and dead. These dualities of things 'thrown together' reflect or 'symbolize' the world's fundamental dualities. So, if a place is in the world, the world is contained by every place. Pupils of Louis Dumont would find here matter for a reflection on their master's concept of inversion, which allows the part to contain the whole to which it belongs[26]. The place has now a center and a cosmic order: a hierarchy.

This account speaks of one ideal type of founding ritual, whose characteristics are often common

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[23]Georges Dumézil, La Religion Romaine Archaïque, op. cit., p. 345.

[24]Actually, etymology suggests the opposite derivation.

[25]Georges Dumézil, op. cit., p. 345.

[26]Louis Dumont, Homo hierarchicus. Essai sur le système des castes, Paris: Gallimard, 1966.

to the Indian and to the Mediterranean world, particularly in the Etruscan-Roman realm[27]. Yet, even within the Mediterranean domain, the sequences of foundation proper to a particular tradition are not necessarily followed identically by another. It might be that here the mundus is caved or discovered first and the town limit traced then (as in Rome) or the reverse. And the templum, which we already mentionned as 'shorthand' for the union of earth and heaven established by the two first fires is generally traced after the 'expectoration' of the haruspex's liver. At that point, a lamb - whose liver substitutes for the sacrifier's - is slaughtered[28]. In Rome, this sacrifice was preceded by the contemplation and the consideration[29].

The town still lacks something before it can be declared fully founded: a limit. Ivan Illich,

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[27]Ivan Illich, H2O and the Waters of Forgetfullness, Dallas: The Dallas Institute for Humanities and Culture, 1985, pp. 19, 20 (note 11): "It would be a grave mistake to generalize from Etruscan fondation rituals as though they were the model according to which dwelling space is ritually created by all cultures. The rituals described here should be seen as only one ideal type through which social space can be brought into existence and maintained. In certain African traditions, beautifully described by Zahan, I have the impression that social space is cultivated as the result of the personal experience of initiation. The initiatory way into the sacred woods and the ritual discovery of one's one 'inner experience' are expressed in the communitary building of house and village. This example might be seen as the inverse of the Roman procedure, through which the templum, made visible in the city, comes to be experienced as an inner reality. Lebeuf reports from the Congo a "creation of space" that is the result of heaven and earth growing together, as the right and left part of the house are carefully built so as to rise, inch by inch in harmony with each other. Roumeguere describes the distinct stages of an initiation ritual, in each of which a new revelation of the body's significance associates the young man or woman with a different sphere of outside realities. Niagoran stresses even more than Zahan that some African dwelling-spaces are the result of each generation's initiation and therefore are time-bound. They are constantly in the process of decaying and must be reconstituted. *Nicolas* reports that the sacificial victim is "split" to "make" new space. The space-creating spirit is ever at work as a zigzag line, representing the motion of water, word, and dance. See *Griaule* 12, 18 ff. on the "Nummo pairs of twins, who are water." Space seems never to be 'sealed off'." Dominique Zahan, *Religion, Spiritualité et Pensée Africaines*, Paris: Payot, 1970. J.P. Lebeuf, *L´habitation des Fali*, Paris: Hachette, 1961. J. Roumeguere-Eberhardt, "La notion de vie: base de la structure sociale Venda," in *Journal de la Société des Africanistes* 27, fasc. 11, Paris, 1957. G. Bouah Niagoran, "La division du temps et le calendrier ritual des peuples lagunaires de la Côte d'Ivoire," in *Travaux et Mémoires de lÍnstitut d'Ethnologie* 68, Paris, 1964. G. Nicolas, "Essai sur les structures fondamentales de léspace dans la cosmologie Hausa," in *Journal de la Société des Africanistes* 36, Paris, 1966. Marcel Griaule, *Dieu d'Eau: Entretiens avec Ogotemeli*, Paris: Fayard, 1966. Translated into English as *Conversations with Ogotemeli: an Introduction to Dogon Religious Ideas*, Oxford: Oxford University Press, 1975.

[28] Clay models of the liver, with inscriptions in Etruscan letters have been discovered. They were presumably used in lieu of the liver of a sacrified animal. Illustration in Joseph Rykwert, *The Idea of a Town*, op. cit., p. 56.

[29] Ivan Illich, ibid., p. 13: "The augur is specially gifted: he can see heavenly bodies that are invisible to ordinary mortals. He sees the city's templum in the sky. This term is part of the technical vocabulary of his trade. The *templum* is a polygonal shape that hovers over the site found by the founder and that is visible only to the augur as he celebrates the inauguration. The flight of birds, a trail of clouds, the liver of a sacrificed animal can assist the augur in the *contemplatio*, the act in which he projects the figure seen in the sky onto the landscape chosen by the god. In this *con-templatio* the heavenly *templum* takes its this-worldly outline. But *contemplatio* is not enough. The outline of the *templum* cannot settle upon the earth unless it is properly con-*sidered*, aligned with the stars (*sidus*). *Con-sideratio* follows *con-templatio*. *Con-sideratio* aligns the *cardo* (the axes) of the *templum* with the city's "star." The *cardo* was

recalling Rykwert's commentaries of Titus Livus[30], describes so the tracing of the furrow that determined Rome's extention and defined its topographic shape:

> For this ceremony two white oxens are hitched to a bronze plow, the cow on the inside, drawing the plow counterclockwise, thus engraving the templum into the soil. The furrow creates a sacred circle. Like the walls that will rise on it, it is under the protection of the gods. Crossing this furrow is a sacrilege. To keep this circle open, the plowman lifts the plow when he reaches the spots where the city gates will be. He carries (portat) the plow to create a porta, a doorway. Unlike the furrows and walls guarded by the immortals, the threshold and gate will be under civil law. At the porta, domi (dwelling space) and foras (whatever lies beyond the threshold) meet; the door can swing open or be closed. Benveniste remarks that there is a profound asymmetry between the two terms in Indoeuropean languages; they belong to unrelated sets of words. They are so distant from one another that they cannot even be called antithetical. Domi refers to in-dwelling, whilke foras refers to whatever else is shut out.
>
> Only when the founder has plowed the sulcus primogenitus (furrow) around the future town perimeter does its interior become space that can be trodden and only then is the arcane celestial templum rooted in the landcape. The drawing of the sulcus is in many ways similar to a wedding. The furrow is symbolic of a hierogamy, of a sacred marriage of heaven and earth. The sulcus primogenitus carries this meaning in a special way. By plowing a furrow around the future town, the founder makes inner space tangible, excludes outer space by

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originally a "hinge" with an explicit, concrete, masculine-feminine symbolism."

[30] Joseph Rykwert, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World*, London: Faber and Faber, 1976.

setting a limit to it, and weds the two spaces where the walls will rise later[31].

The founding of the greatest of all gentile cities did not go without another fratricide. Yet, contrary to Genesis, the Roman religion culpabilized the murdered brother. Following René Girard[32], only the biblical tradition takes side with the victim. Rome is on the murderer's side. Romulus's act was seen as a peace-bringing murder performed by the first citizen, Romulus as Quirinus, the common man who was also the 'inner Mars'.

With its limit, the place has now an inside and an outside. The inside is the ager effatus (effatus: same origin as fas). Outside the wall is the pomerium and then the open land (rus). The city is now fully founded. Square is the wall, square the houses: they are oriented, founded. On the contrary, a round building is the presence of the unfounded in the founded space: records of the time before the foundation. So the tholos[33] and the several skias[34] in Athens' center, and, in Rome, Vesta's round temple on the forum[35]. A round, not orientable building is a hut (Greek skia), not a house. It has generally no threshhold, no windows but a simple hole and an opening (Greek eschara) in the roof for the climbing smoke culumn and the dead's souls[36].

But the story still does not end here. The city - the founded place: stead, asty - is the abode of the living. What is the place of the dead? In the neolithic 'cities' of Palestina and Anatolia, seven or eight millennaries before the Christian era, this was in the hut and then the house, under a heavy stone. But already in the settlement of Hacilar, from the sixth millennium, the dead were expelled at

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[31] Ivan Illich, *H2O and the Waters of Forgetfulness*, op. cit., p. 14, 15. See also, Émile Benveniste, *Le Vocabulaire des Institutions Indoeuropéennes*, Paris: Éditions de Minuit, 1969, 2 vol..

[32] René Girard, *La Violence et le Sacré*, Paris: Grasset, 1972.

[33] Pokorny, op. cit., I., p. 265: *dhuek-*, *dhuk-*, *dheuk-*, dunkelfarbig, verborgn, geheimnisvoll, trüb, geistig schwach.
Gr. *tholos*, Schlamm, Schmutz, bes. von trüben Wasser, der dunkle Saft des Tintefisches' (got. *dwals*).
Bailly, op. cit., p. 940: *tholos*, édifice en voûte; coupole, bâtie dans la cour, où l'on conservait les provisions. A Athènes, la Rotonde, édifice à voûte où mangeaient les prytanes. (The *tholos* was a round building recalling "the time before the foundation." It had some of the "natural" characteristics of a cave (wetness, darkness).

[34] Bailly, op. cit., p. 1760: Ombre (shadow). Also hut, round building.

[35] Illustration in Joseph Rykwert, The idea of a town, op. cit., p. 109.

[36] Mircea Eliade, "Architecture sacrée et symbolisme," in Damian/Raynaud, ed., *Les Symboles du Lieu, L´habitation de L´homme*,

the periphery of the livings' domain. Hacilar had the first cemetery ever documented in a sedentary place.

In Rome, the law of the twelve tables stipulated that no dead must be burried within the city's limits, and similar dispositions existed in the Greek poleis. With the exception, sometimes of the founding hero, the dead must be burried outside. The tomb marks both the end of human life and the ultimate limit of the city's domain (of the fields, outside the wall). In the stone(s) or the wooden pole recording a dead's abode, the temporal and the spatial limit of earthly existence coincide.

Above Ithaca, the Odissea tells us, there was a hermaios lophos, a heap of stones. The Greek god Hermes has been defined as an iconic represention of the hermaios lophos. It is also the personification of one of the most primitive ritual gestures of the Mediterranean world: the act of throwing stones on a grave, or simply on the spot where blood had been shed. Jean Servier[37] reports that Algeria's Berbers, the Kabyles, still do it, shouting "la," "well done!" while throwing their stones. Historians call this gesture lithoboly. Sometimes, etymology illuminates deep phemomenological contexts. So is it with the Indoeuropean root from which Hermes comes. Following Pokorny, this root is uer[38], It has given most Indoeuropean languages terms meaning 'mount', 'eminence', 'protuberance' or 'turgidity', as for instance the not very palatable 'wart'. The Greek words herma and hermaios, meaning heap, mound are 'uer' words. Many linguists have

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1983.

[37] Jean Servier, "Hermès Africain: les origines communes, les limites du visible et de l'invisible," in *Eranos Jahrbuch 49* (1980), pp. 199-257. Servier reports that in all North Africa, the mound resulting from the lithobolic gesture (the "African Hermes" on local tombs) is called *horm*. Though I am not at all competent for research on semitic languages, I checked in a Hebrew dictionary and found that, be it by coincidence or by borrowing, the Indeuropean and the Semitic root that originally refers to the heap of stones on a tomb strangely seem to coincide phonetically. In the Bible, we find it several times under the forms *hor*, *horeb*, *hora*, meaning each time a mound. The most striking example is from Deuteronomy (5, 1-5), the passage where Moses received the tables of the law on mount Horeb.

[38] Pokorny, op. cit. II, Gr *herma*: 1150, 1151, 1152. Pok. I, p. 1151: uer-, erweitert uer-d-, uer-s-, 'erhöhte Stelle (im Gelände oder in der Haut), *ursu-*, 'hoch'. *uer-s*, Lat. *verruca*, Warze (bei Cato auch locus editus et asper). Gr. *herma*, 'Stütze, Riff. Hügel'.Unsicher: Greek *rhion*, 'Berghöhe, Vorgebirge (**urison*?) und aisl. *risi*, Riese. (Pok. sees the origin both of the name Hermes and the word horizon in the Indoeuropean root *uer-*, suggesting a mound, a top, a protuberance or even a wart. From that root derive also, apparently, the English verbs to "raise" and to "rise." What Pokorny cannot treat is the strange homophony of the Indoeuropean root *uer-* and the Semitic root *hor*, *hor-*, (for instance, in North Africa, "horm" means as much as "hermaios lophos," a heap of stone), which I am not able to explain).

hypothetized that from the same root comes also Greek horizeo, I divide, for the crest of a mountain divides the landscape in two parts. From that comes 'horizon', the line dividing the visible and the (still) invisible part of the landscape.

The horizon was the limit of 'our world', including the city and the countryside (polis and agros). As far as local people's perception is concerned, it was the world's limit[39] and every trespassing was the motive of rites of passage[40]. Tombs were on that line. Temporal and spatial expression of liminality, they were also on a topographic limit, close to, or on the horizon: the most conspicuous mark of the temporal limitation of life was also the origin of spatial boundaries. All practical delimitation were derived from tombs through a kind of primitive trigonometry[41]: landmarks and milestones were defined by their distance to three tombs. In an age still deprived of formal census practices, lithoboly, which defined the first fix points of a country, was the originary limit tracing gesture.

So, a town had a center, an enclosure and a broad periphery. The passage from the outside to the inside and vice-versa occured through four doors. Thresholds, like walls were sacred, the nature of sacredness being the passage between two radically heterogenous kinds of space: the inside and the outside. Yet remember: if the latter was protected by the gods, the first was under the protection of civil law[42]. Beyond the horizon begun the others' world, which was not 'sacred' proper, but taboo. The word 'taboo' refers to the opposition of a 'we' and 'the others'[43].

Oscar Koschorke differentiates between four broad moments of the history of the horizon:

1. Horizon and world limit coincide in the dwellers' perception. To trespass the horizon is

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[39] Albrecht Koschorke, *Die Geschichte des Horizonts. Grenze und Grenzüberschreitung in literarischen Landschaftsbildern*, Munich: Suhrkamp, 1990.
[40] Arnold van Gennep, *Les Rites de Passage: Etude Systématique des Rites*, Paris, 1909.
[41] A. Seidenberg, "The Ritual Origin of Geometry," in *Arch. Hist. Exact Sciences I* (1962), pp. 488 - 527.
[42] Ivan Illich, *H2O and the Waters of Forgetfulness*, op. cit..
[43] Jean Robert, *Raum und Geschichte*, Kurseinheit 2, Hagen: FernUniversität, 1998.

equivalent with leaving 'our' world and penetrating into the others' world.

2. Horizon and world limit cease to coincide. The Odissea speaks of the beginning of this moment in archaic Greece.

3. Any horizon is a challenge to trespass, a syndrom characteristic of the times of 'great discoveries'.

4. The aporia of the horizon: every limit having been transgressed, the perception of the horizon wanes. No wonder if the dead, whose tombs belonged to the horizon have no longer a place: no more mysterious presences among the living, they are radically negated[44]. Following Koschorke, the succession of these four moments summarizes the peculiar dynamism of the West and shapes its history[45].

What meaning can still have the word 'place' - as opposed to abstract, 'cartesian' space - in late Western culture, that is in modernity? Has our time become placeless, as it is limitless, centerless, horizonless and deprived of the presence of the dead? And what kind of earth, of body, of heaven are we left with, when the very elements making of a place a topocosm and of the body a soma in a topocosm have abandoned us? How can we recover some sense of placeness beyond the demise of all that, which made a place? We are here to explore Jerry Brown's idea that friendship can make us recover a sense of placeness.

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[44] Borst, Arno, Mönche am Bodensee 610-1525, Sigmaringen: Thorbecke, 1978. "Among all the groups that suffer from discrimination, the dead are the worst off, since their very existence is negated."

[45] Albrecht Koschorke, Die Geschichte des Horizonts, op. cit..

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History of Place:

Odysseus's house, 8th Century B.C.

Jean Robert

In Homer's time, in the 9th century before Christ, a *polis* was not a city but the household of a noble man. The word stems from the Indoeuropean root *pûr* and means originally a mound or a hill. The German word *Burg* derives from the same root. To designate the city, there was another word, *asty*, which did not mean the physical city within its limit, but a broad domain of civility, of people who could be called *asteoi*, urban in the sense of civilized, polite, handy. Odysseus was the prototype of such a man. Instead of speaking of politics, for those times, it would be better to speak of "asteism." The word could stand for the maintenance of relations of civility between houses, equal if they were in the same town or not. The Odyssea is thus a first "geography of asteism" that should inspire the Greeks to expand their sphere, particularly in the still half unknown Western part of the Mediterranean.

One good half of Odysseus's house was dedicated to the inter-domestic relations of "asteic" hospitality. It consisted mainly in a huge room, with a hearth and small tables for festive meals. It was Hermes's domain, and the type of hospitality that was practiced there was no longer the "hestian" hospitality, in which the guest was integrated into the domestic hierarchy, but the "equalitarian," "hermetic" hospitality characterized by the *xenos* relationship. In later time, this place, much reduced in size, was called *andronitis*, and opposed to the *gynaikonitis*, the space of women.

In Homer's time, the part of the house dedicated to inter-domestic "politics" or better "asteism" was still called the *megaron*. The *asteoi* gathered in the megaron, ate and drank, listened to the rhapsod or *aiodos*, and weaved intrigues. Homer was such an *aiodos*. In absence of any supra-domestic institution, of well-maintained roads and hotels, hospitality in the web of "asteism" was the only possible means of traveling and the only way to know about the world.

The megaron opened the house to the world. Though it was men's domain, the Odyssea reports over regions where women had entrance into the megaron. In the 8th song for instance, Odysseus, whose ship had wrecked on the shore of Phaiakia, is told by Athena to ask the queen, and not the king for hospitality. The other part of the house was dedicated to household activities. It is the domain of Hestia, to which men are not allowed.

Euphiletos' House, 5th Century B.C.

Euphiletos lived in Athens at the end of the 5th century before Christ. One day, while he was in the fields, his wife let her lover into the house. When her husband came back earlier than usual, she convinced him that he should take a nap. She enclosed him in his room and went back to her lover to help him escape. In order to cover the noise, she ordered the servant to pinch the child, so he would cry. Nonetheless, Euphiletos heard the noise of the door and discovered the plot. He murdered his wife's lover and had to stand for the judge for that reason. Since he was a poor speaker, he asked a *logographos* and *rhetor* to take care of his defense. This *logographos* was Lysias. Here is how Lysias let Euphiletos describe his house to the judge:

> I have a small, two story house, whose second floor is installed like the first. It is so divided into a *gynaikonitis* on the upper floor and an *andronitis* downstairs. (...) When my wife got the child, we interchanged rooms, so that she would not be exposed to dangers when she

> goes to the bath. So it became a habit, that my wife went away from me and slept downstairs near the child (...) so that he would not cry.[1]

Lysias's text shows us at least two things about a small house in Athens in the 5th century.

1. Since the house has two stories, there is no hearth in the middle of the men's quarter: it is no longer a *megaron*.

2. Men's and women's quarters have become interchangeable: they are alike.

Louis Gernet, the founder of the "French School" of Hellenism, related the disappearance—or at least the reduction—of the hearth with the rise of democracy in Clysthenes's time:

> When the position of the hearth becomes arbitrary, the territory can be ordered mathematically, that is, reorganized around an arbitrary and theoretical center: every hearth can be displaced at will.[2]

He so associates the rise of the classical *polis*, be it democratic, oligarchic or ploutocratic, with changes in the relations between gendered spaces, and this is a powerful insight.

Not only the hearth, but the parts of the house, and the house itself had become mobile, as if Hestia had been uprooted. This can be compared with Xenophnon's admiration for a "mobile house" which is a ship. In Oikonomikos, he lets the perfect householder Ischomachos tell Socrates:

> But the most beautiful and best calculated order of furniture, o Socrates, I have observed during a visit of the great Phoenician ship.[3]

And Ischomachos goes on to explain how the organization of this ship should be the model of all well-ordered houses.

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[1] Lysias, edited and translated by W.R.M. Lamb, Cambridge, Mass., London, 1976, I 6:14.
[2] Louis Gernet, "Sur le symbolisme olitique en Grèce ancienne: le Foyer Commun," in *Cahier Internationaux de Sociologie*, 1951, pp. 21 - 43.
[3] Xenophon, *Ökonomische Schriften*, edited by Gert Audring, Berlin, 1992.

Xenophon is the author of one of the first known “doctrines about the house.” Such doctrines do not speak of the vernacular tracing of limits between gendered domains, but of the domination of the house father over wife, children, slaves and dependants. I have, I believe, identified a moment in which domination is instituted over the asymmetrical complementarities of gendered spaces. This moment implies the alphabet.

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Space

Jean Robert

To the question "where are you in this moment?" a pilot would answer "at longitude x, latitude y, altitude z." But if I ask you "where do you live?" your answer may instead evoke neighborly relations weaved through the years—a climate, old stones, the freshness of water. Depending on who is asked about what, the "where?" question can be answered by *space* determinations or by the memories of a concrete place. Space and place are two different ways of conceiving the "where" or, using the Latin word for "where" as a *terminus technicus*, two answers to the *ubi* question.

Place is an order of being *vis–à-vis* my body. This order (Gr: *kosmos*) always mirrors the great cosmos. This vis-à-vis or mirroring is the essence of what Ivan Illich called *proportionality* (Illich and Rieger, 1991.) According to Einstein, the concept of space disembedded itself from the "simpler concept of place" and "achieve[d] a meaning which is freed from any connection with a particular material object" ([1954], p. xv.) Yet, Einstein insisted that space is a free creation of imagination, a "means devised for easier comprehension of our sense experience." In pure space however, my body would be out of place and in a state of perceptual deprivation.

This article concentrates on the radical monopoly that *space* determinations exert today on the *ubi* question. Wheels and motors seem to belong to space, as feet do to places. And just as the radical monopoly of motorized transportation on human mobility leaves some freedom to walk, space determinations leave remnants of placeness to linger in perception and memory. It will be contended that ethics can only be rebuilt by a recovery of placeness.

A general conception of space is conspicuously absent from ancient mathematics, physics and astronomy. The Greek language, so rich in locational terms, had no word for "space." (Bochner, 1973) *Topos* meant place, and when Plato in *Timaeus* located the demiurge in an uncreated *ubi* of which we can have no perception because it does not "exist," he called it *chôra*, fallow land, the temporary void between the fullness of the wild and cultivation. According to Plato, the demiurge's *chôra* could only be conceived "by a kind of spurious reason," "as in a dream," in a state in which "we are unable to cast off sleep and determine the truth about it" (Plato, *Timaeus* 52). In hindsight, it can be conceded that this was a first intuition of the antinomy between place and what is today called "space." In the XIVth century, Nicolas d'Oresme imagined an incorporeal void beyond the last heavenly sphere, but still insisted that, in contrast, all real places are full and material. Space, still only a pure logical possibility, became a *possibile realis* between d'Oresme and Galileo (Funkenstein, 1986, p. 62).

Following the canons of Antique and medieval cartography, a chart had to summarize bodily scouting and measuring gestures. Pilgrims followed *itineraria*; sailor~~s~~, charts of ports; and surveyors consigned ritually performed acts of mensuration on marmor or brass plates. These were no maps in the modern sense, because they did not postulate a disembodied eye contemplating a land or a sea from above. The first maps in the modern sense were contemporary of the early experimentations of central perspective and, like these, construed an abstract "eye" contemplating a distant grid in which particulars could be relatively situated. In 1574, Peter Ramus wrote a "lytle booke" in which he exposed a "calculus of reality" in which all topics were divided in mental spaces that immobilized objects in their definitions precluding the understanding of knowledge as an act (Pickstock, 1998). Cartesian coordinates and projective geometry gave the first mathematical justification to the idea of an immaterial vessel, unlimited in extent, in which all material objects

are contained.

Had "space" been invented~~,~~ as Einstein contended, or discovered? In the XVIIIth century, Kant announced that space was an *a priori* of perception. For him, Euclidean geometry and its axioms were the mathematical expression of an entity—space that cannot be perceived, but, like time, underlies all perceptions. The first attempt~~s~~ to contradict Euclidean geometry were published in Russian in 1829 by Lobachevsky[1], whose ideas were rooted in his opposition to Kant. For him, space was an *a posteriori* concept. He thought that he could prove this by demonstrating that axioms different from Euclid's can generate different spaces. In the light of Lobachevsky's—and then Riemann's—non-Euclidean geometry, Euclidean geometry appears *ex post* as just another axiomatic construct. There is no *a-priori* space experience, no "natural," "universal" space. Space is not an empirical fact but a construct, an arbitrary frame that "carpenters" the modern imagination (Heelan, 1983).

Einstein occupies an axial and simultaneously ambiguous position in the history of this understanding. In order to express alterations of classical physics that seemed offensive to common sense, he adopted a mathematically constructed *manifold* (coordinate "space") in which the space coordinates of one coordinate system depend on both the time and space coordinates of another relatively moving system. On the one hand, like Lobachevsy and Riemann[2] ([1854]), Einstein insisted on the constructed character of space: different axioms generate different spaces. On the other hand, he not only came to consider his construct as ruling the unreachable realms of the universe, but that which also reduced earthly human experience to a particular case of it. In

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[1] Lobachevsky, Nikolay Ivanovich. The date of the first publication on non-Euclidean geometry is 1829. It was a work in Russian by Nikolay Ivanovich Lobachevsky (1792-1856), followed in 1837 by an essay in French ("Géométrie imaginaire") and, in 1840, by a book in German (*Geometrische Untersuchungen zur Theorie der Parallellinien*).

[2] Riemann, Bernhard, "Über die Hypothesen, welche der Geometrie zu Grunde liegen" (on the hypotheses that are the bases of geometry), ---, Gesammelte mathematische Werke und wissenschaftlicher Nachlaß, edited by D. Dedekind, Leipzig: Teubner, 1876 [1854], pp. 254-267.

Einstein's space, time can become extension; mass, energy; gravity, a geometric curvature; and reality a distant shore, indifferent to ethics. This space has reigned over the modern imagination since about a century. Yet, the idea that the realm of everyday experience is a particular case of this construct has not raised fundamental ethical questions.

The subsumption of the neighborhood where I live into the same category as distant galaxies transforms my neighbors into disembodied particularities. This loss of the sense of immediate reality invites a moral suicide. Hence, ethics requires today an epistemological distinction that evokes d'Oresme's: contrary to outer space, the perceptual milieu is a place of fullness. According to its oldest etymology, *ethos* means a place's gait. Space recognizes no gait, no body, no concreteness and, accordingly, no ethics. The *ubi* question must, therefore, be ethically restated.

Body historians and phenomenologists provide tracks towards an ethical recovery of placeness in the space age. Barbara Duden has shown that fundamental ethical questions related to pregnancy can only be raised by relocating the body in its historical places (1991). For their part, phenomenologists, these philosophers who cling to the "primacy of perception" in spite of tantalizing science-borne and technogenic "certainties," restore some proportionality between body and place. For Bachelard, for instance, there is not the individual body immersed in the apathetic void of space, but an experience of "mutual seizure" of the body and its natural *ubi*. Merleau-Ponty (1964) further articulates the complementarity of these two sides of reality. These can be steps toward a recovery of the sense of the *vis-à-vis* without which there is no immediate reality, and hence no ethics.

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Modernity's Spatial Imperative
(2000)

Jean Robert

Modernity could be appropriately defined by its urge to master space and to expose all reality to a shadowless light in a controlled space. Long before Armstrong treaded the moon and even before Sputnik's bip was broadcasted all over the world, modernity was the "space age."

Unlike other epochs, this age does not care to define its concept of the *summum bonum* as a graspable frame of orientation for action. It does not offer clues for decisions about ends, but for choices about means, and these means always imply free motion and shadowless vision in mastered spaces. All what our epoch considers worthwhile can always be reduced to a mastery over spaces, to vision and to motion in a manageable space.

Bridge builders do no longer say that, by uniting the edges of a cleft, they found a human site in the wilderness. They say that they remove an obstacle to a virtual flow of circulation. Traffic planners have adopted their language: in all that which opposes free motion in controlled space, they see a "factor of friction" to be removed.

"Circulation" and "speed"—the measure of its intensity—have become the axiomatic certainties underpinning a vision of the world as a collection of accessible objects and locations in space. Starting in the mid 19th century with the rapid propagation of the railroads, "space" has emerged into public consciousness as the ultimate substratum of reality. In the experience of speed, the landscape is experienced as an immutable space which frames ever changing images. This fixed receptacle of fleeting images makes the abstract coordinate-space of mathematics and physics seem

more real than the realities that "it contains." This void, and yet more than real universal container has become "the real space of modern experience." It is what commuters perceive as the "environment" in which they haste by selecting the appropriate signs along the highway, successively discarding sight after sight what E.V. Walter calls "the rubbish of perception." Traffic landscapes are not landscapes in which one dwells but landscapes through which one runs by abolishing their sight. Symbolically, speed is the arrow that pierces all circles and removes boundaries as disposable obstacles.

Yet, circulation is not the only manifestation of our time's spatial imperative. It is only one of several symptoms. From astrophysics to topology, from cinematography to poetry, there is hardly a modern discipline or an art which does not start as an initiation to rules of composition in real or imaginary spaces. Since centuries in the West, space is the medium of all visual representations. Yet, in the "real space" of modernity, representation becomes a simulation: an engineered deceit of the senses which abolishes the distinction between the image and its model.

The adoption of the heliocentric worldview led to a "spatialization" of the Earth. The container of all places was transformed into a rock or, as Romanyshyn says, "a corpse." Barbara Duden sees the image of the fetus which—since a famous photograph in Life Magazine—haunts the modern imagination as the outcome of the ultimate spatialization of the body. Building on Panofski, Duden shows that it started with Leonardo's pictures of the dissected corpses of pregnant women. From Leonardo to Hunter and to the sonogram, Duden documents the constitution of what she calls "the public fetus" as the result of a progressive "peeling away" of the maternal, caring body. In her book *Geschichte unter der Haut*, Duden contrasts modern anatomy—the art of piercing the skin and exploring the "obscurity beneath" to a reckless light—with the complaints of early 18th century patients to their physician, Dr Storch.

Speed similarly transpierces all limiting horizon and makes "the beyond" part of daily experience. In *No Sense of Place*, Meyrowitz has shown that the electronic media breaks down any possible distinction between familiar objects and remote, ungraspable realities. In the words of Michael Mooney, a participant of the "Commonplace Conference" in State College, we live in a world "in which the common is becoming uncommon and the uncommon common."

An age which disposes of the tangible "flesh" of all things—of all that offers resistance to the hand and is therefore "haptic"—first makes the unexpected seem obvious and then, as Ivan Illich says, redefines it as "that which is demonstrable but remains unimaginable." Modern man lives in a world of unimaginable *demonstrabilia* that techniques of spatial simulation have transformed into *visibilia*.

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"Speed" As a State of Altered Perceptions (1989)

Jean Robert

Most of the experiences which are a trivial part of the condition of modern man have a recent history. I myself belong to the generation who still remembers a time when there was no television and I also recall the day when, for the first time, I climbed into a jet: this was in Luxembourg, and the first landing was in Reykjavik. As Iceland appeared between the clouds, like a green and white jewel on a blue mantle, the plane turned into a graceful curve that soon put the island out of sight. When it appeared again, in the windows of the opposite side, I jumped from my seat to follow the beautiful sight. The plane turned again, and the island changed sides once more. It was only after having run to and fro a couple of times that I became aware of the disapproving glances of the other passengers. What I read in their eyes is that one does not behave that way in a plane. I was a quick learner. I spent my next flight glued to my seat.

One does not have to reach very deeply into family records to find an aunt, a grandfather or a great-grandmother who recalled a somehow comparable experience of first-time contact with tools whose use has become routine: Aunt Mary, who spoke into the ear piece during her first phone call, grandfather's tales about his first automobile travel to the South on unpaved roads where he met signs of disapproval by villagers, the stories he used to tell about his mother's memories of the first time she took a train. These are records of first-time experiences which must be carefully distinguished from the ensuing routines. Though they are experienced with the same

tools, the initial excitement and the subsequent routine belong to different constellations of perception. First-timers are overwhelmed by a plethora of sensations which overflow the frame of their customary perceptions. Ordinary users, in contrast, have acquired a new perceptual frame which selects some sensations and filters away others.

This essay tries to catch what happens to first-time perceptions when routine takes command.

Records of people who, around 1915 or 1920, traveled for the first time in an automobile, convey something of the special quality of my own first experience as a driver. "Speed," when experienced as frontal sight from a vehicle's windshield is a sudden surge, as if all the usual transitions of motion where abolished.

Proust has described that experience of the "sudden surge" in a text published under the title "Impressions de Route en Automobile" in *Le Figaro of November 12, 1907:*

> I had asked the driver to stop for a while in front of the steeples of Saint-Etienne; but remembering how long it took us to get near to them, while from the beginning they looked so close, I pulled my watch from my pocket to see how many minutes it would still take us, when the automobile stopped me at their foot.
>
> After having been for a long time unreachable by our straining machine, which seemed to skid on the road, always at the same distance from the steeples, it was only during the last seconds that speed, which had been totalized during all that time, became appreciable. And the giant steeples threw themselves so rudely upon us that we just had time to stop before dashing ourselves against the porch.

When it becomes a routine, "speed" ceases to be the experience of the sudden surge of things abruptly flung in our path. The driver becomes a driver by acquiring a new sense of the sequence of events. Learning how to drive is learning how to focus on the freeway, and not on the threatening masses of houses, trees or walls along the road. These become a flow of fleeting images at the side of one's visual field. Only a first-time passenger, or a novice driver can still perceive

speed as a "sudden surge" or as the fear of being dashed against an obstacle, and this perception reveals how much he is still a pedestrian; for him, motion is not yet a flow of fleeting images, but still an encounter with solid things. In *Swann's Way*, Proust writes:

> The 'dépaysement' (uprootedness from one's place), the effect of strangeness due to speed allows a modification of the conditions of perception, of the categories of time and space; it helps to break these 'aggregates of reasonings' out of which our perception is made, to de-intellectualize this, in one word, to reencounter the freshness of sensation.

Actually, this text summarizes an expectation of sensory estrangement which was repeatedly expressed on the occasion of the arrival of the first trains, the automobile, and then the airplane. In the first decades of our century, at the time of the first automobiles, "speed" was the experience from which many poets expected to gain that "disarrangement of all the senses" which, for Rimbaud, was the condition of poetic creation.

In the "Manifesto of Futuristic Painters" that they wrote in 1910, Boccioni and five of his friends urged modern painters to paint what their eye saw, and not what their mind "knew." The surprise of things that, because of their unusual speed seemed to be irrupting from nowhere should lead painters "to put the spectator in the center of the picture" and "to force him to accept these new appearances." A bus, for instance, should be painted, not as a box into which people can climb, but as one of those "forces of a street" which Boccioni himself attempted to represent in a famous painting[1]. Here is a sentence from the "manifesto":

> The bus runs into the houses which it passes and the houses throw themselves against the bus to join themselves with it.

In 1912, only nine years after the Wright brothers had built the first motorized airplane and flew it over a distance of one mile, Marinetti, another Futurist, thought that the old world was

crumbling and that a new world had to be built out of the vision gained by speed and altitude. He imagined himself riding an airplane through the sweeping plains of the sky:

> It was in an airplane, seated on the gas tank, my belly heated by the pilot's head, that I suddenly felt the ridiculous inanity of the old syntax inherited from Homer. (Marinetti, *Le Manifeste du Futurisme*)

The words which come to the mind reading the Futurists is "exacerbation of sensations." The perception of speed in means newly experienced is a distortion of previous perceptions. A man who sits in a train, in a car or in a plane for the first time experiences an upsetting of his habitual sensations, not a functional perception eventually allowing him to drive the machine or at least to behave in front of the other passengers. The poetic touch in the first testimonies of vehicular speed is based upon this exacerbation of sensations. Christoph Asendorf speaks of the "new coordination of the senses" which, starting in the mid-19th century, allowed men to build a new vision of nature out of the visual sensations generated by speed. He writes, "The 19th century is permeated with strategies for the reorganization of new sensory perceptions."[2]

From the Excitement of the "First Time" to the Tediousness of Routine

Yet, as accustomedness sets in, this reorganization of perceptions under the mediation of mechanical aids is a departure from the perceptual riches of the first-time experience. In order to become functional, the new coordination of the senses must tend toward a state of acquired selective insensibility. For instance, the kind of focusing vision which is required for driving a car is acquired by filtering away most of the profuse "first-time" sensations: houses generally do no "throw themselves" against trained drivers.

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[1] See Asendorf, op. cit. infra, p. 160.
[2] *Ströme und Strahlen: Das langsame Verschwinden der Mate*

The artists who celebrated speed in the decades of the first cars and airplanes attempted to prolong or fix the surprise of the "first-time." They cultivated just those sensations which the training to vehicular locomotion tends to erode. Whatever new visions speed inspired to the artists, these were "disarrangements" of their pedestrian sensory memories, not functional, adaptive ways of seeing.

In contrast, the man who hurries to work coordinates the speed of traffic, the distance to be covered, the reading of the gas gauge, the probability of finding a gas station in this area into a single web of meaning. For him, geography is reshaped by the "miles per gallon of gas ratio" that tells him which territory he controls with what he has in the tank. The idea that distances are covered at a given energy cost calculable in gallons of fuel introduces the logic of equivalence into the perception of the landscape. It is as if the distances between places were in a category with the liquid that fills the tank. The motor is the agent of a transaction in which, in exchange for gas, the landscape is swallowed up by the miles and left behind, sight after sight. In a subtle way, it is as if the common quality of being consumed and left behind gave a sort of co-substantiality to the fuel in the tank and the miles of landscape behind the windshield. Fuel is burnt liberating energy. The sight of the landscape disappears by absorbing that energy which, as any scientist will tell you, is now "bound" as residual energy—"high entropy"—in the very substance of nature.

Discarded Perceptions

I study what the habit of selecting sensory experiences and discarding most of them as irrelevant to orientation does to vision and perception. I nose around in the waste baskets of perception. I wonder about what becomes of smells and whispers, the touch of leaves, the salty taste of sweat when they are disposed of as the "rubbish of experience."

The walker draws a map of potential feelings and sensations which tells him what he can reach with the power of his feet. The driver's map is limited by what "he has in the tank." I see nature one way with my feet, very differently through the window of a machine whose radius of action is defined by gallons of gas.

What the driver "sees" in sites that his body will never meet are references structuring an itinerary. The sights framed by the windshield are not made of the same substance as the smelly mud that stuck to one's shoes. Though yellow as they ought to be, the strawstacks along the way are not made of the straw in which we played. The heath is not the one where we picked blueberries. The glimpse of warren, bush, and marsh are fleeting images, easily discarded by a push on the gas pedal.

Vehicular locomotion leaves the body in command of only the instruments of driving: decisions about directions—right, left or straight ahead—are left to the hands, while the foot controls speed and stopping. Only the eye still knows the landscape, but it knows it through the commands of feet and hands on the instruments. Driving first deconstructs the unity of action of the senses and limbs; then, along with the acquisition of the necessary reflexes, it reconstructs their unity in a new guise. One can refuse to let this new "coordination of the senses" determine his vision of the world, but he must accept that he cannot behave in traffic if he does not let his perceptions be re-shaped by the driving instruments, the design of the highways and the rules of circulation.

Imagine an extreme situation, an "ideal type" with which real experience can be compared. Imagine a driver who had never been a walker, a man whose only vision is through a windshield. Like the figure of Kafka's *Metamorphosis*, he would be re-born as a gigantic cockroach, except that his shell would be of steel and glass and his feet of rubber. His new body would be empty of the

memories walked landscapes imprint in the hiker's flesh. For him, what others still call the landscape, would consist of weightless images. The windshield would sever the comfortable interior in which his body rests from an abstract outside that he would not call nature, not even landscape, but perhaps "the environment"—that undefined and half-threatening extension surrounding his vehicular uterus. All his representations of the world would differ from the walker's, who knows that the places he meets with the power of his feet have an independent existence. This theoretical driver would construct his reality on an epistemological ground fitting his confinement in a wheeled box. The images through the windshield—or better, on it—would come and go depending upon his ability to make them appear and disappear through manipulating his instruments and following the map. The visible world, he would state, is contingent on my technical skills. No wonder that such a man would not stop to assist a stranded traveler abandoned by the side of the road: a push on the gas pedal abolishes the disturbing image.

The "Lay Vehicularization" of Perception

When he steps into a vehicle, the walker ceases to be a walker in order to become a driver or passenger. However, no one is a "chemically pure" car driver or commuter. Memories of walked landscapes still mitigate the ultimate vehicularization of perception. Real men differ from the ideal driver in that they sometimes jump from one state to the other. At first, it appears that they have two interchangeable conditions: the pedestrian, in which many traits of traditional man are retained, and the vehicular condition, which is an unprecedented historical novelty. Closer observation, however, reveals that the experience of being a driver, a passenger or a commuter is more than a parenthesis between two pedestrian experiences. Once he has framed nature with a windshield, the car driver never quite becomes a walker again. He now tends to see all landscapes through an imaginary

shield, somewhat as compulsive photographers cannot help seeing you through an imaginary objective. His memories of driven landscapes silently shape his sensations when he walks. He focuses on time ahead as, on the highway, he focuses on the road signals: in one hour, he should be elsewhere. Driven away by an appointment he can't miss, he computes walking distances as if he would cover them with an imaginary vehicle, he tries to speed up, worries about the sweat that now covers his body.

Another symptom of the transposition of vehicular perceptions on pedestrian realities is the specialization of walkers into sub-species: some are called tourists and are recognizable by the cameras hanging from their neck; others, duly equipped with earphones, are called joggers; men and women too poor to afford transportation fares or rich enough to live close to where they work are officially described as practicing "transportation by foot"; the police keep an eye on loiterers, whom they check for their driving license—or, in its absence, their I.D.—and then dictate a destination: "go home" or "come with us." He who still loiters and chats downtown generally speaks Spanish or has a dark skin. He who risks walking along the highways joining the City with its residential suburbs has often an apologizing sentence ready for the police: "I'm going for stamps; I live two blocks from the post office" or "my car is in the shop, so I walked to the supermarket." He who is seen walking in the street needs to be rehabilitated as a pedestrian commuter: he must prove that he uses his feet as others use wheels.

However, there can still be moments where the driver or the commuter can recover for a moment the surprise of a first-time vision. There are days when the freeway which joins the town where I live to the metropolis where I work is free from traffic jams and the bus seems to dance joyfully on the smoothly meandering road that climbs to the pass. Pines, cornfields, ranches along the road, people cleaning fields, the smoke of a charcoal furnace climbing in the dawn sky, the

smell of fresh hay, the pollen of the pines, flowers. Car stopped, along the road, men and women picking flowers. Sometimes, for brief moments, the tedious experience recovers its pristine freshness of impression.

At other times, just the opposite occurs and the commuter, for a moment does no longer know if he dreams or if he awakens to a nightmare made true. The wheels get clogged, flows congeal and the assumptions of traffic routines are briefly shaken as if by force of an epistemological subversion. For instance, the driver caught in a traffic jam may, for a while, forget about the power of gas to devour miles and see himself as Adam perhaps did: a fragile fleshy being, now caught in a horde of threatening insects. By empathy, he might suddenly see a human crowd, where only steel shells are visible. In a moment of hallucination, he could even imagine the never before seen: they all step out of their boxes and, as in a painting by Sydney Goodman, they walk nude on the asphalt. Macadam Adam: intimations of obscure or forgotten meanings sometimes overwhelm us in a flash. The flesh of tamed bodies pulsates again.

As the jam dissolves into a lazy flow, hands and feet reassume their function on the steering wheel and pedals. The acquired reflexes of daily routine take command again. Habit and the familiar daydream tame the strangeness of a moment.

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The Pedestrian Condition
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Jean Robert

Pedestrian locomotion is not the abolishing of distances. It is the bodily experience of the intimate distance between unique places and moments. The hiker's tales enhance and sometimes exaggerate the estranging particularities of the far regions into which he ventured. Pilgrims had their most noticeable adventures in the most remote places they had visited, as if the intensity of their experiences increased with the traveled distance. Walking is not a disembodied motion relating an abstract distance to an abstract time. It is not an arrow between an origin and a destination, but an action that can shape its goals realizing them. It is not a scheduled forecast about my body's location within one hour or one day, but an unpredictable event. The world's center is always under the walker's feet. To him who walks about, nature does not reveal herself as a mere sequence of images, but as an *oikos* of heavy and smelly substances limited by a horizon.

Far under the perceptual rubles of mechanized transportation, we find a form of locomotion which does not fit the schedules, the maps nor the internal arrow of whom who considers that time is the cost of an operation whose benefit is the attainment of valuable locations.

Any activity that puts means at the service of predetermined goals, Aristotle calls a motion. He opposed motion to action, an activity which, like playing, sets its own goals and reveals the world in always new and unexpected ways. We have to contrast the perceptual habits gained in mechanical locomotion with a form of movement which was both an action and an always

surprising revelation of this world's stuffs. I found inspiration in the works of two great phenomenologists.

Substantial Motion Versus The Vain Destiny of Fleeting Images

In his essay on the imagination of matter, Bachelard establishes a distinction between movements that entail "an essential destiny that endlessly changes the substance of the being," and "the vain destiny of fleeting images and a never-ending dream" (*Water and Dreams*, p. 6). Motion either brings forth the substantial essence of moving stuffs, or it is a vain succession of immaterial images. True movement always reveals something of the substantial depths of the visible world. The experience of motion is essentially the bringing of things into the presence of one's body in the revelation of their materiality. Substance-less, motion is nothing—it can be construed as a vain succession of weightless images. Bodiless, motion is a dream. It is not enough to say that motion is always motion *of* something: its true nature lies in the acts which, from the depths of substance, bring the materiality of the world into our incarnated presence. The walker's movements bring existents which were at best only potentially there—in thought or in memory—into the realm of his vision. It is by my movements that immobile objects facing me reveal their hidden face and become seizable. It is my motion which will reveal the things presently behind the horizon.

Conversely, nature seizes us in her motions. The world is an experience of seizure. In the sense of that double grasping, a doctrine of motion that would start from these powers of reciprocal revelation would be a "haptology": a science of the mutually palpable presence of the world and the body. Yet, the actuality of this seizure is, in itself, inexpressible through words, for we can only speak of motions that have happened and make guesses about their continuation.

In spite of all their merits, the physico-mathematical theories of motion that fix its trajectory

in space-time miss this "haptologic" dimension. To regain a pristine conception of motion as the mutual seizure of the body and things, we must attempt to conceive it without our usual a priori's of space and time, as an experience that precedes, and not follows any reference to rods and clocks. Before it could possibly be scheduled and mapped, perhaps before the conceptual invention of space and time, motion was the modality of our vision. Schedules, trajectories and space-time coordinates are means to catch, not the unseizable "haptologic" moment of motion, but its dead trace once it has passed away and to make that trace available to the eye as "trajectory." Trajectories are the past-ness of future motion, not its unspeakable present.

The "space" and "time" of actual motion, experienced in the flesh, is not the metric space-time of mathematics and physics. Embodied movement engenders its own "spime," which is why it is so radically different from the motion of a mechanical contraption in the lab. Walking is a moving experience which, only by an abuse of language, can be dealt with in the terms applied to mechanical locomotion. The act of walking is the complement to the act of seeing. As Gibson has shown, seeing is an ecological act: it opens up an *oikos* to be seized, smelled, tasted, heard and seen while walking.

The walker sees nature with his feet as well as by walking her with the feet of his eye: even in the darkest night, a special fatigue in the ankle allows him to "see" the steepness of a path. At dawn, he who wants to climb a mountain prepares himself by evaluating and feeling "in the calf of the eye" the distance to be covered.

The walker's space is a manifold of actual and potential body sensations: not only the hill actually climbed is mirrored as fatigue in the walker's calves or the rider's loins, but distances to be covered are evaluated as potential sensations of effort. This sensation of movement is the reflection, in the walker's flesh, of nature's motive injunctions. As long as man was a pedestrian or horse

rider, the perceived movement of things could be echoed in his entire body which was then, with all his senses—not just the eye—the sensorium of motion. Nature's movements were challenges to man's actions and claims for new gestures to be performed. When man could experience nature's motions by being immersed in them and responding with his own movements, every particular motion bore the coloration of a particular element: violent water, through which the swimmer escapes using all his muscles was radically different from the volutes of fire, from the wind's action on the dauntless walker or from the crumbling weight of earth. In a pedestrian world, nature's challenges are always embodied in material elements.

The perception of things in motion is, following Bachelard, strengthened by the knowledge of the depth of a particular element. This element, for him, was water. Water gave his imagination of matter its "fundamental color." For he was born "in a section of Champagne noted for its streams, its rivers, and its valleys—in Vallage, so called because it has so many valleys." Thus, his preferred image for substantial motion was flowing water. He never saw water as the ocean's surface, which evokes an infinite extension, but as the stream of rivers or the flow spurting from a deep underground spring, "for, in my own reverie, it is not infinity that I find in waters, but depth." Movements of water surging from the depths are, for Bachelard, the carriers of remembrance. They first remind him of Vallage, where "matter" is never abstract—tasteless, colorless, devoid of tactile qualities—but always embodied in sensible stuffs.

> But the region we call home is less expanse than matter; it is granite or soil, wind or dryness, water or light. It is in it that we materialize our reveries, through it that our dream seizes upon its true substance. From it we solicit our fundamental color. Dreaming by the river, I dedicated my imagination to water, to clear, green water, the water that makes the meadows green. I cannot sit aside a stream without falling into a profound reverie, without picturing my youthful happiness.... It does not have to be the stream at home, water from home. The nameless waters know all of my secrets. The same memory flows from all fountains. (*Water and Dreams*, p. 8)

"Dreaming by the river," letting water give him its "fundamental color," Bachelard made of flowing water a metaphor for motion. Readers of his other works might find my statement too exclusive and object that he recognized that each one of the elements—earth, water, air and fire—called for its specific imagination of substantial movement. He dedicated another book to the imagination of air and even gave it the subtitle "Essay on the Imagination of Motion." Bachelard, however, remained exterior to the invisible air volutes which shape and sustain the spectacle of the vault of the heavens. He was not a *wind hero*, a dauntless walker who, like Nietzsche "bends forward in the face of the wind, against the wind," whose walking stick "pierces the hurricane, makes holes in the earth, thrusts through the wind."

The movement which brings water from the depths to the visible surface allowed Bachelard to understand motion as an epiphany of the materiality of the world. What, for the sake of references to come I will call "substantial motion" (motion that brings forth the substantiality of things), Bachelard understood in accordance with the movements of the flesh it induces or demands (Ibid p.159). Again and again, he insisted that reality cannot be founded as a succession of images in a human's eye. I bring nature into my sensible presence by the movements of my flesh, and, in her motions, she responds by her active presence. "I see" means that my movements actualize as visible the potential existents which nature brings forth from her depths. Between nature—which Aristotle defined as a "principle of motion and change" (*Physics* 200b)—and my body there takes place an interplay of mutual challenges and responses through which both establish their carnal presence. It would be as silly to claim that nature is "an image in my eye" or "a representation in my mind" as to say that I am a dream of nature.

To address that carnal presence in a mutual activity, Bachelard—who wrote fifty years ago— spoke of "man's labor," the objects' "coefficient of adversity," our "offenses" and the

elements' "anger." He wrote:

> ... as soon as we begin to distinguish—as I have tried to do by considering the composition of water and earth—every matter in accordance with the human labor it induces or demands, we shall not be long in understanding that *reality* can never be well founded in men's eyes until human activity is sufficiently and intelligently aggressive. Then all the objects of the world receive their true *coefficient of aggressivity*.

And:

> We will bring Schopenhauer's insight to its conclusion; we shall compute the sum of intellectual representation and clear will from *The World As Will and Representation* in a formula: The world is my provocation. I understand the world because I surprise it with my incisive forces, with my directed forces, in the rightful hierarchy of my offenses, which are like embodiments of my joyous anger, my ever-victorious, ever-conquering anger. Insofar as he is a source of energy, a being is an a priori anger. (op. cit. p. 159, 160)

We should not misread these lines as allusions to the offenses of *homo industrialis* or to the threats of climatic catastrophe. Bachelard searched for strong words to express the mutual claims of carnal presence of body and nature. His "labor" is my effort in walking, his "provocations" are my dauntless steps into the wind. An object's "coefficient of adversity" is the resistance felt in my flesh when it opposes my "incisive force": for example, the experience of lifting rocks to build a stone wall. My joyous anger corresponds to the anger of the elements, embodied in motions of earth, violent water, wind and fire. Bachelard was in search of the conditions of a pristine vision, which for him were no other than the conditions of the world's material reality and of my carnal presence in and to it. If, hearing his words, we cannot help thinking of our industrial offenses and our frozen anguish, it is because we have understood that we live in an epoch capable of limitless provocations but insensible to nature's elementary angers. Our aggressions are disembodied, our angers mindless. Nature's flesh has been peeled away. Like heavily loaded clouds before the storm, the elements keep a threatening silence. Bachelard died before pollution and ecological disasters

manifested nature's obvious response to our industrial offenses; and therefore, he is at risk of being misunderstood.

Merleau-Ponty's understanding that the body "is an intertwining of vision and movement" echoes and completes Bachelard's intuitions. Substantial motion, which Bachelard called nature's elementary "anger," responds to my "provocations"—my claims of carnal presence—and elicits my "labors." Nature's angers, which reveal her deep, elementary materiality and my labors are the two complementary sides of the same being. In *The Primacy of Perception*, Merleau-Ponty articulates the complementarity of these two sides:

> In principle, all my changes of place figure in a corner of my landscape; they are recorded on the map of the visible. Everything I see is in principle within my reach, at least within reach of my sight, and is marked upon the map of the 'I can.' Each of the two maps is complete. The visible world and the world of my motor projects are each total parts of the same Being. (*The Primacy of Perception*, p.162)

The "map of the visible" intimately coincides with the realm of my motor projects. What I see cannot be disembedded from what I can reach, seize, taste, smell, hear. No ideal "image" can be abstracted from these powers and their challenge by nature's moves. It is only by a kind of ellipsis that one can say that the senses "overlap" in a joint action, for they were never severed in the first place. In this joint perception, or *synaesthesia*, things are present before any analytical reduction of their perception to "sensorial data": eyes eavesdrop, words enlighten, feet see and the nose touches the body's aura.

We do not "think sufficiently" of the complementarity of "the map of the visible" with the realm of the "I can":

> This extraordinary overlapping, which we never think about sufficiently, forbids us to conceive of vision as an operation of thought that would set up before the mind a picture or a representation of the world, a world of immanence and of ideality. (op. cit. p. 162)

The breach of that overlapping opens the door to a picture of nature, sets up before the mind "a representation of the world, a world of immanence and ideality." Nature's destiny becomes the vain fate of "fleeting images and a never-ending dream" (Bachelard) and Merleau-Ponty reminds us that the word "image" generally refers to "a copy, a second thing" (op. cit. p. 164). The world becomes a self-referent copy.

We can now understand what radically distinguishes the vision of nature through a windshield—the "kinetic experience"—from the experience of walking. Our projects of vehicular displacements—let's call them our "automotive dreams"—do not match nature's substantial movements nor do they elicit her elementary angers. The old map of the "I can" is replaced by the map of "what I have in the tank." The act of seeing ceases to be the complement of the act of walking. Frozen by the windshield glance, nature becomes a neutral environment. It thus becomes clear that the essence of the kinetic experience is not the quantitative intensity of speed but the qualitative dislocation of the two sides of being which the walker knows as one. Speed produces a bipartite division of the flesh of perceived nature into, on one side, a quasi immaterial environment manifest as sequences of fleeting images and, on the other, a body enclosed behind shields and screens.

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The Disembodiment of Motion
(State College, 1989)

Jean Robert

Let us delve into the perceptual sediments of a century of car-related routines. Under that accumulated alluvium, we find the strata of pedestrian locomotion, with which we will contrast railroad journeys. Up to the epoch of the first iron ways, around 1830, everybody was a hiker or traveled in coaches at walking or riding speed. Pedestrian was almost a synonym for "common man" and in many languages, "horse rider"—cavalier, Ritter, caballero, chevalier—was the first distinction from the common condition. Except for brief moments of gallop, the rider's pace is twice or thrice faster than the walker's. Let's imagine that the speed of human locomotion, today, be within the range of the velocities of walking and of driving a bicycle. Such a narrow spectrum of possible speeds would not allow for essential differences of perceptual modalities to occur. The bicycle and the horse enhance or exacerbate perceptions, but they do not break the circle of the pedestrian condition. The rider, or the cyclist are immersed in nature's materiality, even if they pierce the wind rasher than pedestrians.

The pedestrian's is a condition of immersion and embodiment. The walker meets the sites of nature with his legs, his nose, his ears and all the pores of his skin. For him, there are smelly places, others are recalled for their unique rumor. Besides, places vary with the seasons and the hour of the day, constituting local "spimes" remembered by the walker's body. The feeling of sweat in my armpits will always recall me that fountain under a Jura pine where, on a summer afternoon, we washed our skirts and let the sun dry our sweating chests. I can still name the friends who remember

that place, that day.

Through all of history, up to the modern epoch, the feet had defined the scale of inhabited places. The pedestrian condition common to all shaped common perceptions of natural sites and landscapes. The king, then, hardly traveled faster than his subjects and he perceived nature the way they did: by walking her or riding in her. For the best and the worst, neighbors truly dwelled in the same place, and every place engendered its peculiar perceptions and representations of the close and the far, this and the other world. Every inhabited site was, as E.V. Walter writes, "a unity of experiences organizing the mutual (...) influence of all beings within it."[1] It was a stage on which reigned a particular unity of place, time and action. An intimate distance, which was felt in the legs, but was also evaluated in kinship or in intensity of friendship or enmity made every site distinct from the next and gave it, in Walter Benjamin's words, its unique aura. Things, like places had, Benjamin writes, an aura of uniqueness: they were not reproducible. Except printed books, no object was an exact copy of another one, an even a book, in a given region, was generally unique, because the next copy was out of reach. In his essay on the village of Montaillou in the 13th century, Leroy Ladurie speaks of the man who possessed an exemplar of Ovide's *Art of Loving* and was known round about for that.

Pedestrian locomotion is not a disembodied motion relating an abstract distance to an abstract time. It is not a scheduled forecast about my body's location within one hour or one day, but an unpredictable event. The world's center is always under the walker's feet.

Far under the perceptual rubles of mechanized locomotion, we find a form of motion which does not fit our schedules, our maps, nor the internal arrow of whom who considers that time is the cost of an operation whose benefit is the attainment of valuable locations. Any activity that puts ends at the service of predetermined goals, Aristotle calls a motion. He opposed motion to action, an

[1] Eugen Victor Walter, *Placeways: A Theory of the Human Environment*, Raleigh: University of North Carolina Press, 1988.

activity which, like playing, sets its own goals and reveals the world in always new and unexpected ways. We have to contrast the perceptual habits gained in mechanical motion a form of motion which was both an action and an always surprising revelation of this world's matters.

The old philosophers who thought that motion is an actualization of substantial forms understood its nature differently—and perhaps more genuinely—than the modern scientists who draw its trajectories in coordinate space-time. For them, motion was an "actualization," by which they meant the bringing into being of a potential existence. In order to see how right they were, and in what, we don't need to share their belief in predetermined and eternal potentialities or "forms." It is sufficient to understand that motion—my body's and nature's—has the power to actualize existents into sensible beings by bringing them into my carnal presence. The walker's movements bring existents which were at best only potentially there—in thought or in memory—into the realm of his vision and in this the ancient philosophers were right: motion actualizes hitherto hidden possibilities of being.

Unlike modern scientists, who freeze motion in graphs, the medieval philosophers attempted to catch its actuality with words. They defined it as a *perfectio*, by which they meant the bringing forth of a substantial form and its completion. They recognized that the *via ad perfectionem* (the path to that perfection) could be studied as something different from the "perfectio" itself, but they resisted the temptation to take the path for the motion. They insisted that the essence of motion was actualization. Further, if I see "actualization" as the bringing into my presence of things hitherto only potentially existent for me, I come to understand that the medieval philosophers—the great Scholastics or "Schoolmen"—were also great walkers, for their philosophy fits the experience of him who knows nature by walking her.

Galileo studied abstract trajectories in space-time, not motion as that which brings potential

existence into sensible being. A theory of motion centered on trajectories and framed in an aprioristic space-time necessarily concentrates on repeatability and predictability. On the contrary, motion, experienced in the act of its completion, is never quite predictable because one does not know which hidden aspect of being, which "substantial form" it is going to bring into his presence. The "space" and "time" of actual motion, experienced in the flesh, is not the metric space-time of mathematics and physics. Embodied movement engenders its own "spime," which is why it is so radically different from the motion of a mechanical contraption in the lab.

A philosophy of walking is a philosophy of vision and, conversely, the philosophers who start their inquiry by asking "what is there, there?" used to be walkers: were not Aristotle and his students called "the ones who walk about," the "Peripatetics"? Through the middle ages, up to the beginning of modern times, philosophers who followed Aristotle's example and commented on his works claimed that same name for themselves, signifying that walking is the complement of the philosopher's vision. Did not Socrates himself initiate the dialogue with Phaedrus with the injunction: "Move forward"? They went out of the city, took a stroll, and while walking reflected on the spell cast by letters on sensible being.

The walker sees nature with his feet as well as by walking her with the feet of his eye: even in the darkest night, a special fatigue in the ankle allows him to "see" the steepness of a path. At dawn, he who wants to climb a mountain prepares himself by evaluating and feeling "in the calf of the eye" the distance to be covered.

The alphabet first engendered a realm which is open to the eye only. The man of letters sits behind a desk. While his eyes pour over the pages, he sometimes dreams that he's left his body behind. What the mastery of the alphabet's technique once allowed a well-trained minority—letting the eyes abandon the body—the technology of speed internalized into everybody's perception.

Kinaesthesia

The walker's space is a manifold of actual and potential body sensations: not only the hill actually climbed is mirrored as fatigue in the walker's calves or the rider's loins, but distances to be covered are evaluated as potential sensations of effort. This sensation of movement or "kinaesthesis" (from Greek *kinein*, to move and *aesthesia*, sensation) is the reflection, in the walker's flesh, of nature's motive injunctions. As long as man was a pedestrian or horse rider, the perceived movement of things could be echoed in his entire body which was then, with all his senses—not just the eye—the sensorium of motion. Nature's movements were challenges to man's actions and claims for new gestures to be performed. This is how I understand the phenomenologists's intuition of an intentionality of nature.

Seeing Becomes "An Operation of Thought"

The ambiguity of speed—which can be experienced as a thrill or as unspeakable boredom, as the excitement of a departure from routines or as the most enslaving grind—lies in that dislocation of vision and bodily motion. In its "first-timeness," the kinetic experience could be a kind of premonition of that "systematic disarrangement of all the senses" which, after Rimbaud, was seen as a possible door to poetry for it shook the ground of common sense judgment. Yet it is a disarrangement or "dérèglement" only as long as it is experienced in a frame of pedestrian references. In that frame—as long as it holds and the body is not tamed—speed creates an illusory extension of the map of the "I can" and extends my motive projects. Then—as soon as I feel comfortable sitting quiet on my seat—a chasm is introduced between motion and vision, but speed still maintains me in an interesting state of giddiness. As long as the traveler is a transported pedestrian, motion is still substantial. Then, while nature's elementary angers seem more intense

and colorful, the body surreptitiously recedes from their reach. When the chasm becomes the rule, the interesting "dérèglement" ceases and the windshield becomes the frontier of a new covenant: inside, the internal swarming of bodily stuffs under the skin; outside, the unbearable lightness of things in motion. Speed breaks the overlapping of the visible world with my motor projects.

When speed imbues the space situated beyond vehicular enclosures—the environment—with never-ending motion, motion becomes a disembodied flux of forms. Bodily exposure to mechanical speed—the "kinetic experience"—dramatizes formal aspects of nature, like tectonic lines, orological textures and materializes geometries: straight lines, horizontal planes, intimations of sphericity beyond pedestrian horizons. The routinized experience of speed severs the imagination of matter from powers of judgment grounded in the overlapping of "what I see" with "what I can." Like a dust, stuffs whose substantiality is not attested by intuitive judgments can stealthily cover the ground of synaesthetic perceptions and muddle judgments to come. It is then time to step out, extend your legs, shake off that unsubstantial powder and cleanse the eye of your feet from this cloud of dust.

If speed can extend its realm beyond all the limits of a pedestrian common sense, it becomes a reality-shaping experience. The ground of judgment is crushed, reality is molded in the new stuffs. Taking Greek etymology seriously, I call it a neo-plasm, a newly-cast matter. Unless we watch out, it will proliferate and pollute all the interstices between whatever synaesthetic harbors we have managed to keep. The neo-plasm is but a bad dream: it is matter in its absence, as only a numb, legless and handless no-body could possibly imagine it.

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Rain, Steam and Speed and the New Scopic Regime (1989)

Jean Robert

In 1844, during the years of enthusiasm recalled as the decade of the railroad mania, an already well-traveled lady described the strange dance of an individual who visibly did not yet know how to behave in a train compartment. In the coach seated opposite her, she commented, was an elderly gentleman, short and stout, with a red face and a curious prominent nose. The weather was very wild, and by and by a violent storm swept over the country blotting out the sunshine and the blue sky, and hanging like a pall over the landscape. The old gentleman seemed strangely excited at this, jumping up to open the window, craning his neck out, and finally calling to her to come and observe a curious effect of light.

The story, or rather the gossip was circulated by a Mrs. Simon during the Royal Academy Exhibition of 1844, of which the masterpiece was William Turner's *Rain, Steam and Speed*, which showed the Western Express crossing the Maidenhead Bridge over the Thames. The old gentleman was allegedly Turner himself whom Mrs. Simon, as she reported, had witnessed jumping and exulting in the train like a first-timer.

If the story wasn't true it was, as the French say, well invented. *Rain, Steam and Speed* has the freshness of a first vision. What it shows is the power the railroad exerted on the landscape, its "perception-shaping" force.

A Landscape Shaped by a Machine's Rhythms

Though the sky occupies more than half of the picture's surface, it is not a skyscape in which the clouds and the light piercing through them would play the dramatic part, as in *Snow Storm*, painted two years earlier. Nor is the sky of *Rain, Steam and Speed* the uniform grey lid that takes hold after days of bad weather, when it seems that the sun has lost the force to pierce the lead of fog condensed into low clouds. It is a threatening sky, but the threat is diffuse and suspended, as in the composure which succeeds a thunderbolt, when a cumulus, like a pierced barrel, is on the verge of pouring a local deluge, but it hasn't happened yet. It might not happen, for the thunderbolt with which the sky resonates is not a heavenly, but an earthly explosion: it is the tumult which accompanies the train's sudden appearance.

Patches of the left part of the picture are still illuminated by sun rays, as if some parts of the landscape remained indifferent to the mechanical storm. More than an elementary uproar, the sky of *Rain, Steam and Speed* suggests a broad open space—in part diaphanous, in part veiled by stripes of rain—laden with the tension of a man-made conflagration. The line of the horizon is blurred, but it would not be adequate to say that it is hidden behind a veil of fog. It rather dissolves into a white substance that suggests infinity.

It is from that white that the train emerges like a fist blow. The train? No, the whole system of the railroad: the locomotive, the steam ribbons it adds to the strips of rainy fog hauled by the wind, the iron tracks and the black mass of the bridge that sustains the whole. The iron way is perfectly rectilinear and its tracks, like the strokes of light which suggest glitters on the convoy's wheels, converge toward a point that loses itself in the milky infinity of the horizon. Whatever this is—a black monster, a technological structure, the Machine or the New Age—

comes from very far. It does not properly belong to the landscape but a closer examination reveals that it structures it. Though the touch is of a quasi impressionistic facture, several convergences of lines suggest that the infinite point from which the Thing stems coincides with the vanishing lines of the picture's perspective.

The technological infrastructure of the bridge is in strong contrast with the impressionistic conception of the rest. The two lines marking the edges of the bridge are so straight that the painter must have traced them with a rod and though the tracks themselves, because they catch twinkles, partly dissolve into the space of light, the dark streaks that indicate their presence also organize themselves along perfectly straight lines.

Once Turner obtained the ideal point of convergence of these four beams of light and shadow, he must have marked on the canvas some other straight lines irradiating from that point, for the crest of some hills and of a remote forest also converge toward it. Some of the underlying lines of construction even seem to lurk, in a pentimento-like fashion, from under the brushes. I suggest that it was only once these constructive indications had organized the canvas that Turner surrendered to that kind of "acting painting" which so impressed a young onlooker who was to become the art critique G.D. Leslie, and, years later, recalled it in these terms:

> He used rather short brushes, a very messy palette, and, standing very close up to the canvas, appeared to paint with his eyes and nose as well as his hand. Of course, he repeatedly walked back to study the effect.

Leslie goes on to tell how the painter commented with him "the little hare running for its life in front of the locomotive on the viaduct" and even suggests that Turner did it to show him how painters of old would have represented a fast motion. Another allegoric intimation of the same style is the figure of a man ploughing on the plain below the viaduct which, Leslie recalls,

evokes the name of a popular country dance, “Speed the Plough.”

These are, however, hat bows to means of allegoric representation of the past or, as modern art critiques would say, “quotations.” In Turner’s picture, speed is not only emblematized—as it was for instance in Rembrandt’s *Landscape with a Coach*, where a young boy running after the coach stood as an emblem of movement. Speed impregnates the whole space of the picture, and structures its meteoric and tectonic forces anew. What the whole space is filled with is the noise of the train. Looking at *Rain, Steam and Speed*, the modern onlooker cannot help evoking *The Cry*, that picture by Edvard Munch in which a whole landscape seems to be molded in the vibrations of a shout. In Turner’s painting, the noise seems to stem from the same point from which the black mass of the railroad jumps into reality, and it is echoed by “perspectival reminiscences” among the lines of the hills and of the sky, as if the landscape’s tectonics would vibrate with the artificial noise.

The train comes and its noise seems to suspend everything. What the noise does to rural rumors, the railroad and its infrastructure do to the landscape. The tracks have no locus, they know no “topos,” respect no sense of “a concrete place.” They do not meander, like old roads and they ignore valleys and hills. Their straight line floats, or better, the train with its infrastructure does not inhabit a place: it occupies a space. The structural integration of the iron way into the composition of the picture suggests that the railroad creates the space that it fills with its noise. Once the train will have crossed the landscape, this will never again be the same.

A Chasm between Two “Landscapes”

The black shape of the railroad cuts the picture into two unequal parts, as if it were dismembering the body of the landscape. The right part is already re-structured by the new force and seems animated by a syncopic rhythm punctuated by vertical strips which resonates with the monster's noise. And look at the oblique alternating bands of rainy air which makes the bridge vibrate with the noise, taa ta ta ta, taa ta ta ta, scanning perhaps the music of the new age? Intimations of verticality suggest the edge of a city beyond the field where a single individual passes the plow, probably chanting—as Leslie suggests—"Speed the Plough" at the new rhythm of production.

On the contrary, on the left side of the picture, we are recalled of the landscape of old: a "riverscape" under the arches of another, older bridge in which a man in a boat is fishing. On the river side, a group of bathers plays games and beckon some invisible travelers with the hand. Remembrances of previous modes of perceiving and painting the landscape, "quotations" of the baroque palette, of the Romantic sky.

The lesson of *Rain, Steam and Speed* is that speed—mechanical motion and its action on the flesh—unlike the tectonic and meteorological forces of the Romantic landscape, cannot be "represented." By an irony of History and the unique genius of an old man, it was given to one of the creators of the "Romantic landscape" to understand this. In the "Romantic landscape," the elements—wind, fire, water, earth—were the actors. Speed is not an "actor" on the scenery of nature, but a force organizing its perception. What we, today, call "the environment" is perhaps the landscape seen through the looking glass of speed by the successive generations which came and passed since Turner painted a train. Or better: "speed"—the vision of nature through a vehicle's window—changed people's gaze.

The Kinetic Experience

The black mass of the tracks and the viaduct materialize the lines of construction of linear perspective. Yet, the space which is constructed by these lines does not reveal itself from the vantage point of a window in reality. *Rain, Steam and Speed* is a perspective without a window in a real place, it offers a viewpoint without a standpoint. In Turner's time, no real body had ever occupied the position from which the Maidenhead Bridge is represented and, today, only the helicopter, which stays immobile at any distance above the landscape could make it "real." This disembodiment of the onlooker's position is Turner's means to express the specificity of the new experience of speed. In its literary expressions, the core of the kinetic experience—that is of the experience of speed apprehended from vehicles—always implies the establishment of a fictitiously fixed vantage point from which the apparently immobile body sees the landscape as a space of images in motion. The habituation to speed, which renders veteran travelers numb to the profusion of impressions which overwhelms first-timers, amounts to a progressive reification of the imaginary place from which the landscape is seen into a stable space. Upholstered seats, framed pictures on the walls, curtains at the windows, a whole register of symbols of stability borrowed from the architecture of all times make the mobile point look immobile. By contrast, the vividness of the first kinetic experience relied on the ambiguity of the newly gained vantage point, on its radical difference from all previous experience of being in a place. Turner wants to represent the space generated by the railroad while remembering the freshness of his first-time experience: his standing point is not solidified.

In its genuine profusion of stimuli, the kinetic experience is first an estranged glance at real places. Then, as the mobile vantage point solidifies into the simulacrum of a room, the

landscape in imaginary motion dissolves into fleeting images in space. Or, to say the same in other words: speed and windshields first separate the body from sites which were still imprinted in the flesh. This ambiguous situation corresponds to the short period of exultation of the first experiences. Then, accustomance makes the eye oblivious of "how it felt in the legs" and numb to the tastes and smells of seen things. The gaze becomes a dream-like sense of fleeting shadows.

In the kinetic experience, the onlooker is excluded from nature by the effects of speed and of the windshield. His perception of motion is dissociated from the feeling in the walker's calf of the leg or of the rider's buttocks. He sits quietly on a bench while, around him, everything turns, all is motion. Astonished, he experiences a motion that his body does not acknowledge.

Here is how an overwhelmed Victor Hugo described his first kinetic experience, in the train between Brussels and Antwerp, on August 26, 1837:

> It is a magnificent motion, that one must have felt to appreciate it. Speed is something unheard of. The flowers on the road are no longer flowers, but spots, or rather red or white stripes; no longer points, everything becomes a line; the wheat is a big yellow blur. The alfalfa fields are large green braids; towns, steeples and trees dance and mingle madly on the horizon; from time to time, a shadow, a form, a standing specter appears and disappears like a lightening: it's a railroad guard that, following military custom, presents arms to the convoy.

Jean-Bertrand Barrère, from whose book on "Victor Hugo's Fantasy" I borrowed this passage, comments:

> Joy opens his eyes. His gaze, always so sensitive to fresh impressions, first seizes the prodigious transformation of the landscape. Instead of dismantling it, speed recreates it, differently. He attentively acknowledges this new geometry of perception: 'no longer points, everything becomes a stripe.' It is an original modality of *vision* which, as any other, one must learn.

It was in 1837, too, that Théophile Gautier took the train for the first time and reported

the following impressions:

> ... the trees fled, right and left, like a defeated army; the steeples disappeared and flew to the horizon; the gray earth, striped with white spots, looked like an immense guinea-hen tail; the stars of the daisy, the golden flowers of the rape lost their shape and hatched the dark background of the landscape with diffuse stripes; clouds and winds panted to keep up with us.

Turner's genius consisted in integrating his first-time impressions into a new spatial logic. He gave the constructive character of the space generated by speed its first pictorial expression. *Rain, Steam and Speed* is a picture without a foreground because speed dissolves close objects—"the flowers along the road"—into colored stripes. Since the kinetic experience melts all solids into thin air, Turner located the onlooker in the atmosphere, at an ideal point some fifty yards above the bridge. It was how he could paint the train seen from the outside, and yet convey the essence of the kinetic experience which lies in the dematerialization of the immediate surrounding. Alternating bands of rainy air constitute the only foreground the onlooker is left with; by means of that dematerialization of his standing point, the painter translated his original exultation—"ex-sultation": leaping up—into a literal ex-altation, a physical elevation of his body.

From that imaginary vantage point, he discovered what Hugo and Gautier could not see from their wagons: speed does not only exalt the perceptions of first-timers; the repetition of the kinetic experience also substitutes a cold, homogenous extension—the mentally constructed space of the picture's right side—for the concrete diversity of places and sites.

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Teaching with and Thinking After Illich on Tools

Carl Mitcham

For a few years in the 1990s at Pennsylvania State University I was privileged to collaborate with Ivan Illich in teaching, under the auspices of the Science, Technology, and Society Program, a fall semester graduate seminar, the first iteration of which was titled "History and Philosophy of Tools." The idea for this seminar grew out of conversations that began in the late 1980s and which included visits to Cuernavaca. The course description read as follows:

> Despite the modern definition of the human as a 'tool using animal' and the common belief in the ubiquitousness of tools among all peoples and at all ages in history, there exists no systematic study of the genesis of the concept of the tool and its cultural-philosophical implications. This course will explore the idea of the tool in relation to those of *organon*, *instrumentum*, machine, technique, technics, technology, etc. The thesis is that the modern concept of the tool arose in the 12th century and has been one of the foundations for the distinctly modern way of life.

There were three required texts: my co-edited collection *Philosophy and Technology* (1972), which includes some philosophical reflections on tools and use by such figures as diverse as Mario Bunge, Lewis Mumford, Günther Anders, Emmanuel Mesthene, Yves Simon, George Grant, and Hans Jonas; Illich's *Tools for Conviviality* (1973); and Don Ihde's *Technics and Praxis* (1979).

In preparing for the course, Illich and I consulted a considerable body of literature. As anyone who knows Illich would expect, we began with the *Oxford English Dictionary* entries on "tool" and "instrument," work by Aristotle, Vitruvius, Hugh of St. Victor, Karl Marx, Ernst Kapp, and André Leroi-Gourhan (along with other archeological studies), the mechanology in

Jacques Lafitte's *Reflexions sur machines* (1934), Lewis Mumford's *Technics and Civilization* (1934), Norbert Wiener's *Cybernetics* (1948), Martin Heidegger's "Die Frage nach der Technik" (1954), and Gilbert Simondon's *Du Mode D'existence des Objets Techniques* (1958). Two items that Illich called especially to my attention were Hans Blumenberg's *Lebenswelt und Technisierung under Aspekten der Phänomenologie* (1963) and the journal *RES: Anthropology and Aesthetics*, which began publication in 1981 under the sponsorship of the Peabody Museum of Archaeology and Ethnology at Harvard.

The Fall 1990 seminar itself began before Illich joined the class, since he did not arrive at Penn State until a few weeks into the semester. Amazingly, only three students enrolled. Prior to Illich's arrival, I sketched a brief history of thinking about tools that reflected my previous discussions with him and argued the need for a phenomenology of tools that would attempt to escape from abstractions and return to the things themselves. The seminar began by reading the opening chapter of *Tools* on "Two Watersheds" along with some selections from the *Philosophy and Technology* collection, the aim of which was to place on the table for consideration:

- the classical philosophical distinctions between doing and making (*praxis* and *poiesis* in Aristotle) as well as between labor, work, and action (from Hannah Arendt);
- modern economic distinctions between making/consuming and use/market value in artifacts (as in Karl Marx);
- a spectrum of things made from utensils, structures, apparatus, and utilities to tools, machines, and automotons;
- the engineering concepts of effectiveness and efficiency;
- sociological conceptions of social institutions as tools; and
- anthropological arguments about humans as tool makers and users (from Benjamin Franklin and Marx to Arnold Gehlen).

Once Illich joined us, we continued to examine and reflect on these and related ideas as we read and discussed Don Ihde's phenomenological analysis of the human-technology-world interaction in terms of embodiment, hermeneutic, and background relationships. Ihde's basic argument is that the technological instrumentation of perception transforms human experience with an amplification-reduction structure.

Instruments always amplify some aspect of human experience while reducing others. One simple example is the dental pick, which can detect otherwise imperceptible flaws on the surface of a tooth but no longer experience the tooth as small, bitingly sharp on one surface and rounded on another, as a wet, tartar-stained, often slightly smelly entity. Another is the telephone, which greatly extends the distance over which humans can interact while reducing the expressive richness of eyes, lips, and hands to disembodied speech deprived of its full sensory context.

In my mind, Ihde's phenomenology of instrumentally mediated experience was related to another topic that Illich was beginning to address during this period: the historicity of the senses. Along with the seminar on tools, Illich was offered a series of lectures at Penn State and the Traditional Acupuncture Institute in Columbia, Maryland, on the historical transformations of the senses, both outer and inner. I seem to remember one weekend gathering in Maryland reflecting on the notion of the sacred heart as an experience that was enriched with *pneuma* and *qi* rather than attenuated to the pumping of blood.

Contrary to my expectations, Illich did not find Ihde particularly useful. Rather than a phenomenological analysis of the ways in which the instrumentation of the senses transformed perception, Illich pursued something more like thick descriptions drawing on medical anthropology, cultural history, and poetry. For Illich, Don Gifford's *The Farther Shore: A Natural History of Perception, 1798-1984*, which would appear in paperback in 1991, was much

more insightful. Unlike Ihde, Gifford interprets perception in a historical and cultural context, not just one of scientific knowledge production.

Our initial 1990 foray into the history and philosophy of tools was followed in subsequent years by seminars attempting to deal with the same topic under different titles. In 1991 and 1992 it was "Philosophy of Artifacts" and in 1993 "History and Philosophy of Artifacts."

Then in October of 1993 the seminar was supplemented with a three-day workshop — what Illich liked to call a living room conversation — titled "Things Have Consequences." Participating were not only Illich's close colleagues Barbara Duden and Lee Hoinacki but Hans Achterhuis (University of Twente, Netherlands), Albert Borgmann (University of Montana), Richard Buchanan (Carnegie-Mellon University), Eric Higgs (University of Alberta), and Eduardo Sabrovsky (Santiago, Chile), as well as other associates and students from Germany.

The gathering was structured by a series of roughly two-hour sessions that would open with a presentation on the theme by a participant, to be enlivened by extended discussion among all those present. Then a break for tea and pasta, followed with another two-hour session, with the day modulated across four or five sessions. In an article on the "Things Have Consequences" conversation, a reporter for the house magazine *Research Penn State* (September 1994), highlighted two themes: "The ability of our instruments to call up phenomena too large to be encompassed, has changed the universe in which we, with our machine-assisted and machine-altered senses, live." "We cannot depend on good intentions: The things we bring into existence bring with them their own consequences."

I had organized the conversation in order to bring together two people who greatly influenced me because of the ways they were developing (I thought) complementary insights

about the emergence of the techno-lifeworld and its challenges. Albert Borgmann's *Technology and the Character of Contemporary Life: A Philosophical Inquiry* (1984) initiated what I still consider one of the broadest and deepest American reflections on technology. Borgmann emphasized how modern technology was infusing material culture with devices that occluded increasingly refined mechanisms while delivering ever more glamorous but shallow commodities; in response, he argued for efforts to recover and cultivate a life of focal things and practices. Borgmann's analysis and argument struck me as related to Illich's critique of counter-productivity and shadow work in the name of conviviality. Both were seeking ways to lead a meaningful life in the midst of a world historical transformation. Although Illich and Borgmann acknowledged each others' work, they did not hit it off as I had hoped. I had wanted my two friends to become friends — but largely failed in trying to midwife this conviviality.

As the Penn State Research reporter summarized the closing session,

> Albert Borgmann was quietly earnest. He wanted participants to be effective.... Talk is good, but acts are needed. The tangible is required. Recognize what we and others have in common. Technology is desired; we must admit that when we point out and attempt to curb its dangers. We must make common cause with those outside the academic world.

By contrast, "Ivan Illich compared himself to Cicero, who fought in vain to preserve the Roman Republic. [Considering] himself a member of the Ancient Regime [and] an anarchist, [Illich argued] that mankind, freed of society's artifices and coercions, would be at its best. [In contrast to a presentation by Richard Buchanan, director of design studies at Carnegie-Mellon, Illich maintained that humans] should not attempt to manage or design the world."

The contrast with Buchanan was apt. Buchanan was not only director of one of the premier design studies programs and founding editor of the journal *Design Studies*, but was a colleague of Herbert Simon, who argued (in *The Sciences of the Artificial*, first published in

1969) for a general theory of design. At the same time, Buchanan was critical of some aspects of design hubris, and at Illich's death invited me to contribute an homage to Illich and his criticism of design and the designed life. As noted there, Illich and I explored the possibility of a piece with a sometimes working title of "Anti-Design: Notes for a Manifesto on Modern and Postmodern Artifice." The first paragraph of one version (Fall 1994) of this incomplete project read as follows:

> Contra the widely promoted belief that design is something all human beings do and have done throughout history, but now must do more consciously and thoroughly than ever before, design is something that has had a history. Its beginnings can be traced to the rise of modernity, and it will almost certainly come to an end with the modern project. Indeed, we have an obligation not so much to promote designing as to learn to live without it, to resist its seductions, and to turn away from its pervasive and corrupting influence.

As imagined, the argument was to be two-fold: (1) design (especially engineering, but also architectural design) was not capable of achieving what it promises in the way of expanded control and the well-managed reduction of unintended consequences; and (2) even insofar as it did achieve such goals, design as practiced by experts and professionals ultimately dehumanizes the world. The aim was to reanimate the moral criticism of designing as a lack of proportionality in ambition and contrivance. One modest result of this aborted effort was a two-week seminar in the Architecture Department (Fall 1995), conducted by Illich and Jean Robert. Illich had been teaching a seminar at the University of Pennsylvania in the Graduate Program in Architecture, directed by Joseph Rykwert, whose *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World* (1976) gave respect to the intuitive, vernacular, premodern traditions of city construction. The Illich-Robert seminar provided a critical review of developments in design that tended to turn place and landscape into managed space, depriving

people of both roots and autonomy. What Illich had once heard Jacques Maritain say of planning, *"C'est une nouvelle espece du peche de presomption,"* Illich applied to design.

For Illich, the alternative is design in a fundamentally different sense, one that did not presume to social control and individualistic self-realization, but instead sought to promote social solidarity, living in harmony with greater orders, and dwelling. Too often design treats the world as an enemy rather than a friend, and calls in experts to manipulate and manage. What Illich imagined was a design based on friendship, mutual give and take, respect for the world, and ultimately suffering, in the positive sense of creatively accepting and affirming limitations.

Over the course of the previous few years Illich had come increasingly to see the need for some kind of *askesis* in the presence of a world dominated by tools, instruments, and artifacts, and so for the year 1994 our seminar was titled "History and Philosophy of *Askesis*." (Actually, because of a university administrator's objection, the Greek "askesis" was replaced in the official listing with "asceticism.") The idea was to consider ways in which the ascetic practices enjoined by Plato, Aristotle, Evagrius, Cassian, St. Augustine, St. Benedict, Ignatius of Loyola, and others — including Robert Merton's analysis of asceticism in the practice of modern science (although Merton did not call it that) — might serve some kind of guidance for cultivating detachment from modern tools and artifacts.

Thinking after Illich

I have briefly narrated this experience of teaching with Illich — in the process admitting my own repeated failures to appreciate the lineaments of his deep archeology — because it would seem to fit with his own approach to tools and instruments. Illich always emphasized his vocation as a historian and how the concept of tools or instruments itself had a history that called

for recognition if we are to live with awareness in the historical dispensation that is our modern destiny in the West. But parallel with the notion that the concept of *instrumentum* has a history is the fact that the thinking of the historicity of tools also has a personal history in the intellectual life of Illich. My narrative is an admittedly superficial effort to recall a little of that second-order history.

Against that background, let me now share something more about what I learned through those years of teaching with Illich — with some notes for a critical history of the idea of tool or *instrumentum*. (Here again I draw on a previous effort, this time from 2007, to think after Illich.)

In Martin Heidegger's most well-known philosophy and technology text, "Die Frage nach der Technik," he begins by noting how technology is a complex activity, object, and volition that is commonly thought together under the combined categories of means and human activity. To this Heidegger gives a Latin term and presents the German Technik (commonly but inadequately translated with "technology") as *instrumentum*. (The historical contingencies that produced the *Technik* to "technology" translation are explored at length by Eric Schatzberg.)

Heidegger appears both to accept and to oppose this "instrumental or anthropological definition." After affirming its correctness, for instance, he asserts that this "correct instrumental definition" fails to recognize the essence of technology. In response, he argues an alternative presentation of technology as a kind of *αλήθεια*, truth understood as disclosure or revelation. This alternative presentation is developed through a typically Heideggerian maneuver that interrogates instrumentality by turning to a reflection on Aristotle's four causes. For Heidegger, the rethinking of instrumentality in terms of causality appears non-problematic. That is, Heidegger fails to acknowledge how *causa instrumentalis* — as distinct from *causa materialis*,

causa formalis, *causa finalis*, and *causa efficiens* — has its own special history, a history distinct from that of the other causes and one that only came to fruition long after Aristotle.

The Greek equivalent of *instrumentum* is generally taken to be *ὄργανον* or *organon*. We should nevertheless be uncomfortable about any easy translation, since the classical Greek word can refer to both an organ of the body as well as an artifact grasped and used as an implement or tool. Indeed, the Greek *organon* is a root of the English "organic" and "organism," not to mention a musical instrument of some mechanical complexity.

The closest Aristotle came to putting forth an idea related to what will come to be called the *causa instrumentalis* occurs immediately after he distinguished the four causes of coming to be. Alongside these, he writes, are the "intermediary becomings" in which, for instance, a physician causes health by use of some *erga* or *organa*, therapeutic procedures or drugs (*Physics* II, 3; 194b35-195a3). These procedures and drugs are not properly subsumed within any of the other four causes, but are intermediaries between the efficient cause of the physician, the final cause of health, the material cause of the flesh, and the formal cause of the soul. Earlier Greek references to intermediary causation occur at a number of points in Plato. In the *Phaedo* (99a ff.)

Socrates criticizes the idea of the body as primary cause. Later in the *Statesman* (281d ff.) there is a distinction between *αἰτίαι* (causes) and *ξυναίτια* (collaborative causes). Finally, in the *Timaeus*, near the end of a discourse on the works of reason that constitute the coming to be of the human soul and body, the speaker identifies what he calls "secondary causes which the god uses as subservient in order to achieve the best that is possible" (36d).

In this capacity as a means by which the divine relates to the world, *causa instrumentalis* comes increasingly to prominence in Jewish, Islamic, and Christian theology as a distinct species of causation. As Harry Austryn Wolfson analyzes the history of this idea in his great study, *Philo*

(1947), instrumental causality becomes a way to preserve God as fully transcendent or separated from the world and its creator. God works through secondary or instrumental causes. He only touches the creation with the proverbial ten foot pole of angels and other intermediaries. This Hellenistic Jewish idea of secondary or instrumental causation is picked up and elaborated in the Islamic theology of al-Kindi (9th century CE), Ibn Sina (or Avicenna, late 10th and early 11th centuries), and Ibn Rushd (or Averroes, 12th century). In each of these instances the aim is to defend the absolute transcendence of divine power and allow for the complexities of physical and biological causation.

In scholastic Christian theology, instrumental causality is prominent in at least two different kinds of relationships. One was between ministers and the sacraments they perform, another between angels and the heavenly spheres of the planets that they move. For present purposes, consider only the case of the sacraments. In the *Summa theologiae* (III, question 62, article 1), Thomas Aquinas asks in what way the sacraments are causes of grace. According to the common objections, the sacraments are not a cause but simply a sign of grace. According to Thomas, however, following the teaching of Augustine, when baptismal water touches the body it brings about a cleansing of the heart. And since the heart is not cleansed except by grace, the sacrament of baptism (and *eo ipso* the other sacraments) must cause grace.

To explain how this is possible Thomas develops the notion of the *causa instrumentalis* as a special kind of *causa efficiens*. *Causa efficiens* or *causa agens* can be either what he calls "principal" or "instrumental." "The principal cause produces its effect in virtue of its form, to which that effect is assimilated, as fire warms in virtue of its own heat." The instrumental cause, by contrast,

> acts not in virtue of its own form, but solely in virtue of the motion by which the principal agent moves it. Hence the effect has a likeness not to the instrument, but rather

> to that principal agent: as a bed does not resemble the axe which carves it but rather the art in the mind of the artificer.

The instrumental cause is, as it were, neutral. It takes on the intentions and actions of its prime user who is, it is crucial to note, not the minister or priest but God who uses them and the priest to administer the sacraments.

This is a remarkable argument, one that foreshadows a uniquely modern notion of technology. One implication is that the ministers of the Church can validly confer the sacraments independently of their own moral state or character, thus radically dis-embedding the sacramental activity from the personal spiritual life. Does this theological idea of the tool as a neutral instrument through which a transcendent God acts into the world not foreshadow a modern faith in technologies as neutral instruments through which will flow without distortion the intentions imparted to them by their human makers and users?

The technological faith becomes one that rejects any principal-agent problem as described, for example, in G.W.F. Hegel's analysis of the master-slave dialectic in which the master becomes the slave of the slave. The theology of instrumental causation conceives the instrumental or immediate causal agent as wholly transparent to the intentions of a principal. What Bruno Latour calls "translation" does not occur. When Edward Teller proposed using hydrogen bombs to do geological engineering, was he not only thinking of himself as god-like but also the nuclear devices as pure means that would not in any way introduce a reality of their own into the harbors and canals he wished to blast open? Having initially challenged this technological faith with the notion of counterproductivity, Illich subsequently reaches into history to explore why we moderns are so resistant to recognizing that technologies have consequences. The notion of disembedding here draws on that of the economic historian Karl

Polanyi, who describes traditional economic activities as deeply embedded in a contextualizing, cultural manifold. The modern economy is distinguished precisely by being disembedded from religious customs, political and social orders, aesthetic aspirations, and other aspects of culture. In a like manner, the scholastic Christian theology of the causal character of the sacraments disembeds them from a larger socio-moral nexus and turns the sacraments into what will later be called a "resource."

It is against the background of this matrix of ideas that there emerges the idea of technology as neutral instrumental cause or tool. Foreshadowing the way nature is turned into a resource by modern science and technology, and the ways men and women have become human resources for corporations and governments, the sacraments were given the status of spiritual resources within the Christian community. What for Heidegger is the distinctive truth of modern technology — its making available of energy and materials for human manipulation — is adumbrated in the scholastic making available of grace. In the summary judgment of Illich, *Corruptio optimi quae est pessima*, the corruption of the best is the worst.

This briefly sketched and quite partial history of the idea of instrumentality suggests that despite the overwhelming and dominant contemporary assumption, tools, tool-using and making are not ahistorical features of being human. As the cultural critic Lewis Mumford has maintained, in an argument deepened by the cultural anthropologist Tim Ingold, the idea of tool using as coeval with humanity depends on an anthropological anachronism that would read back into the prehistorical record our own experiential fascination with and ways of relating to technology.

What Follows?

What follows from such a historical analysis of instrumentality? For Illich himself the historicity of tools and technology in the West is prolegomenon to a deeper understanding of the world in which we live, to living with greater awareness of who and what we are. My own work in this regard has become an effort to understand the historicity of a special form of tool making and using known as engineering. Engineering and the engineered way of being in the world have become ways of life that affect non-engineers and engineers alike. But like tools and systems, engineering has a history. My effort is to disinter this history from the common assumption that engineering is coeval with the emergence of human history, that the builders of the pyramids, for instance, were engineers.

One element has been to try to look at engineering not only from its history in the West but to consider in a critical manner what western engineers often call engineering in non-western contexts. Egyptian engineering is not engineering. Even more is it the case that classical Chinese engineering (the Great Wall, the Grand Canal) is not engineering. To understand engineering today we need to try to step not only back into western history but outside of a western cultural context.

Illich repeatedly struggled to appreciate his and our destiny as heirs of the West, of what he sometimes called the Mediterranean world. This pursuit of a historical archeology of the West, which aspired to understand the present in the mirror of our past, was complemented by efforts to understand our western destiny in the mirror of another, of the distant. Illich made more than one trip to India and to Japan, and once mentioned how he had imagined writing a history of the West in Chinese, but quickly realized that such a project was beyond him. Although it would be foolish for me to ever imagine something so bold, yet my own personal

destiny has brought me into contact with China, during my own 1990s collaboration with Illich, in ways for which I can only be grateful.

The most common way to compare China and the West is to take western culture as normative and to describe China as lacking certain of its key features. As a heuristic exercise, however, a normative reversal can describe the West in terms of what it lacks with regard to common features of the Chinese tradition. Working with colleagues in China, a preliminary inventory for such a normative reversal can venture the following observations. First, Western ethics is weak in appreciating the ways humans are embedded in family relationships; from the Greeks on, the West takes market individualism as a model for human interactions. Second, western philosophy lacks the continuities, historical and ontological, characteristic of Chinese philosophy; the West is full of breaks and oppositions, as in those between Greek and Christian philosophies and between (natural) earth and (transcendent) heaven. Third, the West lacks the ideals of harmony and complementarity that are fundamental to Chinese philosophy. Instead of the acceptance of differences, in which a person can be both mind and body or Confucian, Daoist, and Buddhist all at the same time; in the West people struggle with the mind-body problem and feel compelled to declare themselves as Jews, Christians, Muslims, or none of the above.

After more than a century of efforts to assimilate western science and technology there are also Chinese thinkers seeking to recover and re-appreciate the thought traditions of China. Here I will mention the work of only three figures whom, it appears to me, deserve attention from any of us sympathetic to Illich's questions: Mou Zongsan, Li Zehou, and Yuk Hui.

Mou Zongsan, the elder of the three, lived through a century of Chinese strife and disorder. Within this maelstrom, he synthesized what has been called New Confucianism, Neo-

Daoism, and Tiantai Buddhist philosophy, to advance a critical assessment of the philosophy of Kant and a reappraisal of Chinese traditions. As he said in the first of a series of 19 lectures from 1978, "Today, facing a world overwhelmed by technology, people have no appreciation for the beauty of Heaven and Earth." In counterpoint, as he says later in the same lecture, "Chinese philosophy, as it developed [in its particularity], has life as its main subject and constitutes what I call 'the learning of life'." What Mou designates as the learning of life surely exhibits resonances with Illich's notion of conviviality.

Li Zehou is even more emphatic in articulating the uniqueness of a Confucian culture that grew out of shamanistic ritual and dance into a life-affirming, this-worldly aesthetic tradition. As he describes it in *The Chinese Aesthetic Tradition*, this way of life "is neither religious ecstasy nor secular happiness, but a self-forgetful, nonconceptual, 'perfect' or 'heavenly' joy that transcends gain or loss, and in which one experiences unity with heaven." As one who played a role in the cultural fever of the 1980s Reform and Opening in Beijing (compare Illich's role in the countercultural 1960s and 1970s in North America), Li has sought to integrate Marx, Kant, and Heidegger into Confucius — that is, to respond to problems posed by Marx, Kant, and Heidegger with Confucian wisdom.

Building on the thought of both Mou Zongsan and Li Zehou, the young philosopher Yuk Hui has engaged more directly than either with the challenge of technology and its historicity. His *The Question Concerning Technology in China* is an extended response to Heidegger, arguing at length that, "In China, technics in the sense we understand it today — or at least as it is defined by certain European philosophers — never existed." In Hui's effort to explicate the possibility of a Chinese technology distinct from that which developed in the West, it is possible to find philosophical echoes of Illich's early interest in alternative or convivial tools.

Those of us who are trying to think after Illich could do much worse than to try to learn from these Chinese thinkers who have themselves been learning from and responding to the West.

The questions they raise will nevertheless not be settled in our lifetimes. As Illich well knew, our destiny is to live in the rivers north of the future. Let me thus close with a substantial quotation from Zhang Ailing, the greatest Chinese novelist of the 20th century. As she wrote in 1945, in a city devastated by Japanese aggression,

> In this era, the old things are being swept away and the new things are still being born. But until this historical era reaches its culmination, all certainty will remain an exception. People sense that everything about their everyday life is a little out of order, out of order to a terrifying degree. All of us must live within a certain historical era, but this era sinks away from us like a shadow, and we feel we have been abandoned. In order to confirm our own existence, we need to take hold of something real, of something fundamental, and to that end we seek the help of an ancient memory, a memory of humanity that has lived through every era, a memory clearer and closer to our hearts than anything we might see gazing far into the future. And this gives rise to a strange apprehension about the reality surrounding us. We begin to suspect that this is an absurd and antiquated world, dark and bright at the same time. Between memory and reality there are awkward discrepancies, producing a solemn but subtle agitation, an intense but as yet indefinable struggle.

It is this intense but indefinable struggle that I experienced with Illich, and would like to continue to honor in his absence.

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Struggling to Live Within the Storm, with Ivan Illich

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In this essay I am trying to show the pertinence of the life and work of Ivan Illich to deal with this moment of danger, at the end of an historical cycle. Illich is a reliable companion for dealing with the current horror and for opening new paths.

As the horror of the Trump era mounts, a new awareness begins to take shape. The mask is off. It becomes increasingly difficult not to see the nature of the dominant regime and the sad condition of the American society. What we always saw, in the so-called Global South, is now perceived by an increasing number of Americans and people in the North. However, this new awareness is not necessarily translated into alternative paths, because we all are trapped in the framework of the ending era. I want to show that Illich knew very well what was behind the veil of that dominant mentality, anticipated the collapse of this society, and also anticipated how the people could and would react.

Hospitality

Illich's immense erudition may explain why he is approached as a great scholar or specialist in very different fields. He is studied as historian, theologian, philosopher, sociologist, medievalist, anthropologist. Sometimes, given the way his ideas are approached, he becomes a kind of academic fetish, an object of cult but someone to leave behind to create a new school of interpretation.

I want to attempt here an alternative hypothesis. I am convinced that the life and work of Ivan were those of a man of action, deeply interested in the transformation of society and profoundly committed to it. I do think that his pertinence for the current dangers has two main sources. The first is his reflection on the nature of the current dangers, his capacity to see under the storm the roots of the evil plaguing us. Ivan illuminates with the proper lanterns what we have before our eyes, but we can't see clearly. The second is his openness to action, the ways he could imagine how to produce the transformation. His radical rejection of diverse forms and temptations of power and the future, his recuperation of the autonomous agency of common people and his drafts and anticipations of the probable shape of social change are very useful when the most severe of our "crises" is the crisis of imagination—we cannot conceive alternatives outside the dominating dominant mentality—that which has become deeply internalized.

In this hypothesis of Ivan as a man of action, cultural pluralism and interculturality occupy a central place—they are simultaneously the heart of the tragic challenge in which we are today and also the character of the option. The argument that this is the main challenge of the XXI century, over those that seem more urgent—those within the economic, social, environmental or political realms—and that to deal with it will open paths for the others, seems to have a very solid foundation. Ivan pioneered a rigourous treatment of all these challenges, in theory and practice. His legacy includes many lessons about them.

A well known episode of his life offers a firm foundation for this hypothesis. As a young man, Ivan had already earned solid prestige within the Vatican, for his brillant studies. When he was offered a position of power which could be a good stair to climb in the hierarchy of the Catholic Church, he instead took a flight to New York. He choose that place for his interest in continuing his studies on Albertus Magnus, whose manuscripts were in Princeton. It was a path to

erudition and research. During his first days in New York, however, in crossing a Puerto Rican neighborhood, he became horrified with the treatment given to the *jibaritos* by his church. He asked Cardinal Spellman which parrish they were attending and began immediately an audacious intercultural crusade. His great success took him soon to the Catholic University of Ponce, in Puerto Rico.

Not long after, Ivan was asked to assume the task of preparing the 40,000 American priests and nuns soon to be sent to Latin America, following an agreement between the Pope and President Kennedy. To critically implement such an endeavor, he created the Center for Intercultural Formation (CIF), in the United States, and later, in Cuernavaca, Mexico, the famous Centro Intercultural de Documentación (CIDOC). Those attending it, for the original purpose, got a superb training in Spanish, but also clear warnings about the colateral damage they would produce, since their missionary work would be in reality at the service of a colonizing enterprise.[1]

According to my hypothesis, interculturality was thus at the very center of the transformation that interested Illich. Until his death, he was engaged in an intercultural dialogue and in imagining the assumptions and characteristics of a society constituted on cultural diversity. In New York he abandoned his path to erudition and became a man of action to challenge the monocultural and universalist treatment used in his church, well ahead of the timid openings of Vatican II and freely advancing challenges through his own rupture. Ivan considered that all modern institutions were constructed in the mold of the Catholic Church and applied to all of them his critique.

[1] It is still used, in study groups, a discourse pronounced by Illich for a group of students that were getting some training to start their summer activity as volunteers in Mexico: *To Hell with Good Intentions.* *https://depts.washington.edu/egonline/wordpress/wp-content/uploads/2010/05/Illich-Reading.pdf* (Accessed 07/15/2017).

I would like to underline the immense courage Illich possessed, in the double sense of the term. He kept, to the end of his life, a profound indignation that he often expressed against behavior and attitudes deeply offending him, which he observed even in good people close to him. And he required immense courage to challenge the powerful structures of his church, which he always loved, as well as both the dominant mentality and all social and political structures. He dared to systematically demolish a wide variety of sacred cows, causing many problems for himself. He applied his courageous and valiant attitude both to resist, when he opposed all kinds of horrors, and to contribute to the construction of a new world in the womb of the old.

With his own practice, he suggested a change in the way to change, restablishing the sense of celebration, friendship, hope and surprise. And he gave a new meaning to *hospitality***,** both in theory and practice, through great theoretical and historical elaboration on the idea and particularly through a systematic practice of magnificent hospitality.

In *Hospitality and Pain* (1987), one of his best and most mysterious essays, Ivan explores a phenomenon "which I consider constitutive of the West, of that West which has shaped me, body and soul, flesh and blood." (p.1) Fully aware of his Westerness, he attempted to escape from that condition. At one point he even considered the possibility of spending the rest of his life in a Chinese village, a radical departure from his context; acknowledging that he would still be the Westerner Illich in such a village, he opted for an historical exploration to discover the origin of his Western certainties, to better explain and to criticize them.

In the essay, Ivan considered that the central reality of the West could be expressed in the old Latin phrase: *Corruptio optimi quae est pessima*, the corruption of the best is the worst. He thus explores the history of hospitality and its corruption, when the tools of the church or the state "have created a new reality which the individual must be conformed with to find him or herself."

This “unique embodiment of the self …emerges only in western cultures.” Ivan explains what the historian documents, a faith which “led to the hospitalization of mercy and to professional care… to medicalization and ever more subtle forms of torture… to the ‘human’ condition today in which all technologies became so invasive that only in something I would call techno-fast can joy be pursued.” (p.19)

Ivan knew very well and was horrified with the fact that the majority of people on Earth had been always excluded, marginalized and Westernized: they were “barbarians,” *ba-ba-roi,* for the Greek, because they could not speak a Greek tongue; they were “pagans” or “infidels” for Christian Europe, in need of evangelization; they were “savages” during the Enlightenment, in need of civilization; they were “natives” or “heathen” for Industrial Europe, in need of education in the needs of the market; they were “underdeveloped” for the hegemonic United States after World War II. For this qualification-disqualification, they were colonized and exposed to both genocide and culturicide. What we have today, once the racism and sexism inherent to the dominant regime becomes increasingly evident, is one of the most oppressive forms of discrimination, particularly applied to migrants, which are at one of the highest numbers in history. The “Yugoslavian Syndrome,” when people that were neighbors and even friends for centuries begin to kill each other for “cultural” reasons, is now spreading.

Through hospitality, the hospitality he practised with his friends but also with strangers during his days of open house in State College (Pennsylvania) or Bremen (Germany), Ivan clearly trespassed his Western cultural boundaries and applied what he learned from other cultures. He experienced with them a kind of hospitality not yet corrupted, a hospitality that was an act of love extended to both your own people and to strangers, an idea and practice that he often evoked through the parable of the Good Samaritan: love, compassion, as the motivation to trespass your

cultural boundaries. Ivan accepted with sympathy the Zapatista proposal of constructing a world in which many worlds can be embraced, as the appropriate substitute for the colonial Western obsession of constructing "One World" with any banner as the pretext: the Cross, Civilization, Democracy, Human Rights, Development, etc.

The Moment of Danger

The outcome of the American elections in 2016 surprised everyone. For many people something had radically changed. This is perhaps what should be noted in the first place: that what was there for a long time took many people by surprise. It was a rude awakening for those who were like sleepwalkers suddenly discovering that the nightmare was not in their dreams but in reality.

I want to examine five aspects of the current situation, to explore the pertinence of Illich's approach as a way to live, with him, within the storm.

1. A major crisis of societal functioning

All institutions, everywhere, suffer some form of disarray. The educational system does not prepare people for life and work; the health system increasingly sickens people and becomes as expensive as inefficient; the transportation system paralyzes; urban construction makes cities increasingly uninhabitable; police are an increasing source of insecurity; democratic procedures are increasingly tricky and illusory and are at the service of forms of despotism.

In each country and region things are different—in some places a few institutions still operate in a satisfactory way and in some others they have reached a point of counterproductive paralysis. The perception of what is happening is also different: some still conceive and try to

implement reforms of the apparatuses or assume that what is happening is only temporary or circumstantial. Others are beginning to feel anguish as they sense the imminent collapse of institutions they once trusted.

Perhaps the worst of this moment of danger is the profound distrust in the mechanisms to deal with the crisis of societal functioning. The Zapatista Enough! (*Ya Basta!*) of 1994 is still perceived as the detonator of a new awareness. "All of them should go!" proclaimed the Argentinians in 2001. Many episodes of the same sign followed: "My dreams don't fit into your ballot box" said the *Indignados* in Spain; our political regime, suggested Occupy Wall Street, is at the service of the 1%; several countries, like Spain or Belgium, remained without the heads of their formal government for a long period, given the incapacity of constituting it through the established procedures.

The presidential election in the United States became paradigmatic, both because in that country modern democracy was born and became a universal model of operation, and because the collapse of the pillars of the system was very visible and followed attentively all over the world. The apparatuses of the American political regime are still there, but what gave them life and sustenance vanished. What was assumed to be a democratic society required that the majority of the population believed that the electoral procedure was a reliable tool to express the collective will, while also trusting elected officials, as representatives of the interests and desires of the majority. Very few people still have such belief and trust. Four-fifths of Americans found the campaigns nauseating and the outcome took almost everyone by surprise. It was reported, for example, that many Trump followers were ready to go to the streets on November 9th, many of them with weapons, to oppose an outcome they were assuming would be adverse.

It is increasingly evident that the democratic regime itself is a despotic and tricky tool, inherently racist and sexist. We need to remember that both Greece, where democracy was conceived for the first time, and the United States, where it took its modern shape and became a universal model, were societies with slaves, deeply racist and sexist. These traits are embedded in the basic design of a democratic nation-state.

It is possible to identify a severe crisis in every area of daily life: crisis of employment—with more unemployed in the world than ever and an increasing number of people in the so-called informal sector; the worst food crisis in history, with a billion people going to bed every night with an empty stomach and millions dying of forms of famine not seen since the Middle Ages—today, wrote Eduardo Galeano, the Uruguayan poet, who is not afraid of hunger, is afraid of eating; an educational crisis—more than half of children entering the first grade will not be able to reach the level that in their countries is considered compulsory education, and those going to the end in the educational ladder cannot find a job within the field they studied; a health crisis—an increasingly expensive, inefficient and counterproductive health system, public health budgets limited and an increasing number of people deprived of access to basic health support; crisis in transportation—when speed paralyzes and the planet can no longer take the environmental consequences of the system of transportation; crisis in settling—with more homeless people than ever, massive displacement and the highest rate of migration in history. The list is interminable. The sphere of the "environment" is perhaps the area in which the crisis in societal functioning is more widely recognized, given the conditions of climate change and the lack of effective measures to deal with it.

Any crisis has a solution. But the current social malfunctioning does not seem to have one. Reformers proliferate as a plague, in every institution and for all political and social procedures,

and desperate efforts are being made to create the impression that everything remains the same and that a few changes and adjustments would be enough to address the current difficulties. However, the conviction that there is no remedy, within the frame producing and reproducing them, is spreading. People talk now, with solid arguments, of a kind of collapse. It is acknowledged that we are at the end of an historical period and there is intense debate about the candidates considered "corpses"—what is it that is ending? The debate focuses on those requiring burial for a long time, such as "development," "progress," "neoliberalism" and the system of formal representation, as well as newer possibilities which until recently were taboo to condemn, like "capitalism," "modernity" and "patriarchy."

2. Rapid crystallization of social classes and other conflict groups

The disarray of class organizations characteristic of recent decades, when those consolidated during the postwar period weakened or vanished, has taken a fascinating turn. Disperse groups come together with amazing speed and their mobilizations immediately attract all kinds of alliances, some clearly unexpected. In almost every country, in the course of the XXI century, it is possible to observe a kind of mobilization with few precedents, taking very diverse shapes. There is now a discussion about "place" politics, when some specific places—like in Egypt, Greece and the U.S.—became a point of reference for complex mobilizations and movements.

Other social constructions are becoming increasingly relevant, some with immediate effect in generalized change. In the United States, grassroots organizations advanced slowly, in small groups, for many years, and then, suddenly, undocumented workers organized one of the biggest and more extended mobilizations in the history of this country. Occupy Wall Street, Black Lives

Matter, Ferguson, Standing Rock, Parkland and other names are already a reference point for new forms of mobilization, which expressed themselves in different ways during the electoral campaign and represented a kind of explosion after November 8th. Everywhere, very diverse groups, which usually stayed separated or ignored each other, are in movement, crystalizing quickly.

3. The rise of organizations and ideologies offering an alternative outlook and leadership

New theoretical and ideological proposals are now proliferating around the world; they analyze what is happening with different approaches and offer perspectives outside conventional frameworks. With them also emerge organizations and leaders which attempt to incarnate those proposals. In some cases, the idea is to return to the shape of an idealized past, like in the case of Nazi and neo-Nazi groups and many kinds of fundamentalists: Islamic, white supremacists, etc. In other cases, the idea is to renovate old beliefs or militancy, to adjust them to contemporary conditions. Groups with new proposals, in content or form, represent the larger number. Some are the outcome of new technologies, to promote virtual associations or to transform them into new forms of social organization. Next to those within the conventional framework, from the past or the present, those representing new options are multiplying. It is impossible, for the time being, to produce a solid classification of all these initiatives, which emerge from the most diverse motives: they can be spiritual, religious, Marxist, anticommunists, anarchist, authoritarian et al.

4. A crisis of the governing elite, of the dominant class(es) and of the state apparatus

The intensity and magnitude of this crisis is varied. In some countries, there is the appearance of stability and the crisis of the elite is not public. Increasingly, however, this crisis is

expressed in a spectacular way, in small countries, like Iceland or Slovenia, middle size countries, like Spain or England, or in very big countries, like Brazil and the United States. It is useful to compare the current situation with others in the recent past. In the 1970s, for example, before the disarray and decomposition provoked by the cultural revolution of the 1960s, which tended to provoke substantive changes at a global scale, the Trilateral Commission was created, unifying the dominant classes and defeating the popular movements, thus establishing the neoliberal era and the globalizing project. Today, the decomposition of the dominant classes is entirely evident in some countries, like Brazil; the attempts to remedy it through non-conventional procedures only produce short-term adjustments; and in many cases, like in the United States, the disarray opens a period of great uncertainty, because neither the people nor the dominant classes have the analytical and political tools to deal with it. Nothing like the Trilateral Commission exists today and apparently it is currently impossible to create an equivalent.

5. A linked "moral crisis," placing in doubt the morally accepted structures of authority, of ideological hegemony and of common sense

This crisis is probably the most evident. In countries like Mexico, such "moral crisis" is an old one; having evolved in recent years, with many governors in jail and corruption scandals affecting the president, while consolidating within public opinion what everybody knew many years earlier. Something similar is happening in other countries, but in them, like in the United States, what emerges is something unexpected because it was carefully hidden from common perception. Many reactions after November 8th, for example, clearly indicate the measure in which there was an extended denial of the very nature of the American society—its racism and sexism, for example—and the chasm between the real behavior of the leaders and their supposed

accepted values, as the #MeToo campaign clearly illustrates. Everywhere, however, the moral decay of those in public office is increasingly acknowledged; the exceptions only confirm the rule.

Ivan clearly anticipated both this picture, the collapse of the dominant institutions, and people's reactions. One can read full sections of his Cuernavaca "pamphlets," as he called them, published in the early 1970s, precise descriptions of the current situation. In *Tools for Conviviality* (1973, 103), for example, he wrote the following:

> *Almost overnight people will lose confidence not only in the major institutions but also in the miracle prescriptions of the would-be crisis managers…. Some fortuitous coincidence will render publicly obvious the structural contradictions between stated purposes and effective results in our major institutions….Large institutions may suddenly lose their respectability, their legitimacy, and their reputation of serving the public good. It happened to the Roman Church in the Reformation, to Royalty in the Revolution. The unthinkable became obvious overnight: that people could and would behead their rulers.*

To read Ivan's words again, or for the first time, throws desperately needed light on what is happening today, both to better understand it and to react in the proper way.

What Is to be Done?

Ivan had always been aware of this old question posed by Lenin in a famous book. I suspect that Lenin's answer and particularly the application of his ideas worried him so much that he dedicated a great amount of time and reflection to conceive an alternative.

The XX century can be called the Leninist century. Lenin postulates—both in his 1905 pamphlet, *What is to be done?,* and in *The State and Revolution* (written between February and August 1917) and which became a fundamental reference for many revolutionary groups, their Holy Scriptures—political initiatives and styles of leadership for movements, revolutions and governments of the whole ideological spectrum in the XX century. It seems that nobody escaped

this mark. Steve Bannon, Trump's former senior advisor, openly affiliated with the extreme right, declaring himself in 2016 to be a Leninist. Most revolutionary groups, until very recently, were defined as Marxist-Leninist.

To be clear, understanding this historical moment is a very complex matter, full of subtle edges. How to draw a clear line, for example, to radically differentiate Ivan's argument for disestablishing the school system and all modern institutions, and Bannon's reaction: "Lenin wanted to destroy the state and that's my goal too; I want to bring everything crashing down and destroy all of today's establishment"? Are the charter schools and the different forms of privatizing public resources for education equivalent to Ivan's proposal to "deschooling society"? In what follows, I select a few aspects, which in my view are particularly pertinent for underscoring the current relevance of Ivan.

Personal agency

Ivan knew that after the XII century we began to be constructed as "individuals," in the mold of the text invented at the end of that century. He knew, however, that we were not individuals, but persons, knots in nets of embodied relationships. Ivan resisted the organization of collectives of individuals and even more of masses. He was horrified by the constitution of mass societies and mass media.

From the XII century on, the dominant trend among those interested in promoting social transformation has been the formation of mass organizations, mass movements, massive groupings of individuals. This social transformation motif requires the constitution of a vanguard capable of organizing and leading those masses—a vanguard usually lead by a single leader. In *What Is To Be Done?* Lenin established that the keys for action include: superior knowledge,

authoritarian instruction and social engineering. The revolutionary "professionals" should behave as teachers in the schools, commanders in the revolutionary army or foremen in a factory. According to Lenin,

> Without a dozen tested and talented leaders (and talented men are not born in the hundreds), professionally trained, schooled by a long experience and working together in perfect harmony, no class in the modern society could lead a crucial struggle. (Lenin 1902).

We know well what this has meant. Ivan continually confronted such notions. One of his most notable contributions is his capacity for promoting personal agency within those knots in nets of relations that we are. We don't need to wait for the "great leader" or the big organization to start our agitation for transformation. And, we will not start as individuals!

In thinking about personal agency, with Ivan, I can associate it immediately with what has been called "joyful militancy," in opposition to "sad militancy." In both, we experience joys and sorrows, but in the first you avoid the dogmatism, the close-mindedness, the subordination (to leaders and ideas) of the second, and emphasize the joy of a common commitment with others. (Montgomery and Bergman, 2017).

Coalitions

Ivan resisted the creation and operation of parties and formal democracy. He wrote:

> Just as General Vo Nguyen Giap could use the U.S. military machine to win his war, so the multinational corporations and professions can now use the law and the two party system to establish their empire. But while democracy in the United States can survive a victory by Giap, it cannot survive one by ITT and its like. As total crisis approaches, it becomes more obvious that the nation-state has grown into the holding corporation for a multiplicity of self-serving tools, and the political party into an instrument to organize stockholders for the occasional election of boards and presidents. (1973, 108-9)

Ivan anticipated, 50 years ago, what today is entirely evident: how democracy collapses when corporations take control. You cannot put your hopes in any party before the kind of crisis we are suffering today.

Before the loss of legitimacy of the State and the parties, Ivan considered that it was necessary to coalesce discontents, which can be discontented for the most diverse motives, without trying to unify them around an ideology, a doctrine or some promised land. The idea is to coordinate efforts to resist what is happening, dismantle public and private oppressive apparatuses and begin the construction of new worlds that will emerge in the process. A new kind of politics, of "One 'No' and Many 'Yeses'," is emerging everywhere, substituting the binary principle implying one "Yes," for every "No."

Beyond the state

The proletariat needs the power of the State, wrote Lenin in *The State and Revolution.* It needs "the centralized organization of force, the organization of violence to lead the great mass of population." (1901) The nation-state was born with capitalism and became its political form. In the nation-state, the monopoly of legitimate violence is given to the State. It is a regime based on such violence, to impose on everyone the will of capital. The State creates and administers markets, supposedly free. President Reagan and Ms. Thatcher used continually the anti-state discourse, while they widened to unprecedented scale the size and functions of that State. And here I am using the conventional word, "State," which in fact designates a linguistic ghost. I am alluding to state apparatuses, to the governments, which are nothing more than administrators at the service of capital, not the "State" or the "nation," which are useful terms to understanding control and domination, but that have no real existence. Both Trump and Bannon are basically

implementing the agenda of the Republican Party before the State. They are trying to dismantle whatever remains of the so-called Welfare State, of the concessions given to the workers through the New Deal, while increasing the faculties of both the police and the military while openly supporting all kinds of violence. The administration not only seeks to intensify the 76 wars currently waged by the US and to strengthen its 800 military bases in more than 80 foreign countries, with troops and other military personnel in about 160 foreign countries and territories. (Street 2018). It also intends to widen the range of power and impunity of the police, in the US, the violence against people of color and migrants, while transforming the schools into battlefields, by arming teachers, as president Trump suggested on February 20th, 2018 after the Parkland killings. The US has today 40% of the world's military spending and more citizens have more weapons than in any other country. What Bannon and the other "Leninists" want is not to destroy all the state apparatuses, which are basically at the service of capital, but to dismantle what remains in them to regulate the operation of capital and to provide some services and subsidies to the people. Lenin wanted to destroy the Tsarist state, only to establish the "dictatorship of the proletariat" with the Stalinist state.

Instead of suggesting seizure of state power, as proposed by revolutionaries of all shapes and colors, Ivan insisted on the need to dismantle those state apparatuses and dedicated a good part of his work to show how it is possible to do it. But it is important to underline that he gave clear priority, before that, to the public ownership of the means of production, to the social control of mechanisms of distribution and to the communal agreement on self-limitation of some technological dimensions (Borremans and Illich 1971). He was explicitly opposing a kind of crypto-Stalinism, putting the means of production and the systems of distribution in the hands of experts and bureaucracies. He was instead reclaiming for the people full autonomy and freedom.

In an interview in the late 1980s, after Ivan explained that his roots are in natural law, as expressed in the behavior of ordinary people in small communities, and mentioning his friendship with Paul Goodman and how much he influenced him, Douglas Lummis asked Ivan: "Labeling is always risky, but would you accept the term 'anarchist,' as a general characterization of your work?" Ivan answered immediately, with a clear statement:

> Definitely…I would want to be known as an anarchist. But let me illustrate what I mean by anarchism. By hearing just one story, you should be able to grasp how much Paul was both an anarchist and an adherent of natural law. What I tell you happened in 1967 or 1968, at the height of the student movement and the New Left. A group of first-rate rabble-rousers and courageous intellectuals was assembled in Cuernavaca at our center. Paul gave a series of lectures on the law. At one point a young man interrupted him, in that manner which was not uncommon then, stood up and attacked this 'old, gay, dirty-minded phony,' because Paul was defending the dignity of the law. I saw Paul crying. When he had finally fought out of his tears, he said, 'You are not enough of an anarchist to understand the dignity of the law.'

Ivan wrote the final version of *Tools for Conviviality* for an audience of Canadian lawyers and constructed his argument for political inversion around the principles of the law. At the very end he wrote:

> The structures of political and legal procedures are integral to one another. Both shape and express the structure of freedom in history. If this is recognized, the framework of due procedure can be used as the most dramatic, symbolic, and convivial tool in the political area. The appeal to law remains powerful even where society makes access to legal machinery a privilege, or where it systematically denies justice, or where it cloaks despotism in the mantle of show tribunals. Even when he who upholds the formal structure of ordinary language and procedure earns the scorn, ridicule and persecution of his fellow revolutionaries, the appeal of an individual to the formal structure embedded in a people's history remains the most powerful instrument to say the truth and denounce the cancerous domination of the industrial dominance over production as the ultimate form of idolatry. I feel almost unbearable anguish when faced by the fact that only the word recovered from history should be left to us as the power for stemming disaster. Yet only the word in its weakness can associate the majority of the people in the revolutionary inversion of inevitable violence into convivial reconstruction. (1973, 109-10)

When Ivan alludes to the structure of freedom, he is explicitly describing the juxtaposition of political and legal procedures—norms autonomously formulated and enacted by the people themselves, according with their local traditions, for the convivial reconstruction.

Ivan clearly drew a line of separation with traditional individualist anarchism, which in the United States takes the shape of right libertarians and constitutes some of the most dangerous and violent groups within the violent American society. Ivan affirmed himself in natural law, according to which we would regulate ourselves after the knowledge of who we are, not individuals, but as knots in nets of relations. And he argues that such natural law, which some see expressed in the "State" as positive law, in fact is expressed in the ordinary behavior of people and in small communities, as mentioned before.

I believe that Ivan would subscribe without reservation to the Zapatista communiqués and the style of government they have adopted, at the grassroots, through radical democracy. He would endorse with enthusiasm, I think, the 2017 proposal of the National Indian Congress of Mexico, for that kind of democracy, challenging at the same time formal democracy, political parties, capitalism and patriarchy.

A Revolution?

Teodor Shanin is one of the best scholars on theories of revolution. The titles of the sub-sections I used to describe the present situation in the first section of this essay are taken from his description of a *revolutionary situation*. Based in solid theoretical and historical documentation, he describes it as

> the combination and interdependence of (i) a major crisis of societal functioning, often brought about by war or severe economic depression; (ii) rapid crystallization of social classes and other conflict groups; (iii) the rise of organizations and ideologies offering an alternative outlook and leadership; (iv) a crisis of the governing elite, of the dominant

> class(es) and of the state apparatus, and (v) a linked 'moral crisis,' placing in doubt the morally accepted structures of authority, of ideological hegemony and of common sense. (1986, 6)

He adds that all these conditions should appear within "an international context which facilitates or at least permits the revolutionary processes to take place," a context like the current context.

When a society enters into a revolutionary situation and nothing happens or a revolution fails before fulfilling its purpose, a severe and accelerated social decomposition occurs, a profound process of decay, until the revolution emerges or the society ceases to exist as such, being absorbed by some other or becoming totally fragmented. Perhaps the best example of this process is the Russian revolution of 1905-07, whose frustration produced the social and political decomposition that precipitated the revolution of 1917.

For Shanin, a revolution is born from profound changes in the perceptions of the would-be "revolutionaries," when isolated persons or small groups begin to perceive the exhaustion of previous forms of social existence. This awakening generates situations and periods of what has been called "multiple sovereignty," when different groups, in different spaces of the society, begin to behave and to govern themselves with norms and ideas in open contrast with the dominant rules. They are not necessarily challenging and confronting the established regime…until the moment comes when the "revolutionaries" are part of a massive popular intervention, an uprising from below, which openly confronts the "forces of order" marshaled by those governing. When this happens, the revolution represents a substantial change in social structure involving fundamental systems of domination and all social relations. There are changes in reality and in the general perception; a conscience of transformation and a transformation of conscience, even if not realistic, are necessary components of the social change that can be

considered revolutionary. Sooner than later, in this process, those governing are removed from power and the main system of domination, as well as ownership relations and class divisions, suffer profound transformations.

We have been for a long time in a revolutionary situation, but it has not been translated into a revolution, that is, it has not generated as yet a substantial change in social structure. The moment of danger is defined by the fact that, given all those conditions, a profound and extended political rebellion has been emerging, which in the case of the United States became evident with the elections, but such rebellion may advance in opposite directions: its destiny is not written in the stars or predetermined. It can be a path to catastrophe or to emancipation, it can consolidate a very authoritarian and violent fascist regime, in which the migrants would be the new "Jews," or it can create an unprecedented opportunity for real freedom. That it generates a liberating outcome depends of the character of people's mobilizations, if instead of protecting the status quo or sharpening its worst components they are committed to the desired change.

Before characterizing with more precision the current situation, we need to consider that in the XXI century a revolution following the previous patterns is virtually impossible. The experience of the elites, threatened by revolutionary attempts or displaced by revolutions of different kinds, as well as the changes in the technology of domination and control, make highly improbable that a revolution in the old style could succeed. The Bastille, the Winter Palace, or even the triumphant entrance of Fidel in La Havana are no longer real options. Furthermore, we need to take into consideration that for many actual or potential "revolutionaries" the previous revolutions could not produce the effects they were looking for, even in the cases in which they generated fundamental changes in the systems of domination and social relations, having removed those in government. For many, for example, the revolutions that established "real socialism" in

several countries, produced substantial changes in the property relations, in class divisions while resulting in many positive changes for many people, while failing to achieve fully their purposes. Instead of socialism they established a variant of state capitalism, one which was extremely authoritarian, having produced many deaths and great suffering and sacrifice for the majority of the population. Observing the final impact of those revolutions in some societies, it has been said that "real socialism" was only the longest and more inefficient and cruel path to establish capitalism.

Most revolutions in the last centuries attempted to "seize the power," usually expressed as the attempt to "conquer" the government and occupy the state apparatuses to realize the purposes of the revolutionaries. Different tools and ways were used: armed uprising, supported by people's massive intervention (China, Cuba, México…); sudden attack or coup d'etat, which usually consisted in a realignment of forces within the elite (many countries and cases in Latin America) or which became a real revolution, removing members of the elite to reorient the society [Egypt (Nasser); Venezuela (Chávez); and even the electoral path (Chile (Allende))]. In recent years there have been revolutionary processes similar to those in the past, but at the end, after removing some governments without generating important social changes, have become failed or incomplete (Arab spring).

It is commonplace to point out that we live in *mass* societies. We have *mass* media and both the states and the churches deal with salvation and education of the *masses*. True, capitalism has a homogenizing effect on the individuals it constitutes and, in that sense, it produces *masses* of consumers, spectators, workers, voters, etc. Seemingly, all revolutions are produced by *masses.* However, closer observation allows one to draw a line between two very different kinds of events: *mass* mobilizations, organized by politicians, leaders or political parties, using different

tools (charisma, coercion, militancy, ideology, belief, etc.), while mostly expressing the prevalent state of affairs and which is reaffirmed or consolidated through the mobilization; and popular initiatives in a revolutionary context that can be expressed in a *massive* intervention. In the second, the participants are not usually organized as *masses* and it is only the numerical aggregation of individuals, collectives and organizations, coming together for very different reasons and motives, which produces the *massive* condition.

Machado observes that the word *mass* applied to man, of ecclesiastic and bourgeois origin, implicitly conveys an unbearable degradation of the human condition. He warns that the concept, merely quantitative, can be applied to crowds of people as to anything occupying a place in a space. Yet, in so doing, a reduction, an abstraction is made of all qualities of humans, with the exception of what they share with all material things: that of being able to be measured in relation with a unit of volume. And thus, in strict logic, "human masses cannot be the object of salvation or education. In contrast, it is always possible to shoot against them." (Machado, 1975, 239-40) *Masses* don't buy, vote or mobilize. Real men and women, who buy, vote or mobilize, are reduced to *masses* through an atrocious procedure degrading their real condition.

Political traditions of the XX century, usually Leninist traditions, have systematically attempted to create *masses,* imitating the commercial practices of the corporations, which look for *masses* of consumers for their products. Contemporary electronic technologies can currently process individual characteristics, classifying preferences and behaviors; the products are sold to both corporations and political parties, to organize the promotion of products or votes. Neither in the past nor recently has this been the way in which revolutions have been produced. Rather, all started when specific persons practiced a radical rupture with the state of affairs, for sheer survival or for other reasons. If their action succeeds, it spread through contagion until it

configured extended patterns, in specific regions or spaces, creating the conditions of "multiple sovereignty" characteristic of revolutionary processes finally becoming a *massive* intervention. In general, when a revolution is still revolutionary, the revolutionaries organize themselves in councils, both to govern themselves during the process and to coordinate ideas and actions with others. That is what Hannah Arendt found when she studied one hundred years of revolutions in different parts of the world: a natural form of organization of the revolutionaries. (Arendt 1963) When some leaders or parties succeed in taking control of the revolutionary processes, to carry out their own plans, they are forced to get rid of those councils and subsume them into discourses, institutions, laws and apparatuses to better control people and political processes.

A careful and close observation of revolutionary processes reveals that the point of departure are *revolutionary acts,* realized by persons or collectives, which detonate those processes. It is well known that the first bourgeoisie and proletarians died without knowing who they were: they had already created the new regime, the social relations defining them, but their mentality was still trapped in the feudal world. Capitalism had already been birthed. But they could not see themselves as bourgeois or as proletarians, as the owners of the means of production and the owners of their labor force, because they were still perceiving their own position in the society and their relations with the power structures in existing terms. Very few discovered that their *revolutionary acts* finally produced the dissolution of their world. That is why it is so important to characterize those acts, to discover the moment in which a revolutionary process has already started.

> I call an act 'revolutionary' only when its appearance within a culture establishes irrevocably a (significantly) new possibility: a trespass of cultural boundaries which beats a new path. A revolutionary act is the unexpected proof of a new social fact, which might have been foretold, expected, or even called for but never before irrevocably shown as possible. (1970, 1)

For Illich, “extraordinary” facts are real, but they don’t establish a pattern of new relations. Their repetition will not modify existing relations. Weird or supernatural facts don’t reorient the patterns of behavior in a culture. Criminal acts may remain unpunished, but no one claims their legitimacy, which is precisely what revolutionaries do with their acts. The society commits to the madhouse, the convent or jail those committing acts classified as “mad,” “supernatural” or “aggressive,” often applying the same treatment to revolutionaries in order to prevent the revolution.

Actions become properly revolutionary when the extraordinary character of their rupture or the limits of a culture become relevant for ordinary reality and are assumed inside it. Those becoming transcendent, those that are authentically an expression of a revolution, are those in which the transgression is irreversible, spread through contagion to other spheres of reality and are intentional. Revolutions can thus be planned.

Are we seeing, around us, “revolutionary acts”? Or it is only more or less of the same? Or should we, finally, abandon the very idea of a revolution, a very contaminated word, and instead listen to ordinary men and women who only want to resist and to survive…and then, with that strong motivation, are committing every day all kinds of cultural transgressions that become contagious and thus create a new world, a new era?

* * *

We are living in times of confusion. Our lenses, the concepts, categories and hypotheses we have used, are becoming opaque. Given the real or apparent novelty of what is happening, we cannot avoid confusion.

The worst of our crisis, however, is the crisis of imagination. For many years, for centuries, we have been thinking and behaving according to a mental framework that is no longer useful. As Einstein said too well, no problem has a solution within the framework creating it. And we don't have alternative frameworks. We need to invent a new one. Ivan is an amazing ally for such a task. He refused to give an itinerary, a path, even a draft of what we could do. But he practiced amazing openings of thinking and action that, as he suggested, may allow us to recover a contemporary art of living, what we badly need.

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The Elections of 2016: Fears and Hopes of a Brown-skinned Immigrant (November 2016)

Lakshman Yapa

As a foreign student, I arrived in the United States in 1964 on the same PAN AM flight carrying the Beatles from London to JFK. I completed a post-graduate degree in New York on a Fulbright scholarship. My entire higher education was paid for by the United States. Not long after, I fell in love and married a very intelligent, beautiful young woman with whom I raised two healthy bi-racial sons. With a tenured job at a university, a nice suburban home, and a large circle of progressive liberal friends, I was living the American dream, happy but above all feeling secure and safe.

But that sunshine began to fade from my life a few days after Donald Trump descended an escalator in the Trump Tower in June of 2015 to formally announce his candidacy for President of the United States. "Sadly," he said, "the American dream is dead." He pointed to immigrants, particularly, Mexicans, as a cause of this great demise. Like background radiation, the "othering" of brown and black skins had always been there, but with Trump's harsh election rhetoric, incivility went public, driving fear into the hearts of brown-skinned immigrants, like myself.

A white man walked up to a brown-skinned friend of mine sitting in a restaurant and told her rudely, "Girl, pack your bags and get ready to leave." A few months earlier a man had walked up to me in the local grocery store and inquired if I were Muslim. Knowing that I am registered to vote in a rural precinct in Central Pennsylvania my son, fearing for my safety,

called me from California begging me to cast an absentee ballot instead of going to the precinct in-person. My protestations that everything would be fine did not assure him, so he called my neighbor to make sure I did not go to the voting precinct alone.

The life I had known had changed for the worse, and the signs were everywhere; still, as election-day approached my friends and I took comfort in the improbable odds given by the *New York Times* and the *Washington Post* against a Trump presidency. But late on election night *The New York Times* carried the banner headline, "TRUMP TRIUMPS.'' I was profoundly shaken. Dawn broke on Wednesday with a dismal grey pall over the Pennsylvania sky. The atmosphere on the floor in my university office building was that of a somber funeral—graduate students with reddened eyes from hours of crying, colleagues hugging each other in long silent embraces or passing each other with understanding nods that were not the usual hellos. Something familiar, safe and comfortable had left us, perhaps forever. Sensing my feelings, some friends who had voted Republican tried to assuage my fears, saying that Trump does not mean what he says. But it is too late; the wave of hate and intimidation is now in public view and could very well increase with the white supremacists now advising the President-elect.

It is one thing to witness sharp policy differences among politicians or see fundamental changes instituted by Congress or the Supreme Court. But to experience fear simply from living inside a brown body goes to the core of my being. This is the fear that Ta-Neshi Coates describes in *Between the World and Me*, the fear that black parents feel for their children growing up in black bodies. I was quite moved by Ta-Neshi Coates' essay on black fear, but that was more out of empathy. Now I, myself, taste that fear. I have always liked hiking alone in the woods of Pennsylvania. Often, I would pass hunters dressed in camouflage carrying guns with a nod, a greeting, all together routine. I now avoid hiking in the woods alone, especially during hunting

season. That is fear. If I have to drive somewhere new I plan to be home before dark for fear of getting lost and having to ask directions. That is fear. My sons have invited me to come live with them in California or New York because they fear for my safety. Talk of even moving overseas now seems routine. But as a life-long student of poverty I am acutely aware that millions of my fellow Americans of color cannot simply move to a safer place.

Occasional episodes of fear are probably a good survival mechanism, but prolonged fear is psychologically debilitating. Moving out of the country is not an option for me, not at this time. I left my native country as a very young man. I became an American citizen not by accident of birth; I made an informed choice after deep reflection. Notwithstanding what happened in 2016, America remains a unique multicultural nation in so many ways. It is still a vast ocean of kindness, generosity, fairness, and decency. Needing to turn away from this fear for my safety, I draw on past memories that have made me happy—travelling, working and living in America. I remember fondly Boston Common, San Francisco streets, mountains in Montana, urban gardens in Milwaukee, the inner city of West Philadelphia, and woods of Central Pennsylvania. The University Park campus in the Appalachian hill country where I teach is nicknamed Happy Valley; there I have taught and studied the problems of the poor. Each semester I end the class on a note of hope and optimism and many students have commented on that appreciatively in their end-of-term evaluations. This is where I shall turn to find hope not just for myself, but for the many others who now feel equally marginalized.

First, a short take on the election. The ratings-driven media debased the political discourse of the 2016 election by giving priority to conflict and theatre; political surrogates on talk shows would yell and talk over each other with the anchors encouraging them or simply looking on. During the three nationally televised presidential debates I heard no references to

climate change or poverty. This degradation of political discourse continued after the election. I heard a top CNN anchor trying to agitate Bernie Sanders by asking him if he thought he would have beaten Donald Trump if he had not been denied the Democratic nomination. Sanders, the classy man that he is, slapped down the anchor instantly. The news channels' post-election analysis of the Democrats' defeat was also quite disappointing. Many saw the Trump victory as a sign that racism was on the rise, and that disaffected whites came out to vote in droves to repudiate the eight years of a black president. Clinton herself blamed the Comey letter for her defeat. If only she had gone to Wisconsin, some said, forgetting that frequent trips to Pennsylvania did not help her. Many said Trump's victory signaled the rise of racism in the country even though Clinton won the popular vote by over two million votes. No, this election does not represent a sudden sea-change in the nation's cultural and political make-up.

When you look past the winded post-election punditry one theme emerges very clearly: Clinton simply failed to inspire millions of registered Democrats who stayed away or voted for other candidates in a few states such as Wisconsin, Michigan, Pennsylvania, and Florida. Statistics show this clearly. Nearly 42% of eligible voters, about a 100 million, did not vote. Trump did not get a whole lot more votes than Romney did in 2012 and or McCain in 2008. Even though the number of eligible voters increased by 18 million from 2008 and 2016, Clinton got several million votes less than Obama did in 2008 and 2016. Simply put, millions of Democrats were not inspired enough by Clinton's message or the party platform to vote. To me this is exactly what merits further examination. There has been no major realignment of social forces in the country and no tectonic shift in politics. The election was not a repudiation of multiculturalism or inclusiveness. Knowing this is the source of my hope for the future.

Even though I greatly fear the "othering" unleashed by Trump's campaign and victory, I believe that neither Trump nor Clinton offer any feasible solutions to the economic angst felt by rural whites and urban blacks. That belief stems from a life-long reflection on the problem of poverty. There are two philosophical concepts central to my understanding of poverty– economism and sovereign power. Economism is the idea that the central component of human society is an economy in which increased profits and greater material wealth will create more jobs, raise incomes, expand the middle-class, and thus reduce poverty. This philosophy is captured well in Bill Clinton's 1992 election slogan, "It is the economy, stupid." All members of the Democratic and Republican political establishment subscribe to this view.

The second concept I invoke is sovereign power as opposed to non-sovereign power, an important distinction made by the late French philosopher, Michel Foucault. Sovereign power is that which was once possessed by kings, monarchs, but now by presidents, prime ministers, and parliaments. In the United States, sovereign power is attained through electoral politics, but power is exercised from the top down through executive or legislative action. Non-sovereign power is what we all possess, not just during elections, but at all times. It is our ability to solve problems in our daily lives. Power is in play in small individual parts and is exercised in concrete actions from innumerable points, not just at election time. Non-sovereign power comes from below and exists in diffused forms in net-line organizations. The election of 2016, like all presidential politics in the United States, was an exercise in economistic sovereign power. I believe poverty has persisted despite a fifty-year effort at its eradication because of our widespread failure to grasp the causative links among poverty, economism, and sovereign power.

When we get past the xenophobic, racist, sexist elements of the campaign there is no denying that many poor people voted for Trump because of economic angst about jobs, low

wages, and high health insurance premiums. Trump claimed he was going to be the greatest job creating president ever. Let us examine that claim briefly. Coal miners in Appalachia did not lose their jobs because the Democrats wanted "to put coal miners out of business," an unfortunate comment taken out of context and attributed to Clinton. Trump's promise to restore coal mining jobs to Appalachia is not going to happen because the reason for job losses in coal are economic, having to do with the mechanization of mining, the competition from cheaper coal from Western states, and the expansion of the shale gas industry with massive investments from corporate giants such as Exxon. This is not to suggest that unemployed miners and their families actually believed what Trump said, but they appreciated the fact that he spoke to their pain regardless of the plausibility of his promises. Trump, in his railing against outsourcing and international trade, has promised to bring back millions of jobs by preventing outsourcing; he threatened to impose a 35% tariffs on imports from Mexico and China. The current neo-liberal global economic order has been in place for over thirty years, with bipartisan support in the Senate and Congress, has been ratified by the World Trade Organization and NAFTA, and has been signed by the United States, Canada, and Mexico. The neo-liberal economic order has brought a lot of misery to poor people around the world, but it is the foundation of the current global economic system.

To order Apple, Ford, Carrier, or Oreo cookies to invest their capital in the United States is to say that capitalists are no longer free to invest according to the company shareholders' interests. This is the ultimate form of regulation coming from a man who generally opposes all regulation. Does the President of the United States have that kind of power? Consider the consequences. If Apple were indeed forced to assemble their products in the United States, it would mean abandoning the investments in existing factories, building brand new facilities here, recreating a whole new network of suppliers, marketing an iPhone that would cost thousands of

dollars instead of hundreds, and losing one of the largest markets for the iPhone in China. Putting a 35% tariffs on Chinese goods will also put Wal-Mart, the largest employer in the United States, out of business. For years Wal-Mart coerced American companies such as Rubbermaid to move their manufacturing to China to reduce their production costs. Production overseas allows Wal-Mart to sell goods at the 'everyday low prices' welcomed by millions of American consumers including Trump supporters.

In a speech from September 2016 Clinton referred to 'the racist, sexist, homophobic, xenophobic, and Isalamaphobic' elements supporting Trump by describing them as a "basket of deplorables," itself a deplorable remark for which she later apologized. In the same speech, she also seemed to sympathize with Trump supporters who feel the government and the economy have let them down. However, messages about her plans to expand the middle class and reduce inequality did not persuade enough people to come out and support her.

From the viewpoint of economistic sovereign power there is no difference between Clinton and Trump. They both want the economy to grow in order to create jobs that pay high wages to expand the middle class. Even though Sanders had a much more progressive electoral platform than either of the two presidential candidates his message too was about the revival of the middle class by rebuilding industrial America. Trump, Clinton, and Sanders were all seeking sovereign power in order to change the economy. They do not have answers for the economic angst of millions of poor whites, blacks, and Latinos that voted for them. Of this I have no doubt. There are crucial policy differences between Trump, Clinton, and Sanders but they do have one thing in common: a desire to grow the economy, create greater wealth, and revive the middle class through some form of re-industrialization. I believe that expanding the middle class in the 21st Century is an unattainable goal, one that is deeply implicated in creating poverty, inequality,

a permanent underclass, alienation, envy, crime, and most important, the destruction of ecosystems that are the very basis of life, permanence, and security. We remember the 1950s nostalgically as a period of prosperity, but it was in 1962 that Michael Harrington published *The Other America*, revealing that poverty was far more extensive than previously thought. The book influenced President Johnson, who launched his War on Poverty in January 1964, giving us Medicare, Medicaid, food stamps, expanded social security benefits, and the VISTA program. And yet, here we are in 2016 when complaints about the disappearing middle class is what Republicans, Democrats, and Independents have in common.

The definition of middle-class remains a bit vague, but its association with consumption has remained strong since the 1950's and its TV advertisements for Westinghouse appliances and GM automobiles. Today, the middle-class is associated with home ownership, two or more cars, the internet, two or more credit cards, and occasional dining out. How much money is needed for that lifestyle can vary between sixty and a hundred thousand dollars for a family of four. Given the centrality of the middle-class basket of goods to the good life in America, policy makers have a predictable sequence of recommendations—higher incomes, more jobs, and faster economic growth. But there are serious economic, social, and ecological limits to the continued expansion of the middle-class. A most basic tenant of capitalism is that investors have the freedom to legally invest their money in any sector of the economy and in any place in the world that welcomes them. No rational entrepreneur would hire an American worker at twenty dollars an hour if the same labor could be bought for a few dollars in Mexico or India. Revolutions in transport and communication technology have made nationalistic capitalism unviable. Steve Jobs was not an unpatriotic American for opening Apple factories in China; he was simply being a rational entrepreneur and is much admired for just that skill. There is a famous idea in economics

called the Stolper-Samuelson theorem which says that when a rich country such as the United States trades with a poor, labor abundant country such as China, the wages in the rich country will fall, but profits will increase. And that is precisely what has happened. It is very difficult to see how we will create jobs that pay $70,000 dollars a year in a super-sized global market of cheap labor. Both Clinton and Sanders believe that expanding the middle class will reduce inequality, but it is precisely this belief that creates permanent inequality. Membership in the middle class is how we measure the value of people. Poverty is associated with lower social status and often with dependency and sometimes exclusion. We have come to value people for their income and material possessions. The poor are looked down upon even if they are gifted artists, inspiring mentors, loving parents, or caring neighbors. When we speak of expanding the middle class we are inviting people to join a class of consumers who are precluded from joining that group by the iron laws of global competition. We judge people by what they are not and never will be, thus creating a society of permanent unequals. More seriously, the mass consumption of goods happens inside an integrated ecosystem of land, water, air, and life. Climate change is the most serious threat posed by economic growth to the natural world. There is neither grace nor wisdom in our universal desire to organize our lives around endless production and consumption of needless stuff.

I have shown why the electoral politics of Trump, Clinton or even Sanders will not provide relief to the poor living in rural areas, deindustrialized towns or the inner cities. I reject the claim that poverty is an economic problem that can be corrected through higher income, and an expansion of the middle-class for reasons that I have described above. Our goal should be to improve the quality of life of struggling people when we know that more jobs and more money may not come to inner-city Philadelphia or the anthracite coal counties in northeastern

Pennsylvania. We need to redefine the problem in a way so that we can actually do something—find agency. This is important. We must not wait for federal government programs nor for companies to come in and create jobs for minimum pay and joyless work. We need a vision that allows people to act at a level commensurate to their own non-sovereign power: the power of students, teachers, community residents and local leaders. Non-sovereign power is what we all possess through our knowledge, skills, competencies, care, and love for our fellow beings. This conceptual shift will allow us improve the quality of life and reduce the cost of living by creating work that responds directly to our own basic needs. We have the knowledge, the power and the resources to do it. We don't need to wait.

A few years ago, I directed a service learning course titled, "Rethinking Urban Poverty: Philadelphia Field Project" in a poor neighborhood in West Philadelphia. My students and I witnessed all the usual stressors: unemployment, food insecurity, bad housing, high rents, ill-health and lack of child care. Over the years, I also learned what mattered the most to them; it was their *health, dignity, and community.* So instead of asking why a household did not make more income, we began to ask different questions: What does it take to live in a healthy body? What does it take to live in a safe supportive community? What does it take to live, to love, and to die with dignity? I now know it does not take money. It takes a vision that will help us get beyond the stranglehold that economistic sovereign power has over our imagination.

I opened this essay with a reference to my body. In seeking a new vision of engaging poverty, I believe we should also start with the human body—its physical and mental health, and identity formation. Someone with good physical health is able to perform regular functions such as walking, running, lifting, and moving at age appropriate levels. Someone with good mental health has age appropriate cognitive functions and is able to control stress resulting from daily

living. Not being able to provide for your family's basic needs is a great source of stress that adversely affects one's health. A proper diet, regular exercise, and adequate sleep go a long way towards maintaining good health. By identity formation I mean the social construction of who we are in terms of race, ethnicity, class, gender, sexuality, and so on. Earlier I stated the fear I feel as a brown skinned person, my color being a marker that a prejudiced person can use to harm, disrespect, or exclude me as the less-valued other. Multiculturalism is the peaceful co-existence of diverse identities using our mutual otherness as a source of celebration. Multiculturalism is not a lifestyle option; it is an affirmation of respect for the other. Some have objected to the "Black lives matter" movement by saying "All lives matter, not just black." But that is a false equivalency. The slogan "black lives matter" is not intended to say that ONLY black lives matter. It is a reaction to police shootings of unarmed black men whose skin color provided a visible marker leading others to view them as threats.

I begin my vision for social change with the body because unlike wealth, education, and status we all possess a body which is an unlimited source of untapped non-sovereign power. Let us begin with the question of nutrition. As Michael Pollan and many other food activists have said, the food we eat comes from industrial factory farms that contributes to obesity, high blood pressure, diabetes, heart disease, strokes, and many types of cancers. Imagine the transformative potential of simply refusing to eat that food. Imagine that we demanded and ate more fruits and vegetables grown locally in rich organic soil, free of pesticides and fertilizer. Imagine that every school had its own garden used as a classroom to teach children chemistry, biology, mathematics, nutrition, fitness, hands-on-work, finance, cooperation and conflict resolution. On a recent trip, I visited just such a school in Soweto, South Africa, a slum outside Johannesburg. The school provided breakfast and a mid-day meal from their own produce with labor supplied

by the children and a few parents who were employed there. This is not idealistic day dreaming. We already have good examples of urban farms and gardens in cities such as Philadelphia, New York, Chicago, Milwaukee, and Los Angeles. But urban farming needs to be built up so it functions as an important, integral part of our food system. An abandoned empty lot need not be a sign of permanent neglect and despair; it costs very little to transform it to a nourishing space of hope that creates nutrition, health, income, employment, and above all, dignity. Now that is a revolution.

When I taught the course titled, "Rethinking Urban Poverty: Philadelphia Field Project," I often spent my summer evenings sitting on the stoop of a modest row house that I had rented for the project and watched children outside at play. Kids would dart across the street chasing a ball and a car driver leaning on his horn would warn the kids to be more careful next time. Another child would be riding his bike on the sidewalk, skillfully avoiding the broken glass from a smashed beer bottle. Girls were skipping rope while I strained to hear their song. I loved my summers in West Philadelphia even though I was warned not to take my students to the inner city. For all the poverty and the neglect, I was also struck by the presence of a church on almost every block. Surely, I thought, there must be a wellspring of spirituality here. People greeted each other even if they were strangers. Sitting on the stoop I dreamed what a not-poor West Philadelphia could look like.

I imagined the narrow streets lined with neatly painted row houses in states of good repair greeting the passersby with hanging baskets bursting with brightly colored flowers. I imagined well-insulated homes, heated with solar power and green roofs. I wished for every child, woman, and man to live in a healthy body. I hoped that Fairmont Park in West Philadelphia would be filled with people walking, talking, and exercising, and that residents

could use a part of the park to grow food. I hoped that every empty lot now cluttered with old tires, needles, and junk would be cleaned out, and these spaces would be turned into spaces of hope growing vegetables, fruits, and flowers. I hoped we could have a large program in urban agriculture to provide nourishment, savings, and jobs. As the late Jane Jacobs, the visionary urban planner had suggested years ago in *The Death and Life of Great American Cities*, I hoped we could slow the street traffic, widen the sidewalks, put up basketball hoops, and let children play there, and I hoped the buildings would have a wide variety of uses so people would use the streets at all times of the day. With more eyes on the street there would be less crime and more security. I hoped the streets would be filled with pedestrians, bicycles, and public transport. West Philadelphia has many magnificent old churches, modest store front churches, and increasingly, mosques. I wanted these houses of prayer to ring out and announce that West Philadelphia is a place of spirituality, of inner and outer peace, of healthy bodies, of safe streets, of trusting children, of loving parents and doting grandparents.

Sitting on the stoop I felt native to this place. As a native, I did not want to be pitied or patronized, and I particularly did not want the Census to call West Philadelphia a poverty area. My neighbors and I should not be judged by what we do not have, rather I wanted to be judged by the beauty and health of our bodies, our sense of dignity, the comfort of our modest row houses, the safety of our streets, the productivity of our urban gardens, and the sustainability of our communities. The residents of West Philadelphia and their friends have the imagination, the knowledge, the resources, and the non-sovereign power to attain such a dream. However, we will first have to rid our minds that the American dream is about the fossil fuel economy, belching factories, industrial farming, fast food, processed food, high-tech hospitals to cure diseases, low-

density housing, private automobiles, and mass consumption. These are the driving forces of inequality, poverty, envy, conflict, and exclusion.

What I dreamed about in West Philadelphia is possible even in rust belt towns, old coal mining towns, and rural America. Beginning with a reflection of the body we expand out in ever widening circles to demand and create alternative systems to consume and produce food, to encourage preventive health care, to reduce our reliance on fossil fuels, to build energy efficient homes, and to move away from the dependence on private automobiles. Above all we need to define a new ecological ethic towards our natural world, recognizing that the health of our body depends on the health of land, air, water, soil, plants, and animals. As should be evident, poverty cannot be eradicated within a framework of economistic sovereign power dedicated to the expansion of the middle class. Historically, presidential candidates have depended on corporate contributions for campaigning. Taking advantage of the power of the internet, Sanders pioneered a new way of campaigning by soliciting small donors. However, a reading of his newest book *Our Revolution* shows that his plan for transforming America is still an economistic one with a focus on the middle class. The domination of economistic thinking is particularly evident in the primacy he accords to industrial jobs and his dismissive remarks of identity issues related to race, gender, and sexuality. My reaction to Sanders is very personal. I have economic security and a nice home, but I still genuinely fear for my safety.

To return to the recent election of 2016, it is appalling that over 42% of eligible voters just did not turn up and Clinton lost several states because Democrats were a large part of that 42%. Clinton was supposed to have a superior ground game, but it is not enough to simply organize the electorate every four years. Voter participation in mid-term elections is even lower than in presidential elections. There is a lesson that we should have learned from the years of the

Obama presidency. He never translated his wide appeal to actively engage people build grass-roots social movements around such issues as food, agriculture, health, energy, housing, and transport. His signature bill known as Obamacare, however well intentioned, is a good example of the use of sovereign power as many polls in 2015 showed that a majority of the people did not approve of his handling of health care. I believe the answer to voter apathy lies in producing an engaged citizenry exercising non-sovereign power in everyday concrete actions organized around healthy food, health care, disease prevention, affordable housing, bike lanes, public transport, working for racial, social, and climate justice, and electoral reforms for overturning Citizens United, eliminate gerrymandering, and having fairer elections. I believe it is much easier to persuade an activist populace to vote every four years if they already routinely exercise non-sovereign power engaged in issues such as food and health. Contaminated water is bad not only for black bodies in Flint, Michigan, but also for white bodies living in the coal fields of Appalachia.

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Critical Thinking and Convivial Learning in Central China

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Abstract

In recent years, China has seen a marked increase in the number of parents seeking alternative forms of education for their children. Such alternatives include Montessori and Waldorf schools, homeschooling, unschooling, and participation in non-formal learning activities. Focusing on the last of these, this paper reports on an example of informal group learning reflective of Illich's (1973) idea of conviviality – autonomous interaction of persons for purposes of learning, unattached to the constraints of regulatory agencies or institutions. As researchers in one of China's major cities, the authors found evidence of such activity in the form of of small reading/discussion clubs, learning activities hosted by local pubs or other free-standing sites, and loosely-organized nightly neighborhood square dancing. Such events and artifacts originate voluntarily and expand mainly by word of mouth or social media. Our paper highlights one such example – a series of learning gatherings in a major Chinese city attended by assorted students in grades six through ten and focusing on contextualized critical thinking. As participants and facilitators of these gatherings, we were joyfully impressed by the free-spirited, creative engagement of participants. We believe our experiences not only indicate the larger growth of interest in China for learning options outside the structure of public schooling, but also the potential for global conviviality through people-to-people interaction between the United States and China.

Introduction

For many Westerners, the words "Chinese education," at least as applied to secondary schooling, conjure up stereotypic images of classroom lectures, rote learning, passive students, cram schools, and high stakes testing. Students are perceived as rising early and attending classes until late in the afternoon. Then, after a quick meal, they rush to attend two or three hours of cram school, which is followed by two or three additional hours of study. These images are based in reality. A standing joke among teachers is that their students sleep in their clothes and go to school in their pajamas. More seriously, the function of social control is highly manifest in Chinese public schooling, in the sense that one's future educational, occupational, and social status is tightly determined by dutiful success within the institution (Dello-Iacovo, 2009; Spring, 2008; Shouse and Ma, 2015; Zhao, 2007).

On the other hand, emerging evidence suggests that some Chinese parents seek *alternative* forms of learning either to enrich or substitute for their children's public school experience. Such evidence includes the growth (mostly in urban areas) of private Montessori and Waldorf schools. Striving for less coercive and more autonomously driven learning, these schools emerged in the early 1980s and now attract substantial numbers of youth from mostly affluent families (Johnson, 2014; Kuhn, 2016). Because such schools lie beyond the price range of most Chinese families (Buzali and Mclintic, 2015), many parents seeking alternative learning options have turned to homeschooling, unschooling, (Gao, 2015; Pang, 2015) or "guoxue," a traditional form of sage-based learning in areas of art, music, and philosophy (Chinasource, 2011; Matuszak, 2014). One current form of guoxue involves the creation of small learning communities connecting "foreign experts" (sometimes expatriates) to young people interested in music, art, or other subjects (Gao, 2015, p. 3).

During a recent year-long teaching and research project at a large university in central China, we discovered examples of such learning communities where young and old alike regularly met to share in various cognitive, affective, and physical learning activities. These included book and film discussion clubs, lecture-discussions of art and music, and exercise and dance groups. Activities took place in people's homes or local pubs, cafés, bookstores, and other free-standing buildings, some of which were specifically designed and run to facilitate informal learning. One example of the latter was a newly-constructed three-story building containing a library, gym, restaurant, computer stations, and rooms for private or public gatherings.

Given the nature of Chinese public education, we were happily surprised to find such activities and artifacts, as we consider them to be reflective of Illich's ideas of conviviality and convivial learning. "Conviviality" is a term applied to tools – human creations that serve, rather than manage; that are non-distractive, non-destructive, and promote "graceful playfulness" and creativity among persons and their environment. Convivial learning, thus, represents a voluntary union of people engaged in interactive autonomous learning, unattached to the regulation of external agencies or institutions (Illich, 1973, pp. xxv, 11). It was within this convivial context that we fortunately – and playfully – facilitated and participated in a series of learning events during the spring of 2015.

Our opportunity arose as we gradually learned of a substantial pool of youth (and their parents) interested in learning about "critical thinking," what it meant, and how it worked. Our awareness of this pool of interested learners grew socially through conversations over drinks and dinners with friends and friends of friends who had already organized book discussion clubs for youths and adults around the area. Their efforts were both entrepreneurial and intrinsic; to offer something of value – an opportunity for unencumbered social learning – for a reasonable

participation fee. From our conversations we learned that while many local secondary school-aged young people were growing familiar with the idea of critical thinking and its importance in American schools and universities, their daily school experiences offered few opportunities to practice it. We proposed to our friends the idea of expanding from books to cinema, as your lead author's area of expertise focuses on texts and social discourses embedded within popular film, especially those depicting leadership and social influence. Agreements were reached and word was spread through our friends' network of parents and likely attendees. As shall be described later in this essay, though the first few sessions highlighted discussions of contemporary film, group interest gradually expanded to other media such as video and music – as well as toward critical discussion of current social and political phenomena in China and beyond.

What we offer here, therefore, is not a traditional "research paper," but rather a reflection, description, and discussion highlighting how convivial learning opportunity unexpectedly emerged from our social interaction within a global context. In other words, we did not travel to China to launch or evaluate an "intervention." Instead, the opportunity for global cross-cultural conviviality opened before our eyes as we reached outside the formal academic parameters that initially brought us to China to engage in informal Chinese social life. And although our case was limited to one major Chinese city, our experience and subsequent informal research leads us to infer that the type of learning activity described here is not unique and that similar learning groups are emerging throughout China, especially in similar demographic contexts - middle-to-upper class urban areas, proximal to universities, where visiting professors or expatriates tend to reside.

In addition, implicitly highlighted here is how our case represented a joyful connection of "East – West" understandings. In particular, given the often socially and politically disparate

nature of American-Chinese relationships, we believe our case calls attention to the need and potential for further people-to-people global conviviality.

The Emergence and Context of Our Convivial Experience

The learning activity we experienced over this two month period, we believe, represents an emergent counter discourse against the backdrop of institutionalized education, particularly as it becomes increasingly marked by rigid test-driven curricula and centralized governmental structure. Our sessions were voluntary, non-competitive, required minimal tools or resources, and were generally disconnected from formal educational structures, purposes, and governmentalities. In other words, we confidently present this overall experience as reflecting the elements and spirit of conviviality; acts of "autonomous creative intercourse of persons with their environment" (Illich, 1973, p. 11). Though we doubt that such activity (at this point) poses any substantial competition to China's public education system, we were happily surprised to discover its existence in the nation's heartland.

The idea for this learning initiative began in December 2014. At that time your lead author while living and teaching in Beimen (the fictional name of a large, central Chinese city) was introduced to people seeking to develop non-traditional English-based learning programs for local students. The programs were to be scheduled for evenings and weekends for the purpose of informal educational enrichment. The individuals involved had already launched some learning sessions revolving around works of Western literature (e.g., *To Kill a Mockingbird* and *Animal Farm*). The sessions were guided by and took place in the homes of ex-patriate English teachers and students paid a small fee to attend. As an aside, in fact, we happily noted the easy availability in local bookstores of both English and Chinese language editions of relatively

controversial literary works; for example, Animal Farm, *1984*, *Brave New World*, *The Fountainhead*, and *Atlas Shrugged.* In addition, your lead author had been happily surprised with the degree of academic freedom he enjoyed as a visiting professor at the city's largest university. This freedom included the unquestioned ability to incorporate film and other media into his courses on organizational leadership and public administration.

After discussing various curricular and instructional ideas and possibilities with session organizers, we were invited to sponsor a new learning series in which youth in grades six through 12 would view various Western and Chinese films, the narratives of which we believed posed authentic social problems likely to generate lively discussions of philosophic or political ideas. Prior to each showing, we provided general descriptions of each film and made suggestions about significant events and questions to watch for and think about. After viewing, and with the help of assorted "playful" strategies, group members were invited to comment, raise questions, and engage in interactive discussions guided by your authors.

Over a four-month period in the spring of 2015, eight learning sessions were conducted. These typically ran for 150 minutes, attracted anywhere from eight to twenty youth participants, and were held at local cafes or other "non-official" sites. As previously stated, we began with the idea of using provocative works of cinema to generate participant response – to ask questions, identify key problems, exchange opinions, and discuss possibilities for further social understanding or investigation. Wishing to act as equal learning participants and to avoid pushing particular views, our guidance was loosely structured and emergent relative to participant response. In fact, given the relatively restricted nature of Chinese social discourse, we had little idea as to what sort of responses to expect. As will be described later in this paper, responses and interactions were lively and – we suggest – convivial. Over time, in response to

what we perceived as participant enthusiasm, we introduced other media and discussions expanded to address specific local, national, and global social and political issues. These typically related to music or other art forms, views of leadership and justice, the importance of free speech, rights of LGBT and minority citizens, and the impact of Chinese culture on social relationships and political expression.

Some of the young participants attended nearly all of the sessions, but each session had new faces. They had varying degrees of English proficiency ranging from advanced beginner to near-fluency. Sessions were thus conducted mostly in English, and I (lead author) was fortunate to work with a native Mandarin partner who could help with difficult words or ideas.

Session Highlights and Themes

Our sessions evolved over time to consist of three broad types of activity; film viewing, music/poetry, and the "grab bag." This section describes examples of each activity and is then followed by a discussion of the key emergent themes.

Film Viewing

Though four films had originally been selected for viewing, two were dropped from the series due to technical difficulties and to the previously described shifts in interest. We thus viewed two films; *Twelve Angry Men* (1957) and *Please Vote for Me* (2007). *Twelve Angry Men* (TAM) is the story of an all-male jury having to decide the guilt or innocence of a 19-year-old "kid" accused of capital murder. The film addresses numerous issues such as justice, courage, persuasion, leadership, and prejudice. *Please Vote for Me* (PVM) is a Chinese-made documentary about a third-grade teacher's classroom democracy experiment in which three students waged campaigns to win an election for class monitor. Filmed in a large central Chinese

city, PVM was effectively banned in China for several years, but is now readily available for on-line purchase or streaming.

Prior to group viewing, we offered a backdrop or context for each movie. For TAM we offered a brief legal and historic introduction to the American jury system, which prompted a good deal of interest and questioning among our group. Less information was needed to introduce PVM, but we did ask group members about their experiences and opinions regarding China's class monitor system. In addition, we suggested how the films could be enjoyed at different levels; for example, as interesting authentic stories and as "lessons" about important concepts like justice, leadership, corruption, or prejudice. We encouraged our group to enjoy the overall story of each film, but to also think about and be ready to discuss scenes, events, and character behaviors they found interesting, puzzling, or meaningful. We hoped this would help stimulate a collective guided construction or deconstruction of various salient discourses associated with each film.

For example, in addition to raising awareness of America's jury system (including its evolution since the days of white-male-only participation) TAM can be viewed as posing a textual challenge to formal, rank-oriented understandings of leadership. In China, for instance, *lingdao*, the Mandarin counterpart to *leader* or *leadership* almost always refers to an assigned rank and an associated right to exercise formal hierarchical authority. In TAM, however, leadership is presented as a more organic and communal phenomenon that can originate from any point within a formal or informal group. TAM opens by presenting viewers with a character known only as Juror 8 who initially stands alone against 11 other jurors in his refusal to cast a guilty verdict. The remainder of the film presents his effectiveness at gradually introducing reasonable doubt in the minds of other jurors. In other words, TAM examines the ability of a

non-privileged individual to generate a current of leadership within a formal organization (Shouse, Bai, and Ma 2017). Thus, before showing TAM we asked the group to share thoughts regarding the meaning of *lingdao*. Though some members expressed the idea of formal authority and "being the boss," others added that it was "more than just being the boss." As one young woman put it, "A leader inspires people… [He/she] makes them want to believe in [him/her]."

We then asked the students if one could be or exercise *lingdao* without having any special position of authority, that is, without being a "boss." After a long pause, one young man recalled a time when "we had a class president, but no one really liked him or listened to him," a response implicitly suggesting the leader as a holder of formal position. Because the young man's words were followed by a further pause, we guessed that students were having trouble coming up with examples of leaders without formal authority. We then asked if they were familiar with Dr. Martin Luther King. Everyone vigorously responded yes and one student described him using the term *lingxiu* ("great" or "historic" leader). After explaining that Dr. King had no formal position of broad authority, we asked whether he could still be considered a leader. Though some group members nodded or responded affirmatively, we left that question hanging and raised another. "What is it, exactly," we asked, "that leaders do?" We further asked the group to consider the behaviors, characteristics, qualities, and intents of the jurors they were about to see in TAM.

After viewing TAM, we asked students, "who were the leaders?" One young man replied, "the judge." Another mentioned Juror 1, the jury foreman. But other members shook their heads in disagreement. "The judge didn't really inspire anyone," one young woman stated. "Neither did the foreman. He just managed the group," said another. Without any prompt from us, discussion

shifted to "Juror 8," the main source of influence on the jury and the person whose arguments ultimately persuade it to vote unanimously for acquittal.

"But what was his formal position?" we asked, hoping to suggest the thought that "*lingdao*" could be attempted by anyone, not only by persons in formal position. Next, we asked, "why was Juror 8 successful?" At first, responses focused on his courage, communication skill, and friendly yet firm character. Again, however, and without prompting, a young woman remarked that "Juror 8 would have failed without the help of other jurors." Her response led another group member to suggest that "you need good people to be a good leader," thus raising the idea that leadership, or *lingdao*, was more a collective quality than an individual trait. For the remaining time, we ventured into a discussion of how non-privileged individuals and groups now or throughout history promote social change by generating a current of *lingdao*.

Group members also expressed surprise at the American "jury of one's peers." "Aren't they trained in the law?" one boy asked, stating how in China accused criminals are judged by legal experts. We then asked if anyone knew the conviction rate of those accused of crimes in China. One member offered an estimate of "about 95 percent," an estimate that turned out to be quite accurate. We mentioned that it ranged from 60 to 85 percent in the United States and asked whether this difference related to fairness or effectiveness. At that point, a young woman exclaimed that "the boy in the movie was probably guilty!" Several other people nodded their heads in agreement. "So," we asked, "then why did the jury find him not guilty?" This led to an interesting open-ended discussion of the concept of "reasonable doubt" and the possible differences and conflicts between "punishing the guilty" and "achieving justice."

Three weeks later, PVM was shown to a mostly different and younger group of participants. On the surface, PVM presents an experiment in third-grade democracy; the story of

a girl and two boys competing to be elected class monitor. As the experiment continues, the candidates and their supporters appear to engage in a variety of political games that often border on outright corruption and mudslinging. As theorists might put it, the candidates sought to gain formal rank through the exercise of non-legitimate power. Wondering if the group would pick up on this theme, we asked them to take notes and jot down their thoughts during the film.

"It wasn't fair!" erupted one 9th grade boy after the lights went back on. "The parents cheated!" He was referring to the intense parent involvement on behalf of the two boy candidates, which included coaching, pressuring, and even encouraging the use of bribery and mudslinging. A young woman in our group suggested that "the parents are worried more about this than the kids!" Another group member stated that the boy who won the election did so because "his dad was a policeman!" In fact, the movie includes a segment in which this father treats the class to a free ride on the city's monorail. "It was like a bribe!" insisted another member of our group.

We then asked, "Does this movie remind you of anything?" After a moment of reflection, one group member replied, "There's so much on the news about corrupt government officials."

"Do you think this film was meant to be more about democracy, or more about corruption?" we asked. After a mixed response from the group, one young man complained, "I don't understand why this teacher did this! What do children know about picking a class monitor? They just voted for the person who threatened the most and bribed the most!" Discussion continued regarding how this reflected real life politics and what might be done to solve this problem. Needless to say, many questions were left unasked and unanswered.

Music, Poetry, and Leadership

At the start of our series, several parents seemed intrigued by the connection between critical thinking and leadership, especially as it related to their children's social and academic development. As discussed in the previous section, Chinese citizens tend to view leadership, or *lingdao*, in terms of formal position. In addition, parents whose children might wish to attend American or other Western universities are well aware of the important of "leadership experience" on college entrance applications. Our goal for this segment of the series, however, was to offer an alternative lens for understanding this concept. The challenge was how to turn this goal into a lively topic for a group of 24 young teens. My partner and I arrived at the only conceivable option – I would need to sing and play my guitar. More on that in a moment.

We set up the discussion by showing a slide with photos of four people; U.S. President Barack Obama, Chinese President Xi Jinping, Bob Dylan, and (a statue of) Iris Chang. A caption beneath the photos asked, "Which of these people are leaders?" Everyone in the group responded that Obama and Xi were leaders. Only two group members recognized Bob Dylan as a famous American singer and songwriter. No one recognized the statue of Iris Chang (researcher and author of *The Rape of Nanjing*). Neither Dylan nor Chang were recognized as leaders. We then informed the group that the statue of Iris Chang could be found in Nanjing at a very famous historical site. Still, there was no response.

"What historic event, what tragic event, took place in Nanjing?" we asked. One young woman asked, "Do you mean the war?"

"Yes," we replied. "The Japanese invasion and the slaughter of innocent people." Several group members nodded their heads. I continued. "Iris Chang is the woman who did the research to uncover the extent of the massacre. Her statue is there at the memorial. Her work raised the world's awareness of the tragedy."

After a few silent moments I picked up my guitar and told the students that I would sing them a song. “It’s by Bob Dylan. You’ve probably heard it. In fact, I think most of your parents know it!” The slide changed to show the words to “*Blowin’ in the Wind*.”

“Blowin’ in the Wind was a very popular song in America back in the early 1960s. And today I think it’s familiar around the world.” My partner and I began to sing.

“How many roads must a man walk down, before they call him a man?” Several group members smiled and began to sing with me. At the end of the three verses, we divided the group into three smaller groups. Each was assigned a verse and asked to discuss its meaning, as well as the meaning of the song’s title. As the groups talked, we walked, listened, and asked a question or two in reference to the lines in each verse.

Referring to the line, “how many seas must a white dove sail,” we asked one group, “What is a white dove?”

“A sign of peace?” suggested one young man.

“Ok, so what does the ‘how many seas’ question mean?” Without answering, we walked to the next group and, referring to the line asking “how many years can some people exist before they’re allowed to be free,” we asked, “Who are the people who should be ‘allowed to be free’? Remember, this song is from America in the early 1960s.” We moved to the next group and, with reference to the line “how many ears must one man have before he can hear people cry,” asked, “Who is crying and who isn’t hearing?”

After gathering back together, group member comments uniformly expressed a sense that the song was against war and hate and supportive of freedom and humanity. One young woman asked, “Is this song related to Martin Luther King?”

"In a way," I replied. Bob Dylan wrote and sang this song during a time when many Americans were marching and protesting to gain equal rights for Black citizens. The song also became a symbol for those who were opposed to war." After a pause, we continued. "And do you see how Dylan is asking a bunch of questions? Can you see how he's demanding answers? But where are the answers?"

"Blowing in the wind?" said a young man who went on to ask, "Does that mean there is no answer?"

We smiled and asked the group to think about what Chang and Dylan had in common in terms of social impact and how they were similar to or different from Presidents Obama and Xi. We followed this with another question. "A person who manages a nation may be a leader. But what should we call a person who helps change the way people think?"

Leaving that as a question for further thought, we continued with the theme of music as social influence by showing three film clips. The first, taken from *The Buddy Holly Story*, portrayed the series of events surrounding Holly's band, The Crickets, becoming the first White act to perform at New York's Apollo Theater. As the curtain opens, the audience boos – but are won over as the music continues. We followed this clip with a discussion of how unusual and risky this was during 1950s America. In some states, for instance, it was illegal for Black and White persons to perform music together on the same stage. We left students to consider the question, "Could Buddy Holly be considered a 'leader'?"

We followed this with two clips from the film *Monterey Pop*, a documentary on the 1967 California music festival. One clip showed the band The Who performing *My Generation*. Students were given the song's lyrics and after viewing the clip were asked to react.

"What meaning did you gather from this performance?" Several students were amazed at how the band smashed their instruments at the end of the song. We asked them to talk about what they thought this might mean. Though a few students raised ideas about protest and social rebellion, it seemed that these ideas were either unfamiliar or not easily expressed. We again offered the context of American and British culture, "the sixties," and the anti-war and anti-materialist trends of that time.

We then showed the finale of *Monterey Pop*, the performance by sitar player Ravi Shankar. This is the longest segment of the film and one we felt best captured the filmmaker's overall message. We asked the group to enjoy Shankar's performance, but to pay close attention to the filmmaker's perspective and the audience's reaction. When the lights came back on, to our happy surprise, several group members raised interesting points.

"We don't even see the musicians at first. All we see is mostly sleepy people waking up and packing their stuff!" stated one young man.

"Why do you suppose the filmmaker did this?" we asked. A young woman replied, "Well, the festival was about over, I guess, and [he] wanted to show everyone leaving."

"Yes," another member replied, "but then he shows the audience still sitting in the arena. A lot of people looked sleepy at first. They didn't really like it…they were just sitting there being polite. But after a few minutes the music was more exciting…the audience really started to like it."

Another group member agreed. "At first, the music was very strange to the people, but at the end the music seemed to make people happy and excited." The discussion continued, sparked by the observation of how over the course of 20 minutes, Shankar's music had shifted an audience from something like polite bemused disinterest to avid appreciation. As the

conversation wound down, group members raised questions suggesting a connection between musical creativity and social leadership. Was Ravi's performance educational? Could it change the thinking of people in the audience that day? What about the thinking of the people who subsequently view the film? Did the performance – and does the film – have social impact? After suggesting to the group that Shankar, the other musicians in the film, and the filmmaker himself might be referred to (in English) as "artistic leaders," we asked if anyone knew a comparable Mandarin phrase to express this idea. The fact that none in the group suggested any phrase was no surprise since, as previously noted, the Mandarin word *lingdao* is rarely used outside the context of formal authority. Nevertheless, many seemed intrigued by the implications of these questions.

The Grab Bag

Most people love to play and young teens like to play a lot. The grab bag (a simple small bag filled with questions written on small slips of paper) triggered a tremendous amount of fun and laughter as well as thoughtful discursive engagement. We used the bag in different ways, but the activity boiled down to having one person or a small group respond to some open ended question. Most of the questions were prepared in advance and focused on moral, ethical, or social issues (e.g., your parents don't like your friends, how to handle a disagreement with a teacher, how should Chinese society change over the next 20 years?, what puzzles you the most about America?). Often, however, we asked the group to write questions and add them to the bag. Sometimes they wrote questions aimed at us; about our personal lives or life in the United States. We used this activity at nearly every session, usually by having the whole group pass the bag around in "hot potato" fashion until an alarm sounded. Whoever held the bag had to draw and

respond to a question. It's difficult to describe in writing the sort of excitement this triggered, but readers who recall being 14 years old might get the idea .

On one occasion we used the bag in a very different way. Instead of responding with words, we asked small groups to prepare a skit – a piece of dramatic play – to act out their responses to the questions or scenarios they drew from the bag. It's interesting to note that this evening's session was held in something like a "fishbowl" – a room surrounded by windows through which many parents opted to watch the activities. Though we had some concern that this might muffle the groups' expressions and performances, we were happily surprised by the ease with which the groups presented controversial ideas.

Three group skits stood out in terms of their creative and thoughtful critique. The first group drew a slip of paper from the grab bag containing the following questions: "Are all men are created equal? What does this phrase mean to you?" After a few minutes of prep time, the group acted out a scene where a poor disheveled unemployed man seeking a bottle of water was denied entry to a convenience store on the basis of his appearance. An observer in the store then buys a bottle of water for the man and has some admonishing words for the store clerk.

The second group was asked to, "Describe what you think school was like for your parents and how it was different from what you experience today." Here, the group first enacted a scene in which a teacher spoke harshly to students using ridicule and corporal punishment. This was followed by a scene with a friendly encouraging teacher.

The third group of interest drew the following scenario from the grab bag: "A friend tells you that one of your classmates is gay. What do you think, what do you say, and what do you do?" This question had been in the grab bag for quite some time without being drawn and we were a bit apprehensive about having included it. LGBT issues are becoming less hidden in

China, in fact, at the time of this session, the People's Daily had recently published an editorial calling for greater tolerance of gay and lesbian people. Despite such change, LGBT matters still lie within a sort of gray area in China, between acceptance and shame. Although Beimen has a reputation for being one of China's more open cities with respect to LGBT persons, given the age of our group members we suspected that the scenario might produce awkward moments. To the contrary, the group handled the question conveying a sense of ease and fun, acting out a scene marked by openness and friendship. The group indeed seemed gracefully playful, adding the angle that the boy had a crush on one of his male friends. In turn, the friend explains, "Look, we're friends and it's ok that you're gay. But I have to tell you that I'm not. But we're still friends, right?"

Conclusion

Reflecting on our experiences in central China, we draw two key narratives. The first relates to the phenomenon of people seeking unregulated learning activities. By "unregulated," we refer to activities unencumbered by the needs of governing agencies or discourses. Such learning may be considered "convivial" to the extent it serves, rather than manages, the needs and interests of persons and their relatedness to others. Yet seldom do we reflect upon how difficult it can be for young persons to become sufficiently untethered (in terms of time, emotion, social awareness, etc.) from organized public schooling so as to even recognize possibilities for convivial learning. We suspect that such recognition is eased as agencies and discourses of public schooling become less powerful, less centralized, and more diffuse. Thus, if imagining and pursuing convivial learning is difficult for American youth (and their parents), one must concede that it must be far more daunting in the Chinese context, where scores on public school

exams tightly determine the boundaries of one's future life in terms of status, occupation, and other assorted social characteristics (Shouse, Bei, and Ma, 2018). We were therefore encouraged to find within this context what appears to be a slow-growing awareness that alternative forms of learning are possible. Moreover, we were gratified for the chance to learn of and share in a movement toward convivial learning activity among people we might expect to be most encumbered by public educational structures.

A second narrative relates to the potential for global cross-cultural conviviality to emerge in contexts otherwise largely shaped by longstanding discourses of conflict and fear. For decades, agencies (governmental, corporate, media, academic) in both China and the U.S. have contributed to discourses that negatively shape popular views regarding each nation's motives toward the other. The result has been a generalized mistrust that ranges from simple stereotyping to the implicit acceptance of militarized mutual relations (Johnston and Shen, 2015). In their study of the history of Mandarin language learning among American students, for example, Sun and Shouse describe how government and higher educational institutions, while advocating the importance of Mandarin language education, often worked in ways that limited learning to elite students seeking careers in areas of national economic or political need. One example Sun and Shouse describe is how political and scholarly opposition toward the Confucius Institute emerged around the time it became perceived as effective in facilitating people-to-people opportunities for Chinese language and cultural learning among American high school and college students (Sun and Shouse, 2016).(1) This sort of response reflects what Pan (2004, 306-307) describes as "a discursive construction of other," part of a "China threat" discourse running through U.S. foreign policy and its related literature. Against this discursive backdrop, we

suggest that our experience of people-to-people contact serves as counter-discourse to such thinking.

In sum, we view our experiences in China as the intersection of two encouraging potentials – one for the further growth of creative learning opportunities for Chinese young people, the other for increased relatedness and understanding between the people of China and the United States. This nexus of potential, we suggest, may be advanced through increased informal interaction such as those brought about through academic or cultural exchange. At this point, however, "exchanges" seem to flow mostly in one direction, from China to the U.S. Though opportunities exist for Americans to travel and study in China, these tend to be underutilized compared to those for travel to areas of the world perceived more familiar and less politically complex. Against this backdrop, Sun and Shouse (2016) note how U.S. resources devoted to competing with China (e.g., STEM and related initiatives) vastly outweigh those aimed at increasing mutual relatedness and understanding.

The experiences described in this paper grew from comfort we acquired over years of visits to China. With comfort comes informality and, we argue, it is the combination of these that form a basis for successful conviviality on any local or international scale. Ultimately, we thus hope schools and other institutions will work harder to demystify and normalize China as a readily accessible source of joyful learning for students, scholars, and average citizens.

Note

1. The Confucius Institute (or Institutes) is a global initiative, supported by China's Ministry of Education, aiming to promote Chinese language and culture in foreign countries, particularly at the high school and university level.

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Joys of Teaching Genius: Walking on Water with Ivan Illich

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I. Experiments with "Walking On Water" by Dana L. Stuchul

Where The Mind Is Without Fear[1]

Where the mind is without fear and the head is held high;
Where the knowledge is free;
Where the world has not been broken up into fragments by narrow domestic walls;
Where words come out from the depth of truth;
Where tireless striving stretches its arms towards perfection;
Where the clear stream of reason has not lost its way into the dreary desert sand of dead habit;
Where the mind is led forward by thee into ever-winding thought and action -
Into that heaven of freedom, [*may children and teachers awake*].

- Rabindranath Tagore, Nobel laureate in literature

My strong suspicion is that Ivan Illich would wretch at what I'm about to share … a brief window into my teaching life … the way I aim to see. To. See.

In part Illich's stomach upset might result from my effort to "square the circle" … to make something more humane that is inhumane … even perhaps, "moloch" (an all-devouring god, evil and insatiable) as Illich and Master Jacques Ellul[2] would pronounce.

My stories derive from my classroom where I work among mostly twenty-year olds who imagine themselves teachers one day … in an American public high school.

[1] From Rabindranath Tagore's *Gitanjali*. Dover: Dover Publications. 2000.
[2] See Illich's "To Honor Jaques Ellul." Based on an address given at Bordeaux, November 13, 1993

The undergraduate course is an introductory field experience in teacher preparation course … every teacher certifying institution has its version. My own, utterly idiosyncratic, I title, "Unlearning for Understanding Teaching & Learning." Now, this inclusion of the word "unlearning" does not intend cuteness, but rather my interest in having them question … question everything … beginning and ending with themselves. In fact, introducing myself on the first day, I share the Parker Palmer adage, "we teach who we are"[3] as the large frame in which our metaphorical and actual journey will occur. They appear dumbstruck, even after my explanation. Furthermore, when I look further into this frame to reveal a question embedded within Palmer's adage—who are you?—where some are noticeably intrigued, most have no idea what to expect next. In concluding the class meeting, I play my guitar and sing, they smile and leave. In the second week, I will shift gears, if only to peel back the veil shrouding our classroom experiences. I will endeavor to scare them.

Prompting them to take out the day's required reading, I begin. Absent fanfare, I announce that I will call on 5 students to come to the front of the room and share with the class the reading's central thesis. Everyone snaps to. Reading packets open. A flourish of attention to notebooks and book bags. Five now stand in the front of the room, somewhat awkwardly, having been excavated from their seats. I prompt them to begin … to be succinct. To look not at me but at their peers. Meanwhile, I pace on the side of the classroom, occasionally raising an eyebrow. Appearing pensive. Asking for a clarification. Wondering aloud if anyone wishes to amend his or her response.

ALL of what has and will happen—the announcement, the instructions, the pacing—I intend as a considered and choreographed drama. A spoof. One in which the assembled students

[3] From Parker J. Palmer's *The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life*. San Francisco, CA: John Wiley & Sons. 2007.

are the featured actors! The "performance"—how fear functions within classrooms—will last at most 10 minutes before I exclaim, "Stop! How many of you are afraid?" Semester after semester—over a decade of enactments—this "anything-but-play" never ceases to portray how young people within classrooms are governed by fear, particularly the school "winners"! So systematically have they been "seduced" (from the Latin *seducé*, to be led astray) from themselves—their own bodies, desires, interests, questions—in their advancement upward and onward toward the upper tiers of the educational pyramid, they have never thought themselves a topic for inquiry.

Once the fear ruse is revealed, I facilitate a "debriefing"—a series of questions intended to explore, phenomenologically, how fear operates—its subtle, insidious, habituated all-too-common traces. As we continue, we all become aware of the games students adopt—to avoid participation, to avoid peers' judgments, to please teachers, the effects on their bodies, and, over time all of the ways they are seduced away from themselves. Many unlearning lessons follow the "fear lesson" including: "labels," "judgments," "separation & isolation" and more. And, always, I'm seeking NOT to teach them anything, not to have them test in a particular way, not to have them believe a certain way, but instead to simply return to themselves and to wonder. It is to this "wondering" that I turn next.

Fast forward twelve weeks where I introduce the final assignment, the "walking on water"[4] assignment. Borrowed and adapted from author/activist/teacher, Derrick Jensen, the project is an invitation (more provocation) for my students to do the impossible, their impossible.

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[4] *Walking on Water: Reading, Writing and Revolution* by Derrick Jensen. White River Junction, Vt.: Chelsea Green Publishing. 2005.

Not the uncomfortable. Not the mildly challenging. Not the difficult. The IMPOSSIBLE! Recognizing that they likely have no idea in the moment what to do to fulfill this course requirement (roughly 2% of their overall grade … allowing anyone the opportunity to say, "no thank you" to the task), I offer assurance. You will know what is for you impossible and, likely it will arise in you by surprise as you move about your day, walking to class, showering, doing dishes, before you fall asleep. You'll know that you've hit upon YOUR "impossible," I suggest, when you have a physiological response—a racing heart, a flushed face, the inward thought, "Oh shit! Not that!" When you notice this in yourself, I explain, you will know what you have to do.

They look at me dazed still.

Ever so meekly, someone will, though somewhat self-consciously ask, "Can you give us an example?"

Stories follow. Stories of students committing their own "miracle" … of "walking on water."

The young man who defied his family's pattern for how males express their love. Describing a recent visit by his parents, noting the minutes ticking away, their family weekend drawing to a close as first he escorts his mother to her car door, he describes coming around to the drivers' side of the car, his father extending his hand for the customary "good-bye son" handshake and, then, his miracle. Opening his arms, he draws his father in for a hug, their first as one man to another.

Stories of women ending physically and emotionally abusive relationships. Stories of sons and daughters, estranged from parents who long ago ended marriages—perhaps for reasons of infidelity, for substance abuse, for love eviscerated—my students take the first tentative steps to reach across a river of pain, to build a bridge. Stories of giving voice—to

experiences of rape. Stories of their inquiring into their own conditioned shame in their healthy, though not the socially idealized bodies.

One story comes from a student who, upon being introduced to her teaching assistant—a black man and doctoral candidate from New Orleans—says to herself, "I hope he's not my teaching assistant (TA)." At the semester's end, a semester spent with the very TA toward whom she had harbored thoughts, racist "I can't learn from you" thoughts … thoughts born from her all white, rural, small town Pennsylvania upbringing… this young woman "walked on water" fifteen weeks later when she speaks of her racism to the TA, admitting all that she had indeed learned from this former teacher/administrator, while asking for forgiveness, expressing her regret and her gratitude, and also tendering and receiving a hug.

Students hear—are assured and re-assured—over and over and over again that they are always the author and editor of their own story. They share what they wish, how they wish. In my experience of many "walking on water circles," I tell them, most will arrive with two stories to share—the "safe" story and the "real" one. I appeal that they share the real story of their doing "the impossible."

These stories come, they do not come easily. Tears, years of accumulated grief, doubt, self-loathing, anguish block the stories' emergence. Too, their understandable and conditioned distrust of classrooms and classroom inhabitants further dissuades story sharing.

Your stories are gifts, I pronounce. That in all my years, my experience, my knowledge and my commitments, all of this seats in me the certainty that those in the circle receive your stories as gifts. No one, I continue, receives a story, saying in his or her own mind, "That's so lame." "That's a pathetic story!"

Rather, stories are received as gifts … treasured, humbling, inspiring, less-isolating, bridging, generous gifts. In sharing of their authentic story, I suggest, they give permission, they create the opening for others to do the same.

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It's the end of the semester. They've done much together—field trips to schools, many classroom "circles." They've made friends within the class. They've revealed to anyone paying any attention, their genius. Utter genius as evidenced in their own stories, their "walking on water" stories.

Over and over again, I've repeated that YOU—you school "winners" must not expect your students—those who will one day share a classroom with you when you become "teacher"—please do not expect those souls to be like you. Remember, I urge, you are the "winners" (so evident by virtue of the fact that they're now sitting in a university classroom), you should not expect others to be like you—learners who are "motivated" (a deeply problematic and self-fulfilling label … a "blame the victim" condemnation) in the way that you are, for the reasons you are, at the times that you are, seemingly on command as you are. You should not expect your teaching to be received by docile, obedient, compliant, passive, submissive—in a word, "motivated"—learners. It may be. But it just as likely may not be. Your students will not be you, I declare. They are NOT you! So, then, who are they?

But how will you learn that? Not by questionnaire. Or by staying after class. Or by attending sports or arts events. No. You will need to SEE them. To see them in an utterly new way … even as you see yourself.

That way? … To see genius. To see the common genius. The distinct, abundant genius. The genius that is as common as dirt (all credit to John Taylor Gatto[5]). To see not "deficit." Not failure. Not loser. Not which is scarce, obscured, latent or unpolished. Abject genius. What WILL you see, WHO will you see, and WHO will you be and will those young people BE, when you begin to see genius that is as common as dirt?

To Illich, I would suggest a antacid. For all those who will spend considerable portions of their lives within schools and classrooms, I suggest questioning their beliefs about genius!

II. Experiments With Teaching Genius and Its Joys by Madhu Suri Prakash

And I think of each life as a flower, as common
As a field daisy, and as singular,

And each name a comfortable music in the mouth,
Tending, as all music does, toward silence,

And each body a lion of courage, and something precious to the earth.[6]

……..

A little known rock in New York City carries the inscription: "the universe is made NOT of atoms but of stories." Close to my heart I hold Muriel Rukeyser's words. They constitute one of the certainties or assumptions undergirding my philosophy of education about the **centrality**

[5] John Taylor Gatto's *Dumbing Us Down: The Hidden Curriculum of Compulsory Schooling*. Gabriola Island, BC, Canada: New Society Publishers, 2017.
[6] An excerpt from Mary Oliver's "When Death Comes." *New and Selected Poems.* Boston: Beacon Press. 1992.

of stories: how we offer them to each other and how we receive them from each other. The stories that I live and the stories that are shared with me daily affirm, making more certain that other certainty undergirding my philosophy of education: "genius is as common as dirt."

The moment we put aside the certainty or assumption about the scarcity of genius, the joys of teaching, learning and living grow by quantum leaps to infinity. One, among an unending treasure trove of joy filled stories compels me to invite you to an adventure flying high, up to 11,000 feet in the stark Himalayas; to Ladakh; the highest desert in the world; politically claimed today as legally belonging to India.

Under the current Indian educational regime, Ladakhi children are subject to the dismality of double neo-colonialism. *Schooling the World: the White Man's Burden*, Carol Black's film masterfully documents how and why 95 % of Ladakhi children fail the board exams: subjugated to a course of study that has nothing to do with their culture or place in the world. Instead, they must regurgitate facts, figures and theories that in colonial times, the British forced Indian youth to memorize; and, post-Independence, Indians browned them over to manufacture oreo cookies (brown on the outside, white on the inside) of their supposedly free citizens, now including Ladakhis.

Wisdom, we are often told, calls for making something good out of something really bad. At SECMOL (Students' Educational and Cultural Movement of Ladakh), a residential school built of mud and other local materials on the beautiful Sind River, young and old are thriving together as they transform failures into geniuses of different stripes; all of them stars shining in unique ways; in all their singularity and particularity. The genius of SECMOL's founder, Sonam Wangchuk, is to give a fair failing grade to the educational system that reduces 95 % of Ladakhi youth to becoming D's, dropouts – essentially humans trashed.

The first pre-requisite for entering SECMOL is to be failed by the educational system. Once the dominant story is systematically revealed to be a horrible lie, it is possible to open up the imagination of each failure to the wonderful truth that each person has been incarnated with unique gifts; which, once shared with the community, grow an abundance of joy replacing the scarcity of genius that produces depression, anxiety and other forms of modern educational plagues / epidemics.

Imagine the gladness of failures discovering the beauty, goodness and truth about their dwelling: made of mud and local materials needing no fossil fuels to be comfortably warm at 15 degrees when outside temperatures drop to – 50! That they can grow food all year around without fossil fuels in off grid solar greenhouses and cook it with parabolic solar cookers; that they can create Ice Stupa artificial glaciers which melt in spring to nourish their fields when there is zero rainfall; that they enjoy food sovereignty and self sufficiency by learning how to herd, milk, and look after happy healthy sheep, cows and other animals; reforest their villages; and in all ways nourish their communities instead of abandoning them, lured by the illusion of exciting jobs in distant cities. Imagine the gladness of failures discovering that they count for something – actually a lot -- in their own places which, when they celebrate in films or music, gets them recognition far from Ladakh for their home grown excellence; for being invaluably useful to where they belong; and the places that belong to them.

Having celebrated genius as common as dirt at 11,000 feet, it is time to come home to Happy Valley where I have lived, learned and taught for more than half my life. Here, the perennial question that has guided me daily on or off campus: What would it take to have every member of our learning circles enjoy the fullest success and flourishing? Questions like this one open up portals on to landscapes of learning where the joys of genius creating, limitlessly break

open our imaginations to infinite possibilities. Last week, reflecting aloud on our forthcoming AERA presentation with a small group of Music Education doctoral students just introduced to me by a loving, friendship-festing colleague, I asked them whether they had experienced "genius" first hand [vs. studying the genius of Mozart, Einstein, et. al] Tentatively, a music teacher who had moved North from Georgia raised her hand. Profusely, she apologized for NOT knowing my definition of "genius" while proceeding to offer her story of genius with utmost humility. The student she celebrated, like his siblings, constitutes the "below normal" learners that are normally the objects of pity and paternalism in "normal" teachers' grapevines. They are the archetypes of those bound not to shine nor succeed. They are "troubled" kids from "troubling" homes – kids who do not even want to go home for fear of the hunger and violence that lurks there in every corner.

What piece of music could "break open" their hearts; send their spirits soaring? Daily searching for musical pieces to inspire her young learning circle with this question, she "chanced upon" a composition played at an Indian wedding[?]. Far from alienating his colleagues or him, this alien music got the troubled kid to slowly start drumming along. In a matter of moments, though, he was no longer drumming. Instead he was "being drummed;" his spirit freed from all school prisons of As, Bs, Ds ….., he let his arms, drums and music carry him to the heavens [where no human judgments are permitted to confine and limit genius with odious comparisons along today's dominant curves for confining genius to a miniscule elite]. Every cell of his being came alive; living in that moment the genius of creation. In the South where I come from, she concluded, we call this being "broken open."

"Broken open" did not enter my imagination in the first 3 weeks of the Fall semester when I an undergraduate student in my class, An Introduction to Philosophy of Education,

scoffed openly at the first readings assigned for the course. A daughter of a wealthy Asian family with a successful international school empire, she scorned my selection of readings opening with Summerhill: with the centrality Neill gives to cultivating authenticity, freedom and happiness at his alternative school. Equally, she had nothing positive to say about Craig Keilburger: who started an international organization at the age of 12 to "save the children" from sweatshops across the globe. Her responses suggested her complete contempt for Neill's idiocy: giving happiness the importance that he did; and Keilburger was as easily dismissed as a do-gooder without relevance to "real life."

Week 3 of the semester is scheduled for private conversations with each student who has decided NOT to drop the course –despite his or her discomfort with a radical pedagogy and curriculum. Certain of my abject failures in dis-covering my student's genius, I hoped to do better in the personal one-to-one meeting scheduled. She entered with her usual posture of dis-engagement, face hidden by cap and disheveled hair. Parker Palmer's "student from hell"[7] was the first image that leaped up as she sullenly sat down. Next, Parker Palmer's genius in discovering the student-from-hell's genius guided me towards creating the context for hearing her story. I knew what was NOT working for her. Silently wondering to myself what bureaucratic noose had forced her NOT to drop the course despite her dismissals, very very gently I asked her: What is working for you in our story telling circle?

With all my decades of experience, I was not prepared for the flood of tears that were her response to this mildly offered question. Through long silences and copious tears, she shared her story of being transformed by the other members of our story circle: listening to and learning

[7] From "A Culture of Fear: Education and the Disconnected Life" in Parker Palmer's *The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life*. San Francisco, CA: John Wiley & Sons. 2007.

from their depth, their breadth of imagination, profound compassion and joyfulness in their reflections and responses. I have been rigid and small-minded, she confessed. I am lucky that my fellow students share so much wisdom from their heart. And, I am grateful to a friend who took this course two semesters back and who urged me to enroll for this course. My friend, she admitted, had shared her story of complete success in moving beyond her depression and anxiety to genuine happiness – learning from other young people with such a different vision of a happy life.

Such stories are as common as dirt – if we choose to look down upon the soil beneath our feet and kiss it for the creative life force that springs out of it—announcing an ingenious abundance of genius. Most precious for me at this moment of my life and also the most threatened is the genius of peoples of the soil (vs. the "book" or the "screen"). To begin to recognize and honor this genius requires healing the sick mindset that plastics over soil with suburbia's terror of weeds – perennially threatening the perfection of lawns with the irrepressible exuberance of April's golden dandelions. The genius of those who heal with and savor dandelions for beauty and goodness and truth matters at 11,000 feet in SECMOL.

Peasant wisdom has cultivated this genius for generations. Its absence creates a vast loss of soil and loneliness in these halls of the Academy? What will it take us to make this genius sparkle? Do I ask a completely unwise question? Certainly, I seek no argument, re-member-ing what Master Illich urged: "Through arguments you can only get conclusions; only stories make sense."

III. Walking on Water and Joys of Teaching Genius with Ivan Illich

The story of Saint Schindler[8] Illich found very pertinent to understanding "do gooder" teachers. The "Schindler lists" are made by all too many caring, committed teachers, observed Ivan Illich, long after his ideas had moved far beyond *Deschooling Society*. Their strategies for helping some of their students survive, betrays their knowledge that millions are being sent to hell by a system systemically designed to be a most efficient sorting machine. Among the hellish design principles of this international global machinery is that only a few are fit to fill the "good" jobs—the rest are damned to the gas chambers of un-breathable urban ghettos, multiplying sweatshops, call centers, or prisons. Such is the hell that awaits the "dregs, wastes, and dropouts," a hell designed by the school successes for the school failures.

Ivan Illich challenged every certainty that held up the institutions of secular salvation orchestrated by the credentialing global empires married to the global employment empires. "Refuseniks" of these systems continue to work and play, teach and learn guided and governed by other certainties, drawing upon their own genius … genius as abundant as dirt. This certainty is a sure cure for joyless teaching and learning.

Genius is as abundant as dirt. Each of us – teachers and learners both simultaneously – are assured of abundant joyfulness as we extend and expand our capacities to see the abundance of genius within and without—within ourselves and in others, within and without classrooms, campuses, commons.

Our explorations celebrate teachers, learners, activists, community members—and their experiences and experiments with a vast array of genius. We invite, following Illich, Palmer,

[8] See "The Educational Enterprise in the Light of the Gospel" by Ivan Illich (unpublished). Accessed July 16, 2016 http://www.davidtinapple.com/illich/1988_Educational.html

Holt, Olsen, Goyol et al., conspirators—those escaping the standardized instruments that flatten out diversity and humanity. How, we ask, are teachers now making their own creative footpaths towards Parker Palmer's classic "student from hell"—the non-conformist, "at-risk," "low-performing" loser? How do we—as teacher learners—enter the "normal" classroom spaces of huge scarcities of genius and witness them transformed into places where all experience the surprise and delight of ripping the mis-classificatory masks hiding from sight the genius's of the Bs, Cs, Ds, Fs et all?

Joys of teaching genius are highly contagious. Once unleashed, they cannot be contained by any State authorities. Once the genius is released from the bottle, the virus of joy-filled teaching and learning disregards all institutional rules conceived for creating artificial professional scarcities of genius. Once people discover the joys of "walking on water," they are not limited by class, color, creed, rank, status, imagination and creativity that recognize no boundaries.

We invite a debunking and dismissal of the concept of scarcity within the context of teaching and learning—particularly scarcity of genius—now reigning supreme within the educational universe. Unabashedly, this exploration enjoys the audacity of saying "No Thank You" to all institutionally created scarcities of genius. In this rejection of scarcities, we intend to catalyze a conceptual shift in notions of "genius," and "intelligence." Power and knowledge together honor the political, linguistic, and social principles of abundance of creativity; and the surprising varieties of genius we have not even begun to tap into.

Decades ago, Howard Gardner challenged the myths of the educational establishment by opening up our attention and understanding of "intelligence." Gardner's Theory of Multiple Intelligences invited breaking from the confining molds of "standardized" curricula, pedagogies,

and modes of evaluation. In so doing, we now see how standardized anything flattens out our rich, natural landscapes (of mind- and land-scapes) into mowed down plastic lawns.

Howard Gardner's challenge invites the same audacity as Ivan Illich's or Parker Palmer's, Sir Ken Robinson, and Jiddu Krishnamurthi. Mediocrity is not a measure these thinkers and doers find useful, when the spark of life and learning knows no limits.

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