Vienna is a city comprised of many systems--economic, technological, social, cultural--which overlay and interact with one another in complex ways. Each system is different, but from one point of view all share a common purpose--the organization of energy--and a common goal--giving the cumulative energy of the city a coherent form.

According to Maxwell’s second law of thermodynamics, the entropy in a system will increase (it will lose energy) unless new energy is put in.

According to Newton’s law of inertia, a system will stay at rest unless it is disturbed by an external force.

Energy exists in two states: kinetic and potential. A brick sits on top of a wall--potential (it could fall). A brick is pushed from the top of the wall--kinetic (its potential is released).

Energy takes many forms, each created by a system that contains it for a particular purpose. Architecture is one such system that contains energy by establishing stable boundaries, limits, edges. New energy—in the form of maintenance—must continually be added to the system of materials, or they will decay. Metaphysically speaking, new energy—in the form of human thought, emotion, activity—must continually be added to the system of boundaries, or they will lose their purpose and meaning.

The group of drawings, prints, models, and installations comprising the System Wien project develop an idea that the making of architecture can be understood as the organization of energy. The project explores how energy relations in public and private city spaces might be represented tectonically in the form of drawings and models; how existing energy relations in the city can be changed by the input of new energy in the form of highly temporary spatial interventions; how the future of the city need not depend for creative energy input on the development of building projects requiring large capital investments and institutional approval, but rather on the redistribution of energy at the human scale of the street and the room.

A portion of a city’s potential energy is contained in its architectural constructions. A vast quantity of mechanical energy is stored in the materials used to make buildings, the energy it took to lift them into place above the surface of the earth and its center of gravity. The distance between the materials and the earth’s surface determines the quantity of their potential energy, which can only be released when, responding to the gravitational attraction of the earth’s mass, they fall.

The larger part of the city’s potential energy is contained in its people. Each person has energy that can be activated, in thoughts and in actions, anytime in the future. In theory, just how and when this energy will be released and where it will be directed is unpredictable. Governments, businesses, and other institutions organizing the collective energy of a people, work hard to ensure that the energy of individuals will conform to accepted standards, and maintain a predictable continuity. In the fast-changing
contemporary world, with its radical technological developments, political and economic crises, abrupt cultural shifts, institutions often become more protective of the status quo, more resistant to changes in the established systems of organization. Like the build-up of energy in the earth’s tectonic plates, institutional resistance to change inevitably brings sudden and violent releases of energy, such as revolution and war. At the same time, institutional exploitation of the fear of violent change will polarize people of different opinions and beliefs. Energy that might otherwise be directed to collectively constructive projects is spent in attacking adversaries, a project that, while usually bent on destruction, is nevertheless part of the processes of creative change.

It is difficult to determine in advance the magnitude of any human being’s energy, potential or kinetic. We can know the quantity of energy it takes to walk a given distance, but what is the energy of a person who assassinates a world leader? Do we measure it by cause or effect? Or the person who invents a new technology? Or the person who designs a housing project? Or the person who devotes themselves to helping the poor? The energy of such persons’ thoughts and actions cannot be measured quantitatively or qualitatively by applying any known formula. Their input is nominal—they think, move, speak in more or less normal ways—but the effects are vast. If we measure their input in nominal terms, it is not radically different from that of ordinary people, going about their daily lives. The where, when, and how of the energy of such persons’ acts have much to do with their effects. But that cannot be all. If it were, then any persons thoughts and words and actions would sooner or later—under the right circumstances—produce vast effects. But they do not. The energy of persons who ‘change the world’—even the local world—must be extraordinary in ways that can be identified and measured. How, then, can that be done? How can it be represented in any analysis of the present and future organization of a city’s energy? And, more importantly for our purposes here, how does the extraordinary inform the ordinary? How might we think of and portray the everyday differently as a result of knowing that at any human point it might become extraordinary?

If we could answer this question, we could immediately begin the establishment of a social and political order that recognizes the fact that any human life can and in some cases will, change the course of human events, at a larger than a personal scale. Steps have been made in that direction, in the form of legal and political instruments that guarantee fundamental human rights, including the right to be educated, the right to be employed within the institutional structure, in order that any person’s potential energies—physical, intellectual, moral, philosophical—can be applied to human conditions at the right place and time. It has taken some many thousands of years for these first steps to be made, so we might imagine it will take considerably more time for steps that take us beyond the institutional, to the direct application of human energies, without institutional mediation, foreseen by utopians of various kinds. Meanwhile, life goes on, struggling under imperfect conditions and circumstances. The city, the polis, is struggling to grow, and to change, perhaps even toward that day when the idea of the human is recognized in the energy, the life impulse and actions of each human being.

The ethical implications of such a ‘toward’ are enormous. If human society were to value each human life equally, then what about the murderers, thieves, pedophiles? How about the small-time cheaters, the dullards, the bigots and the bores? Are they to be given the same value as the bright, the tolerant, the compassionate, the innovative and the persons of ‘genius,’ who bestow gifts of wide value to the human world? The answer given by utopians-is ‘no,’ because the human world will consist only of the latter and not at all of the former. All the disgusting and disagreeable human behaviors will have been
eliminated by universal education and opportunity. But, as critic Aldous Huxley asks in his “Brave New World,” what if the perfect society is—against all odds and predictions—disturbed by savagery, that is, by atavistic urges and actions? It could be in the form of incest, or the belief in magic, or in rituals of racial superiority leading to genocide, or, in “my right to do whatever I want, regardless of what anyone else thinks.” The very presence of these possibilities, indeed these potentialities that only wait to be released, brings us back to square one. Human perfectibility, we are forced to acknowledge, in either social or individual terms, cannot be defined by any sort fixed or universal standard of rectitude.

If that is the case, and history bristles with examples—governments of the left and the right that tried to impose universal standards of thought and behavior—then some new and better system for the organization of human energy waits to be devised. The premise of the System Wien project is that the social, political, cultural, and ethical can be formulated in spatial terms, as indeed they already are. It opens a speculation on the possibility that this formulation can facilitate change more creatively—at once more wisely and spontaneously—than existing spatial systems allow.

“What exactly do the vectors represent?”
“They don’t represent anything. They are just themselves—embodied energy.”
“They contain energy?”
“Yes. Can’t you see it?”
“I see white lines on a black surface.”
“Tell me, what do you see when you look at that building? Bricks, windows, metal, glass?”
“Yes.”
“That’s all?”
“Yes.”
“Ah, then that’s the problem. You can’t see energy, just its effects.”

“The vectors contain the energy that it took to make them. It is a measurable amount of energy, but it has not yet been measured. It consists of physical energy, intellectual and emotional energy. Certainly we will be able to measure it by its effects, if and when there are any.”
“So, then, the vectors are a form of energy?”
“Yes, that is what they are.”
“Well, there’s nothing new there. Any drawing, any word or act has the potential to have an effect. All you’re doing is seeing it differently.”
“Exactly!”

Architecture, we hope, is first of all a field of knowledge, and only then of action. Our hope is rooted in the judgement that actions are most constructive when informed by an idea that fits into a larger understanding of ourselves and the world. When we design and build, we demand that they embody such an idea of human experience and how it is enabled by the conception, design, and construction of space. Our existing knowledge is important, because it is the structure of what is already here. Architecture, like other fields, reveals the structure of the familiar. It remains only for us to see this structure as
though it has not been seen before, freshly, as though for the first time. This is, I believe, the task of architects.

It is true that most architects will continue to be kept busy designing buildings and spaces serving existing interests and points of view. It is entirely proper that there will be only a few who have the inclination, or feel the necessity, to invent new points of view, or who are willing to accept the risk, if not the probability, that their ideas will come to nothing. The truth is that in the day-to-day practices of architects building and rebuilding the familiar, a substantial part of the invention of new viewpoints will emerge, one building at a time. We might call the cumulative effect of these small steps a social-historical process, one that moves ahead inexorably but surely, because it is intimately connected to everyday conditions and their own subtle and incremental transformations. Still, some leaps are needed, if architecture is to not only keep up with today’s accelerated changes, but to get enough ahead to help lead them.

It is crucial that we invent strategies for seeing the familiar differently. If we rely solely on seeing it in familiar ways, we will only be able to re-enact what we have already done and confirm what we already know. As changes occur to the familiar systems, either as a result of entropy or disturbances from outside forces, we will be poorly prepared with entrenched attitudes to control their transformations, the ways the energies they contain are released and to what ends they are employed. In order to adapt creatively to changing conditions, we must adapt our existing knowledge and skills. Accustomed though we might be to finding a new pill or product to solve critical problems, we cannot count on new knowledge alone to save us from becoming relics of our own history.

**The first task of experimental works of architecture and art is to stake out new points of view on what already exists. The second task is to test them.**

*System Wien* begins with the existing system of spatial organization, as embodied in Vienna’s buildings, streets, open spaces, and how they are presently inhabited. It sees them not as organized matter, but rather as organized energy. The visual language through which this understanding is expressed is one comprised of lines—constructed in two, three, and four dimensions—which we will call vectors.

Vectors are mathematical symbols for expressing the direction and magnitude of forces active within or upon a system. In this project, the vector is expanded in meaning and application. It still retains its expressive function, only now including not only magnitude and direction of mechanical forces, but also the intensity and extensity of cognitive and affective forces both active and latent in the city. There is another aspect of the role vectors play in this project and in its projection of the present and future energy patterns of the city. The vectors not only express energy, *they embody energy*. Like other constructive elements used to build the city, they are elements of a system organizing the mechanical, cognitive and affective energy it took to make them, palpable energy that remains potential in their residual forms. If we can see vectors as forms of potential and kinetic energy, then we can see buildings that way, too, and the city itself. If we can see these things not simply as objects, but as embodied energy, then we can see ourselves and others not as material objects, but as living systems interacting continuously with other systems, both animate and inanimate.

This is a new way of seeing the familiar, at least for architects. Ecologists and theorists from fields as diverse as cybernetics and the life sciences have adopted similar
points of view long ago. Architects retain a mechanical, materialist worldview, no doubt in part because of the nature of the people they work for, their clients, who see architecture as a product that relates only incidentally to other products, designed and paid for by others. The boundaries of a product are rigid, fitting into clients’ ideas of property, and consumers’ ideas of buying and owning. Systems, on the other hand, have flexible, often porous or fluid boundaries, depending on their interactions with other systems.

The energy-systems view of the city and its life have strong political implications, in particular, regarding prevailing ideas of identity and, its corollary, property. Individuals, in such a view, are identified not so much by what they ‘own’ or who they ‘are,’ according the social roles they play, but by what they ‘do,’ how they interact with others, including the inanimate systems in their environment. In the same way, buildings, public spaces, and other forms of property can no longer be identified according to building types set by pre-determined economic and functional categories, but by how they perform in a landscape shaped by complex interactions. What architects do with their own initiatives or those of others seriously impacts networks of interacting human and other energy flows, as well as the energies latent in the city. Their ways of thinking and working need to integrate this reality more than they do at present. In doing so, the role of the architect will be transformed into a more expansive and more complex one in the evolution of the urban landscape. The identity of architects—like that for whom they design—will be based on the depth of their mastery of particular skills and knowledge, but at the same time, on their agility in engaging an urban field of continually changing conditions. System Wien explores what the production of such architects might be.

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