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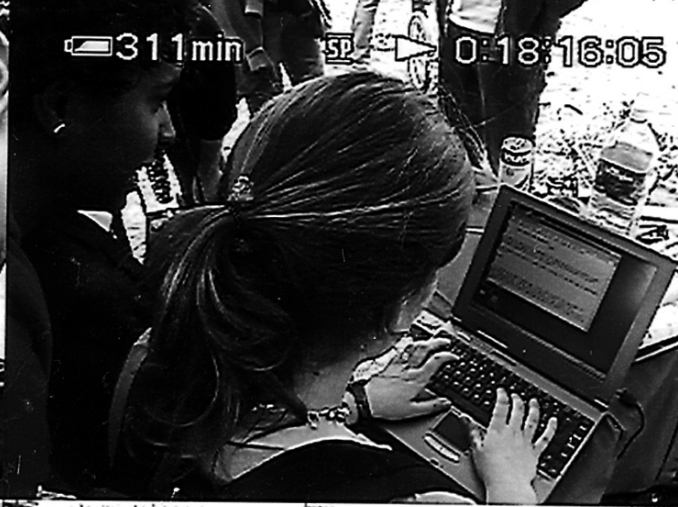
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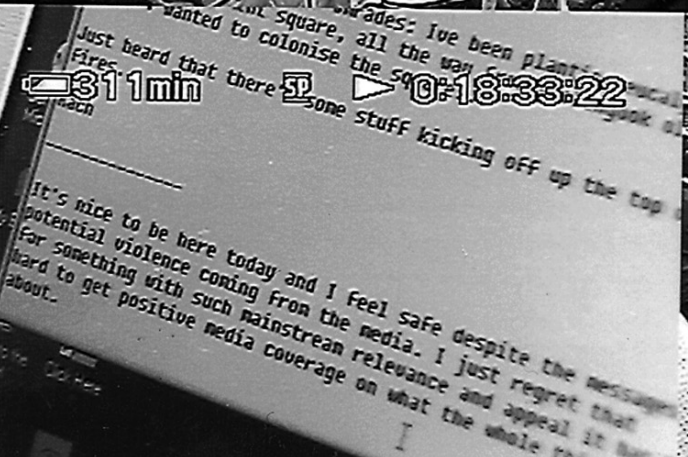
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Just heard that there some stuff kicking off up the top
It's nice to be here today and I feel safe despite the message
potential violence coming from the media. I just regret that
fear something with such mainstream relevance and appeal it
hard to get positive media coverage on what the whole


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"In the age of global flows and networks ... the small scale and the local are the places of greatest intensity." **– Jean Franco, *What's Left of the Intelligensia?*, North American Congress on Latin America's Report on the Americas, vol. 28, no.2, 1994**

A black balloon drifts across the dusty cement floor pushed by an invisible draught. Printed on it in small, neat, white letters are the words, "Everything is connected to everything else." It's late September of 2000, and I'm in an enormous factory hangar on the outskirts of Prague. The machines have all gone, and in their place are thousands of bustling human beings. Some of them rush around, occasionally bumping into one another, exchanging a few words and then continuing on their way; a few stand alone, cell phone in hand, engaged in distant dialogues, while still others sit in intimate circles on the floor, talking, plotting. I'm inside the convergence centre, a space where activists are preparing the actions against the World Bank and International Monetary Fund (IMF) meetings due to begin in a couple of days.

There are Catalans building large yellow skeleton puppets, friendly-looking Polish punks with scary dogs, haggard protest veterans huddled over detailed maps of the city, and fresh-faced newcomers trying to work out how to put on gas masks. There is a German squatter building a police radio scrambler, a Maori activist being interviewed by an Indymedia camerawoman, and an Italian from a squatted social centre trying on his makeshift armour of inner-tube-and-cardboard. In one corner, British Earth First!ers are planning a street communications team, in another Colombian peasants hold a workshop about the US funding of Plan Colombia and Czech anarchists learn street first aid. Outside, the sound of a marching band from Seattle practicing its driving rhythms bounces off the building, while a few desultory Marxists attempt to sell their books and newspapers. Amidst the chaos, Dutch cooks prepare a massive meal to feed the rabble. And then there's me and my companion – an Indian activist from Narmada Bachao Andolan, the struggle against the Narmada dam project. He is wrapped in a brown wool cardigan and shivering slightly.

"What do you make of this?" I ask. "These people!" he says fiercely, throwing out his hand to encompass the entire chaotic scene, in which hundreds of people are taking part in a mass meeting to collectively agree on the plan to disrupt the summit, arguing over endless points of principle, in five different languages, "These people have NO LEADERS!" He pauses, waggling his head sternly. "It's very, very, very good."

The strength of stories

"Act in assembly when together, act in network when apart."

– Mexican National Indigenous Congress

How does this seemingly chaotic movement of movements – without leaders, with overflowing diversity and contradictions, without clear organizational structures, without a shared programme or manifesto, without a command and control centre – manage to bring thousands of activists from around the world to cities, such as Prague, Genoa or Seattle to protest a summit? How did swirling affinity groups besieging the IMF/World Bank meetings in Prague manage to force them to close a day earlier than scheduled? How was the agenda, according to one World Bank delegate, "effectively seized" by the protesters? And how did this movement coordinate a simultaneous global day of action in over 110 cities across the world in solidarity with the Prague mobilization? Surely this high level of organization is only possible with some form of leadership?

"Take me to your leader," is the first demand of aliens to earthlings, police to protesters, journalists to revolutionaries. But it's a demand that falls on deaf ears whenever directed to participants in this global uprising. Ask the neighbourhood assemblies of Argentina, the indigenous Zapatistas of Mexico, the autonomous island-dwellers of Kunayala off the coast of Panama or participants in the spokescouncils of the US Direct Action Network who shut down the WTO in Seattle. All will speak of horizontal, as opposed to pyramidal structures of power, dispersed networks rather than united fronts.

Movements of the past are laden with charismatic leaders – Che Guevara, Rosa Luxemburg, Huey Newton, Karl Marx, Emma Goldman, Lenin, Mao Tse-Tung. But whose face can be found in the foreground of today's movement? Ironically, the first face that comes to mind is masked and bears the pseudonym "Subcomandante Marcos". This is the spokesperson for the Zapatistas, whose words have profoundly influenced the spirit of the movement. But he, like so much of this movement, thrives on the power and creativity of paradox, for he speaks of leading by obeying, carrying out the policies of a committee of indigenous campesinos. Note the 'sub' commander, and the anonymity of the mask. He warns that the name Marcos is interchangeable – anyone can put on a ski mask and say "I am Marcos". In fact, he says that Marcos does not exist, but is simply a window, a bridge, a mediator between worlds. He says that we are all Marcos. Not what one expects from a traditional leader.

It follows that a movement with no leaders organizes horizontally, through networks. And it was the poetic communiqués and powerful stories that trickled from the Zapatista autonomous zones in the Chiapas jungle onto the relatively new medium of the internet which told of their suffering, their struggles, their mythologies, that began to weave an electronic fabric of struggle in the mid-nineties. This web of connections between diverse groups gave birth to a series of face-to-face international

gatherings – the Zapatista Encuentros – which soon grew to become the roaring, unstoppable torrent of movements for life and dignity and against capital that are emerging across the world. "We are the network," declared the Zapatistas, "all of us who resist."

Like a virus, uncontrollable and untameable, this inspiration flowed from city to city, country to country, spreading at the same speed as the trillions of dollars involved in the reckless unsustainable money game of transnational capital. Like the financial markets, the inspiration fed on rumour and myth. Unlike the markets, it thrived on the rejection of ownership and enclosure.

Capital's dream of super fast networks that will spread consumerism across the planet was turned on its head. For while the networked money markets were tearing the planet apart, our grassroots networks were bringing us together. People were using the global communications infrastructure for something completely different – to become more autonomous, to get the state and corporations off their backs, to live in a more healthy way. To talk to one another.

As the links grew, more stories were added to the flow, accounts of audacity and courage, moments of magic and hope. The tale of the Indian farmers demolishing the first Kentucky Fried Chicken in the country, or the news of five million French workers bringing the country to a standstill and reversing their government's neoliberal policies – layer upon layer of stories travelled along the thin copper threads of the internet, strengthening the global network and developing relationships between diverse groups and individuals. People found strength in the stories, which expressed a sense of identity and belonging, communicated a shared sense of purpose and mission. The movement was learning that it was as important to capture imaginations as to command actions.

Perhaps the first victim to be defeated by this nascent network of subversive information-sharing was the Multilateral Agreement on Investment (MAI), a treaty whose text was cooked up in the sweaty boiler rooms of the most powerful corporate lobby group on earth, the International Chamber of Commerce. If it had been implemented, the MAI would have enabled corporations to sue governments – it was a veritable charter for corporate rule. The network was galvanized when US campaigners Public Citizen circulated the secret text on the internet in 1997. "If a negotiator says something to someone over a glass of wine, we'll have it on the internet within an hour," the campaigners claimed.

Against a total media blackout, the email inboxes of activists began bristling with life, with information, with strategy, with education. List-serves bulged as the nascent global network took shape with messages from Canadian truckers, Maori groups, Harvard trade lawyers, French cultural activists. Their defeat of the MAI in 1998 was the first real success story of the movement, sending a shiver down the spine of its next target: the World Trade Organization, which would meet the following year in Seattle. A rich blend of past political forms (especially

from feminist, ecological, and peace movements) of the global North and various indigenous forms of organizing from the global South, these new hybrid networks didn't quite fit any previous models of political practice. Police forces, journalists, academics, politicians, and traditional leftist parties were at a loss to understand them "Who ARE these guys?" wondered the *Financial Times* after the defeat of the MAI. Something important was stirring as the way of doing and thinking about politics was changing radically – yet still it remained below the radar screen.

The logic of the swarm

"Those who dance are considered insane by those that cannot hear the music." **– George Carlin**

"We don't consider them terrorists.... We're not yet sure how to even label them," says a spokesman for Europol, Europe's transnational police agency, struggling to describe the new breed of protesters. British political commentator Hugo Young attacked the "herbivores" behind anticapitalist protests for making "a virtue out of being disorganized", while the head of the World Wildlife Fund referred to us in Genoa, as a "formless howling mob". It was the RAND Corporation, a US military think tank, who actually came up with the most accurate description. In their 2002 book, *Networks and Netwars*, they describe the Zapatista uprising, the web of interconnected activists' groups and NGOs, the affinity groups of Seattle, and the tactics of the Black Bloc as *swarms*, and predicted that swarming would be the main form of conflict in the future. While for most commentators, a bottom-up system that functioned so effectively was totally outside their conceptual framework, the RAND Institute, steeped in the latest developments of systems theory and complexity, turned to the natural world for the best metaphor. They realized what others failed to see – that there is enormous power and intelligence in the swarm.

Since the seventeenth century scientists have made enormous technical discoveries through taking the world apart, piece by piece, to try and understand how it works. Their mechanical model of reality saw life as a giant machine made up of separate parts. Linear processes of cause and effect, command and control dominated their thinking.

These mechanistic perceptions have been central to our patriarchal, Western scientific worldview. But this formulation of reality involves an enormous blind spot, one which science has only relatively recently started to uncover. As a result they have failed to recognize complex, interdependent systems. This is one of the root causes of our current ecological crises. Problems as different as global warming, homelessness, and mental illness are all seen in the context of single cause and effect processes. But these cannot be cured like a clock's workings can be mended. They require a different way of looking at the world – in other words, they require whole-systems thinking.

Witness how recent tests studying the effects of

genetically modified organisms (GMOs) on the environment have taken place in so-called controlled field settings, ignoring the fact that such control does not exist in nature. GM flowers produce pollen, as does any ordinary flower, and bees will take the pollen to other fields, thus contaminating other plants. There is nothing isolated in nature. Mechanistic thinking develops a world view which is unable to see the interconnection and interdependence of life, unable to see the world for what it is – a huge, complex, dynamic system where everything is connected to everything else, as the balloon in Prague so eloquently suggested.

But over the last few decades there has been a paradigm shift in scientific understandings of living systems. Scientists are now discovering what indigenous knowledge has long taught – everything is connected. Ecologists, biologists, physicists, and mathematicians have begun to be able to describe vastly complex connected webs of life which are made up of networks within networks. They have gradually realized that life has the ability to self-organize and mutually adapt, without anyone in control. Their descriptions of living systems are perhaps the best model yet for how the movement functions.

Imagine watching thousands of birds take off one by one. As they begin to rise into the air, a pattern emerges. They group together and then, if a predator approaches, the flock rapidly turns direction, swooping up, down, left, right; all the birds stay together, and none of them bump into each other. The whole flock moves as one, as if it's one organism. Yet no one is in charge; it seems to happen as if magically. High-speed film reveals that the movement spreads across a flock in less than one-seventieth of a second. Yet this should be impossible, as it is much faster than a single bird's reaction time. The flock is clearly more than the sum of its parts. But how is this possible?

Observing the movement of affinity groups from police helicopters during many of the mass mobilizations of the past few years, or trying to map the daily flow of information between the forever-transforming activist groups on the internet must create a similar sense of bafflement for the authorities. Even participants in the movements are often confused as to how everything seems to somehow fit together so well. The logic of the swarm is an eerie thing, especially when you don't understand its simple rules. Those who are unable to learn from these observations will remain frozen in mechanistic logic, which thinks the whole is never greater than the sum of its parts.

The swarm phenomena can be observed everywhere. Think of the billions of neurons in your brain. A neuron on its own cannot have thought, cannot write poetry, move a muscle, or dream, but working with other neurons it can produce extraordinary things. Now think of a dense mass of bees swarming across a landscape in search of the perfect location for a new hive; all this happens without anyone in charge, without any single command centre.

It wasn't until the advent of high speed computers that scientists were able to begin to unravel this mystery. Prior to that, they had observed the phenomena, but because

they were attached to their clockwork view of the world, they literally couldn't believe their eyes. For years after the idea had first been posited in the 1950s by Alan Turing, inventor of the computer, scientists couldn't believe it, and kept looking for a head bird, a leading cell. Only computers could model these hugely complex self-organized, and interconnected systems. What scientists saw was astounding – each element seemed to be following simple rules, and yet when the multitude was working together they were forming a highly intelligent sophisticated self-organized system. Nowadays software designers, urban planners, and ecologists all use these concepts in their day-to-day work; the realm of politics has yet to catch up.

For this is truly organizing from below. The process of simple local units generating complicated global or group behaviour, a process not directed by a conscious entity, but rather emerging through the interrelationships of the system's parts, is known in scientific circles as *emergence*.

If numbers, neurons, crowds, computer programmes, cells, city dwellers, birds behave like this, why not a networked movement of movements?

Learning to self-organize

"Chaos is a name for any order that produces confusion in our minds." **– George Santayana**

Emergence may seem to 'just happen', but it's actually the result of clear sets of mathematical principles and processes that govern a highly connected network. Through these, we can learn how to organize creative actions and build sustainable movements in our local communities. There is a tendency within some aspects of anticapitalist movements to think that actions happen spontaneously, without planning or structure. An email from Australia inaccurately suggested that the Reclaim the Streets street parties in London resulted from pure spontaneity. The email's author bemoaned the fact that Australians somehow did not possess this magical ability to just turn up and create a street party from nothing. As any organizer can confirm, creating situations in which spontaneity can occur is a lot of hard, and mostly not magical work.

Spontaneity is a vital tool of resistance, but it occurs only under certain conditions. The most successful movements are those that are able to adapt to situations rapidly and spontaneously, much like the flock of birds avoiding the predator, precisely because of a stunning amount of preparation, interconnection, and flow of communication that is already in place.

What are the ingredients of successful mass actions? Incredible structures are developed beforehand: we find large buildings and transform them into convergence centres; we organize workshops, trainings, and coordinating meetings; we form affinity groups which meet each other and form clusters; we work out communication channels via mobile phones, pagers and so forth; we set up independent media centres and pirate radio stations, ready to compile information from

multiple street reporters and feed it back to the streets; we develop beautiful and enticing printed propaganda; the list is endless. It takes months of planning to set up the networks from which can emerge the intelligence of a magically moving, thinking swarm, a shape-shifting organism that can survive the chaos of the streets or the disruption and repression of the state.

The Pentagon think-tank RAND, in its highly informative analysis of the successful swarming strategies of the Zapatistas' civil society networks and the Direct Action Network's WTO shut down in Seattle, suggests that this movement is ahead of state authorities in its mastery of swarming. But it also suggests that the police learned a lot from their failures, and that activist groups have learned little from our victories. Although mass mobilizations have grown steadily since then, there has been a tendency in the latest mobilizations to repeat ourselves, to attempt to reproduce Seattle, or even worse, to return to familiar forms of struggle, the mass marches instead of decentralized actions, rallies and speeches instead of assemblies and spokescouncils – forms which squander our new-found advantages, and do not reflect the new worlds we want to build. The new is always more daunting than the familiar, but if we don't want to repeat the failures of great rebellions of the past, we need to continue to develop ways of working that learn from our victories, which build on the past and yet are always reaching into the unmapped and unknown future.

Sustainability comes to those who can adapt and change the quickest, a concept that is alien to many older forms of political organizing. Many of the groups in these new networks call themselves '(dis)organizations', implying that they are loose networks rather than formal organizations.

Yet in order to give up control and allow the system to govern itself, we need to develop structures that will enable us to lose control with dignity and thus be able to overwhelm the dry and brittle forces of state repression with our invincible fluidity. Authoritarian systems are good at changing laws but not habits, and it seems that in the race for true network mastery in the political arena, we are already in the lead. By learning some of the principles of swarm logic and emergence, we can develop creative tactics and strategies that will put us even further ahead, not just for mass street actions, but for all forms of organization and mobilization in our networks, whether through the global reach of the internet, or within the local spaces of our communities. The future of the planet and society may well depend on who builds the most successful network of networks.

Watching the ants

"*We need to work like the Zapatistas do, like ants who go everywhere no matter which political party the other belongs to. Zapatistas proved people can work together in spite of differences.*" **– Anna Esther Cecena of the FZLN (Mexican support committee of the Zapatistas)**

Systems theorists know there is no better way to learn about emergence than by looking at the extraordinary behaviour of ant colonies – one of nature's most successful examples of bottom-up intelligence. Ants are found virtually everywhere, from the tropics to the desert to the tundra, and account for over 18 per cent of the earth's biomass (the combined weight of every living thing on the planet). They grow fungi in farms, raise aphids as livestock, and have extraordinary engineering skills and city planning, building recycling dumps, lavatories, and graveyards situated away from the main body of the colony.

Ant colonies are perfectly self-managed without any single ant in charge. They can switch rapidly between roles of foraging, nest-building, and raising pupae; they can work out the shortest route to food, and prioritize food sources based on quality, ease of access, and distance from the nest; and the entire colony seems to know exactly how many ants are needed where and for what jobs at any given time. The best way to think of a colony is as a self-regulating organism, with its millions of cells and all its bio-chemical feedback loops constantly adjusting itself to reach homeostasis – regular heart beat, body temperature and so on.

Our cultural images of ants evoke military columns with proud soldier ants marching in a straight line, one column going towards the food and the other back to the colony (just like a motorway), with isolated individuals tirelessly working for the queen. But if you really observe what is happening, you will see something quite different – the ants are actually all weaving in and out of line, and touching each other! Every single ant greets each ant coming from the other direction, heads and antennae stroke one another, communicating with pheromones, then goes on its way to meet the next ant. In any line of ants, virtually every ant will meet and briefly exchange information with every other ant. Somehow, these simple interactions multiplied enable the colony as a whole to adjust the tasks allotted to each ant, allowing the colony to run efficiently. In this cooperative conversation between separate local parts can be found the extraordinary phenomenon of emergence, where the sum of all the parts becomes greater than the whole.

Clearly, ants are very different from people. But the way the ant colony as a whole works, its process, is comparable to that of the movement of movements – the numerous email lists, the autonomous local groups networking globally, the face-to-face gatherings, the convergence centres, the ebb and flow of crowds in the occupied streets. This not only shows how our local actions produce global behaviour; it shows us how important the quality and amount of communication is in the maintenance of effective networks.

Most of the anticapitalist global days of action happened not because of central commands, but simply because a small group sent out a proposal. If the proposal captured other groups' imaginations, they disseminated it on email lists, discussed it at meetings, mentioned it in

publications, web pages and so on. It multiplied exponentially in every direction, a kind of ricochet rebellion, and in the end, no one takes responsibility and yet everyone takes the credit. In emergent systems, you influence your neighbours and your neighbours influence you. All relationships are mutual feedback loops.

Paying attention to the lessons of the ants and their emergent systems can help teach us how to build efficient trickle-up systems, networks where the local becomes global, where the top-down chains of command are broken and replaced by a multitude of individual, communicative links acting simultaneously.

Four ways to act like an ant and dream like a giant

"*Our enemies did not cross our borders, they crept through our weaknesses like ants.*" **– Nizar Qabbani**

If we want to build networks that behave like a swarm, these four rules from the ant world can guide us:

More is different: A few ants roaming across your kitchen floor might find the bread crumb hiding under the table, a lone affinity group might find the breach in the fence around the summit, a few independent researchers might manage to find the link between the Enron scandal and their local council.

But increase their numbers and interconnect them and you'll have something which behaves quite differently – you'll get systematic change – a movement that can cause an entire summit to be cancelled, or the entire corporate accounting system to come crumbling down. Many interacting smaller pieces create the exponential magic of emergence: swarm logic.

Our movements are multiplying at an incredible rate. Every day new connections are developing both face to face and virtually as the internet grows to connect more sentient beings than any other technology before it. New webpages, email lists and Indymedia centres are springing up like grass after a downpour, leading to more networking, more co-ordination, and more actions. The crowd has always terrified those in authority, but a crowd where each individual is able to think and act autonomously, a crowd where everyone is connected to everyone else, will cause more than a shiver down their spine, because it behaves in ways that no one will ever be able to predict.

Stay small: The greatest feature of the ant colony is the simplicity of each ant; if one ant began to somehow assess the overall state of the whole colony, the sophisticated behaviour would stop trickling up from below, and swarm logic would collapse. Emergence teaches us that not to know everything is a strength and that local knowledge is sovereign. The magic is in densely interconnected systems made up of small simple elements.

As soon as our groups become too big, communication tends to break down and hierarchies develop. We must learn to divide like cells before this happens; big is unwieldy, small and connected is what we should aim for.

A network of a million small interconnected groups cannot be stopped by any of the world's police agencies, no leaders can be singled out for assassination or corruption, no single headquarters raided, no central party committee infiltrated. But that doesn't mean our movement is small – for we are all networked into a whole that is larger than anyone can possibly imagine.

Encourage randomness: Haphazard encounters are key to network-building – they are where creativity lies. Without the lone ant exploring new territory, no one would find new sources of food or develop ways to adapt to environmental conditions.

Decentralized systems thrive on the creativity of random encounters. How often have you been in a huge swirling crowd on the streets during a festival or an action and bumped into exactly the right person, or found out a key piece of information you were seeking? How often have you received a seemingly randomly forwarded e-mail from someone that happens to point you to someone else who will enable your new project to get off the ground?

Some may think that with perfect unity the revolution begins, but without randomness, evolution ends. While some toe the party line, others are drifting and dancing into new ways of changing the world. What may look like chaos to some is actually brimming with creativity.

Listen to your neighbours: 'Local' turns out to be the key term in understanding swarm logic. Emergent behaviour happens because the ants are paying attention to their neighbours, rather than waiting for orders from a distant authority. The more ants do so, the more quickly their colony will solve problems. Local information leads to global wisdom; this is the secret of the intelligent swarm.

The ants teach us that by working locally and continually sharing our local stories globally, by connecting everything and creating a plethora of feedback loops, we don't need to – indeed cannot - 'organize' the global network, it will regulate itself, swarm-like, life-like, if we develop the right structures and conditions.

The (r)Evolution will be improvised

"I saw everyone and saw no one, for every individual was subsumed into the same, countless, meandering crowd: I spoke to everybody but could remember neither my own words nor others, for my attention was at every step held by new events and objects, by unforeseen developments." **– Mikhail Bakunin**

When Bakunin wrote of his experience on the streets of Paris during the 1848 revolution, he was unknowingly describing emergence. Thinking and technology has evolved exponentially since he wrote, yet our thinking around political change has not evolved to the same degree. Although a revolution has occurred in our perception of the world, many of our perceptions of political change remain stuck and fixed in centuries old models – centralized parties, uniformity, manifestoes, taking control of power, hierarchical leadership.

Now that we better understand the workings of decentralized, diverse interconnected networks within networks where everything is in flux, there is no excuse for our political forms to remain stuck in ways of seeing and thinking from the past, it's time to evolve.

One thing that has not changed since 1848 is the fact that revolutionary moments always open up the social space for people to begin to connect in new and manifold ways, spontaneous convergences occur, and a multitude of unaccustomed conversations arise. If we look at any revolutionary situation we see human interactions multiplying as the streets and squares are filled, groups and networks coalescing as the human desire for conviviality swamps the alienation of capital. The town hall meetings of the American Revolution of 1776, for example, or the sections of the 1789 French revolution; the clubhouses of the 1871 Paris Commune or the numerous syndicates during the Spanish Civil War of 1936; the *Räte* in Hungary during the uprising of 1956 or the workers' councils of May 1968; the popular assemblies that appeared spontaneously across Argentina after the uprising of 19 December 2001.

What is emerging now is a dialogue of a million voices which is building the first truly interconnected global uprising, an unprecedented transnational social revolution, a revolution made up of thousands of revolutions, not just one. A revolution that is not predetermined, or predictable: not going around in circles but moving in every direction simultaneously. What we are witnessing now is actually a lot more like evolution, a work in progress that makes itself up as it goes along, constantly adapting to each others' needs. An unprecedented global (r)evolution, is taking place and many of us don't even recognize it.

Activist Hazel Wolf lived through the Russian Revolution, the Chinese Revolution, and the fall of the Berlin Wall. "The thing about all of them is, nobody knew they were going to happen," she says. A revolution, by its nature, hardly seems possible before it takes place; but it may seem obvious, even inevitable, in hindsight.

As the networks grow more connected, by webs and actions, wires and stories, many things will emerge that we, as mere neurons in the network, don't expect, don't understand, can't control, and may not even perceive. The only way to understand an emergent system is to let it run, because no individual agent will ever be able to reveal the whole. The global movement of movements for life against money, for autonomy and dignity, for the dream of distributed direct democracy, are following an irresistible logic. It is a logic as old as the hills and the forests, an eco-logic, a bio-logic, the profound logic of life.

Notes from Nowhere