



Lasse Nordlund

THE FOUNDATIONS OF OUR LIFE

Reflections about Human labour, Money and
Energy from Self-sufficiency Standpoint

-La macchina rende schiavi, il braccio liberi.-

-The machine enslaves, the hand sets free.-

Giuseppe Giovanni Lanza di Vasto (1901 - 1981)

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Welcome!

The first text of this booklet, "The Foundations of Our Life" was born in 1992, when I wrote down in the form of a lecture, my reasoning about the state of our society. During the following winters I bicycled around Central, Eastern and Southern Finland giving lectures about the connections between human work and energy, as well as about the economic and societal mechanisms that affect us. In my audience there were people who said that it was my duty to publish writings about these subjects. Yet I chose to give lectures, because I searched for discussion and I wanted to keep my work away from money-making, where publishing a book belongs. In order to make a book, we need to cut down trees, manufacture paper and transport ready books by car for sale. As such, the whole idea seemed too contradictory in light of the conclusions about the functioning of economy and industrial production which I have come to.

I kept on working with my writing and this book contains the summary of "The Foundations of Our Life", which eventually became more important than the original text. I decided to spread it around on the internet, even if we can not say much about its impact on the environment compared to a book. Over the internet my writing is spreading without paper, but the society that makes this spreading possible is far from the lifestyle that I consider sustainable.

Right now it seems the possibility of turning this into a worthy conversation about the foundations of our society, is weakening due to increasing environmental threats. I want to bring forth ideas before little voices are muffled by populist disorder. Environmental and climate change issues are creating a wonderful estrade for those who are practising noisy power politics, while the content of the conversation is suffering.

There have been a lot of changes in my life in the last few years. I now have a family with two children. This stage of self-sufficiency is at the moment weaker than in the "tough years" prior to my family life. In the last few years we spent a lot of time in community projects, where I realized that close community life is not in sync with my character. In spring 2008 we moved back to my farm in Valtimo, North Karelia, Finland. Once again we are going to concentrate more on increasing our self-sufficiency. That is the core of our life and a vast field of research. Through our children we are inevitably linked closer to society, and from time to time conflicts occur. Yet we feel, that by going through the conflicts, it helps to develop ourselves and others, just as it benefits the society at large.

At the end of this booklet is a description about a method of preserving berries - a method that is especially suitable for self-sufficiency. Sometimes there is no need to stretch far to find something new. This writing gives an example of how fundamental everyday knowledge might be disappearing, while other derived scientific information is constantly being upgraded.

The initiative to publish this book came from Marko Ulvila, who has also taken care of matters relating to the publication. I hope from the bottom of my heart, that this book imparts inspiration. Many times on my path I had thought that I would be hampered by the limitations set by society - however, this has not happened. On the contrary, I have received support from unexpected quarters. Also, in this society there are a lot of possibilities to work for a better future. These possibilities are just not so easily found.

4th October 2008

At the time of harvest,
Valtimo, North Karelia, Finland

Lasse Nordlund

Introduction

Only a poor farmer buys products which he himself can produce. This is an old Roman proverb that I found in a farmer's manual from the 1950s.

Around the mid-1980s, I became interested in self-sufficiency. Self-sufficiency provided me with a solution when I was finishing my schooling and unable to find a place in the dominant society. A strong desire to take part in building society clashed with gnawing issues of conscience: could I participate in developing a society, if I felt it was built on nothing? The country I lived in at that time was Germany, where our family migrated to from Finland in 1972. For me, self-sufficiency became synonymous with liberty of conscience. Producing everything I need by myself meant an opportunity to choose from the bottom of my heart what to put my labour into. In 1990 I returned to Finland. After a few initial years of endeavour, I got a confirmation that the myth of the superiority of technical development is severely distorted. Farming by hand, collecting firewood without machines, and the skill of using "primitive techniques" showed me the actual relationship between a labour input and its product. The use of resources changes dramatically, when one must acquire them by hand. I started theorizing my early experiences, and the result was a lecture in 1991, the summary of which was published in several papers in the spring of 2007. For several years, I lectured around Finland in the wintertime, but then I wanted to become thoroughly self-sufficient and test my theory in practice. I was surprised by how little money one can get by with: my dependency on money would drop to 30-50 Euros a year. There weren't many corrections I would have to make to the conclusions in my lecture. Since then I've spent my years farming, and I've also found time for hobbies and participation in society. At the moment my studies have shifted more towards community. At the outset, the project was an individual's project, and a rather stringent one. Currently, I'm interested in how far it can be applied communally and with a family.

In this essay, which is divided into seven chapters I deal with a society that is environmentally sustainable. I begin by observing human and machine labour in terms of energy. From this I continue to investigate the peculiar link between energy and money. In the third part I assess the relationship between human communities and energy. There I reach conclusions that show it is very important that we stop thinking solely in terms of nations when we think of human communities. A state is only one way as to how humans can group. In the following two parts we are looking for possibilities of change. Actually I am dealing mostly with obstacles on a way towards sustainable lifestyle, than with promising attempts making this world a better one. We owe ourselves an explanation why nothing seems to offer us more liberty than the prevailing society. This series on The Foundations of Our Life closes with ideas on what an individual can do without being insignificant in his actions.

Lasse Nordlund, 2008

The Foundations of Our Life

I. Human Labour, Machines and Energy

In the past, working meant performing manual labour in gathering, hunting and farming economies.

It meant using labour energy (or work in a physical sense) to get food, and food energy was collected from nature. The lives of the people who came before us were founded on this balanced exchange of energy, and this balance made them self-sufficient. Their use of resources was based on the work they could do on their own, and was not augmented by external energy sources. A relationship formed between humans and their use of resources. This relationship helped them to live sustainably. To preserve nature, we should strive to work this way even today. It is the only way of working and living that we know, by extensive historical evidence, to be sustainable.

Even today, everyone is dependent on energy that is collected in primary production. In Western countries, only a minority of their respective populations – 4.5% in Finland in 2003 – work in agriculture, fishing and game husbandry, and even this minority does not acquire the energy it needs for food, heating and clothing through manual labour and directly from nature. Food is harvested indirectly, using machines and additional energy. What is the relationship between this used energy and the energy that is collected using it? Why is half the energy of imported (i.e. primary) energy expended in agriculture and forestry – areas that were supposed to provide us with energy?

The balanced relationship between our work and collected energy critically collapsed with the advent of industrialization. Currently, we are constantly using energy which we have not collected from nature by manual labour, where the sun keeps storing it in plants. Neither do we gain our livelihood directly from nature. Instead, we inject into the system, the missing amount of energy; for example, in the form of fossil fuels. As such, energy and matter that are foreign to the system's ecological balance are funnelled into the biosphere.

Contrary to common presumption, we did not manage to make energy collection in primary production more efficient by the use of technology, or by a sophisticated division of labour. A tractor pulling a seven-bladed plough may look efficient, but it collects food energy a lot less efficiently than a person working by hand in a garden – when we take into account the energy and working time inputs more broadly than just for the individual farmer. To figure this out, we must assess how much energy it takes to collect primary energy indirectly, in a mechanized way. The results must be compared to the energy input that would have been necessary if we had collected the same amount of energy manually, using only simple tools.

During their lifespan, machines need energy not only for fuel and maintenance, but also for the manufacturing process and eventually for their disposal. When a machine is manufactured, the more technologically advanced the machine is, the more energy will go into its making. This is because the energy needed to make a particular machine includes the energy it took to build all the machinery used to make it, as well as the energy used to build the machines that built that machinery.

In practice, we can trace the energy inputs in a manufacturing pyramid only to a limited extent, so the sum of energy inputs we get will always be less than what has really been used in the making of a machine. Even though a computer's dimensions are small, for its manufacture one requires a large, energy consuming infrastructure encompassing things from a network of roads to information networks.

This helps to explain in part why, despite "energy-saving machines" becoming more common, our energy consumption continues to grow explosively. With new machines, machine development promises us more saved energy, but at the same time it creates new ways to consume energy. The attempt to amend the energy deficit has become an unrelenting ascent into new heights of energy consumption. Energy efficiency calculations in technical manuals give a false idea about a machine's energy consumption by concentrating solely on the energy consumed when the machine is operating; for example, by concentrating on how long a vehicle can travel with specified amount of fuel. It is problematic to estimate a machine's utility entirely separately from the environment it affects. A heavy tractor compresses farmland, which then takes more energy to plough, consequently raising the energy needed to make a unit of food. The concept of energy efficiency leaves out the indirect energy needs that arise from having a machine in the first place, including ore mining, transportation, marketing, maintenance and changes in working technique. A car needs terrain cleared to make a road to drive on. The term "ecological footprint" describes much more completely our impact on nature than the term "energy efficiency". Nevertheless, they have in common the impossibility of calculating total inputs.

Our body, on the other hand, is in a technical sense a very efficient machine, special thanks to its versatility. We do not need roads to move and we can climb a tree without special equipment. A human can perform physical work equivalent to that used by an incandescent lamp. We can manage about 60 watts. At that level we can work throughout the day and stay in good health. For short periods we can bring ourselves to work at a rate as high as 500 watts. After a heavy day of work, we will have performed about 1 kWh. To keep performing at this level, we have to eat food containing about 4 kWh of energy.

In addition to manufacturing costs, mechanized production ties up labour forces, which are thus removed from primary production. These workers, however, have to be sustained. Those who believe in the great efficiency of technology tend to suppose that people outside of primary production still indirectly make primary production more energy efficient. What we today call "efficiency", relates mostly to the amount of time used, but not to energy-input used: each tractor farmer in Finland supports 50 people, but it is done with an energy input that corresponds to 1,500 people working the fields manually (1987). In comparison, a single Stone Age person could sustain one to two people in addition to himself. The time saving that comes from mechanization is largely nothing more than a reallocation of working time, where the people who used to take part in farming are now producing equipment to speed up the work of the farmer. That time efficiency is an illusion which is reinforced by the following statistics. In 1940 half of Finland's population worked in primary production. By the year 1988, their number had gone down to eight per cent, who, despite the change, still give employment to half of the population in further processing and machine production!

It is impossible to precisely calculate the input that goes into the production of a machine, because when we trace the line of production, we arrive at a point where a machine is making parts for a variety of devices, making the distinction between one energy input and another impossible. The manufacturers of trendy, energy-saving light bulbs leave out of their

calculations the energy that is needed; for example, for the manufacturing technique, and the energy needed to deal with hazardous waste. This way the results look good when compared to ordinary light bulbs. Real "efficiency" is only achievable by relatively simple technical equipment, such as an old-fashioned spinning-wheel or a (wooden) shovel. The less iron they contain, the better.



A spinning-wheel does not need any metal parts

II. The Relationship Between Energy and Money

In the previous chapter, I compared the work efficiency of machines and manual labour. The comparison opens up a very different way of looking at the money economy from the one we are

used to. How would the industrial revolution have taken place when it boasts of an energy deficit? An animal behaving in this way would have died a long time ago.

When profitability is calculated, energy balances of machines are not taken into account at all. Profitability tells us nothing about the energy efficiency of a given decision, and only

tells us how quickly the invested money will be paid back. The slant in our society's energy balance

got out of hand as we turned from an exchange economy into a money economy. Money makes way for phenomena that are impossible or insignificant in an exchange economy.

Before the shift into a money economy, there was a rather direct relationship between labour energy input, and the energy collected from crops. When food is acquired by manual labour, the yield can not be improved at will, because no outside energy is harnessed in the process. In an exchange economy, work time and energy are exchanged. Trading is sensible only when it is almost impossible for a person to produce an item by himself. Finishing a deal

always takes time and equipment, in addition to some compensation for the person acting as an intermediary. More precisely, this compensation equals the wasted labour time in primary production. These inputs and a long transportation distance easily make trading senseless from the energy efficiency point of view.

In a natural economy, moneyless commodity exchange happens mainly between two parties-for both of whom it is obvious whether they will face an energy advantage from an exchange or not. When money is introduced, more parties can get involved in the exchange, as expenses can be shared commonly between them, without the need to transfer goods, by using money as a value-assigning device. Demanded and supplied commodities become "visible" to all, and comparisons between commodities become possible. In this situation, the decision to make a deal is not anymore pursued by energy-background, but by price. The use of money wipes out the information about energy inputs, which is relevant for practicing sensible trade and establishes totally different principles for business, as in natural exchange.

When commodities enter the "market", it creates competition between commodities. This forces producers, whose commodities are sold in the market, to keep their prices as low as possible. The easiest way to keep the price of one's products low in our economic system is to replace expensive human labour with cheap oil energy. 1 litre of petrol costs about 1 Euro. It contains the amount of energy of two weeks' manual labour, the cost of which is about 1,000 Euros! Thus, our economic system forces us to use the greatest amount of energy possible, at the cost of human labour.

When extraneous energy is used for making products, the product's exchange value is no longer linked to our physical work effort. In addition to our physical labour, an item absorbs the

extraneous energy used during its production, which does not increase the price of the product (as it should), but lowers it! Based on the energy balance model I have presented, products are currently priced too low, and manual labour is priced too high.

The small-scale trade of a natural economy was sensible in terms of energy. Then, however, trade developed into an end in itself, into a livelihood that needs a strong system of power by its side. The present system of global trade and production constantly creates an energy deficit, which can only be filled by bringing in energy from places like the Middle East. Our economic system is well equipped to accomplish this task, and so it has managed to keep our energy deficient society standing so far. In trade, transfer of money equals transfer of energy.

The pressure to intensify production by feeding more energy into the system has a particularly disastrous effect on the energy balance of primary production, where productivity has its natural limits. Directors of finance may talk about overproduction in agriculture, but this only describes the amount of commodities in the market compared to the demand. The more realistic situation in terms of nature is that we have the greatest shortage in primary production in history. We use hundreds of times more energy to produce a unit of food than the Stone Age human. Within the scope of a pricing policy, part of the "overproduced" goods may be disposed of to keep the prices stable, which makes the energy deficit of our way of life even worse. Agriculture, which used to collect renewable energy, is one of today's biggest users of non-renewable energy.

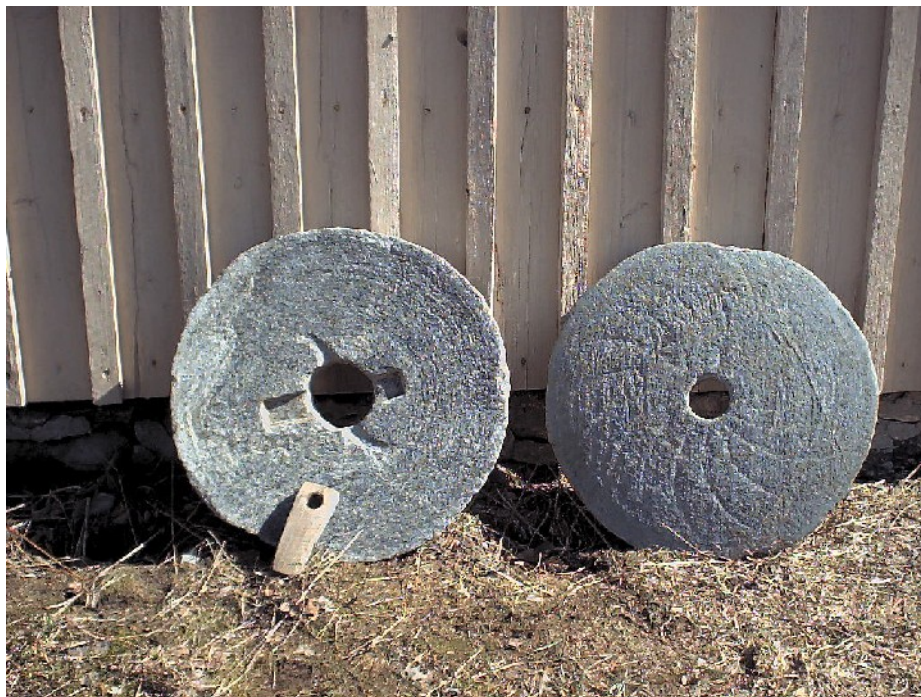
In this light I can make the following generalization: what is economically viable cannot be ecologically gentle, and for that which preserves nature, it is impossible to find economic viability. Subsidies are an attempt to evade this fact, but they are being collected from industries that feed large amounts of energy into the system. The green economy that has been sponsored this way is as much in doubt, as is nature conservation that gets funded only when the economy is booming.

The direction of our market system cannot be changed, because it is founded on competition. Economic growth is a result of an extraneous energy input, it is not wealth created by our own labour. The system rewards those who most forcefully exploit energy and natural resources for production. People living in a natural economy cannot achieve the kind of overproduction our society rests on. For people living in a natural economy, wealth is created only by being able to do manual labour in the best possible way, in a setting provided by the environment. If in their work these people face pressures other than those set by their environment, their labour shifts from optimal energy efficiency into securing their livelihoods less efficiently.

Sources of energy advertised as alternative, such as solar cells, biodiesel made from rapeseed oil, wind power, and hydroelectric power, are all good if you wish to make money from alternative energy, but they will not save us from our energy deficit. These alternatives turn our attention away from our real problems. The indirect and hidden energy needs of advanced technologies affect alternative technologies too. Even when calculated conservatively, the energy

needed to manufacture a solar cell is barely recovered during the cell's lifespan. Our main problem is by no means a lack of energy, but our inability to live in a society which can cope with its resources. Instead, our problem is an abundance of energy, since energy will translate into work, and on this scale will push our environment beyond a breaking point. A theory is left for further study: Is our economic system dependent precisely on a growing energy input? Will it fall apart if the extraneous energy input stays fixed?

There is no environmentally friendly "fair trade" other than moneyless exchange over short distances. The use of biodiesel invites us to exercise our minds a little: Is it sensible to first grow rapeseed by tractor, and then process it to make biodiesel, so we could grow potatoes by tractor? As someone trying to preserve the energy balance, I propose picking up a hoe instead. The balance will be preserved, even though we will spend a longer time in the field farming, than we would by using a tractor.



In an barter economy commodities travel less

III. Forms of Cooperation and the Efficiency of a Community

The ecological sustainability of the way humanity conducts itself can also be approached differently. Genetics, psychology and ethnic studies may shed more light on the destructive manner our hegemonic culture works.

In the animal kingdom, each species has its own unique way of organizing into groups or living a solitary life. By following its own way, an animal or an animal community uses energy as economically as it can. It is likely that humans, too, have population controlling elements in their genome. These elements make a community grow when it is too small, and break apart when it has grown too big. Aggression and ganging up are manifestations of this adjusting force. Without compelling outside forces, our nature would direct us to settle in small villages and tribal communities.

Association can make our use of energy more efficient. Even in communities as small as the nuclear family, there are many tasks that only need to be done once, like collecting firewood or making a spinning-wheel, which creates spare time for others. This is a benefit when compared to living alone. However, possible social conflict may erode this benefit. Fundamental to a community's energy balance is whether the community can adjust its work routine so that the benefits of association stay greater than the costs. The increase in efficiency is greatest at the very outset, when the first few people decide to live communally. After that, the benefits of further association drop quickly, and it will not mean much in terms of work force whether the community has one hundred or one hundred and one members. The bigger the community grows, the more resources it needs to keep itself functioning. The benefits of association grow thinner and eventually turn into a hindrance. No later than at that moment, the group should split up into smaller groups, or it will lose its life's foundation.

In a small community, communal work can be sorted out over meals, but in a large community there needs to be a special herald, whose labour will be diverted away from primary production, and who, therefore, must be sustained by the others. For the community's energy balance to stay positive, the person who leaves primary production must make the primary production of others so much more efficient, that it covers his upkeep. In a society as large as a state, there is even a need for a mass media with its communications network. The infrastructure that is needed to support a forced community such as a state, by itself turns the energy balance of our society deficient.

Unlike animal communities, a great society may not fall for some time even though it is wasting energy. It may be able to fill its energy deficit by bringing in energy resources from outside its borders. This makes our society necessarily colonialist. To give one example, the production of biodiesel is becoming a problem in Malaysia and Indonesia. Rain forests are cleared to make way for large oil palm monocultures for raw material production. Processing and refining this "alternative" energy is smoothly left in the hands of multinational corporations, which export the energy from the producing countries to the mother countries.

Large and centralized structures in society's infrastructure, in political decision, and in production, speed up the emergence of more and more similar structures. The name of this process is globalization, when it has finally reached the multinational level. Due to their structure, they are energy deficient, they are aggressive, and in a problematic way they focus the environmental burdens they cause. Centralized structures can only exist relying upon the

surrounding peripheries. The emergence of centralized structures, such as a gradual transition from a tribal culture into a state system, proceeds at its own pace, whereas dismantling these centralized systems by human choice is nearly impossible.

IV. The Value and Burden of Our Cultural Legacy

Humans shift nature's evolutionary balance, which tends to shift and change slowly if left to itself, but now, through our influence, it moves in a direction that is even more unfit for us. By using a lot of antibiotics we cultivate even more dangerous strains of bacteria. The ability of bacteria to genetically adapt is better than that of humans. Reproduction rate is key in the spreading of viable mutations. It takes us a thousand years to produce 50 generations of offspring, whereas bacteria can do the same in half a day, and with an exponential number of offspring.

This way we create an environment where we survive only with more and more advanced technology, which in turn needs constantly more resources, and sows destruction in other ways as well. Before long, humans will start losing this race – when the extraneous energy flow into our system ends. As these processes march on, our ability to move back into an organic way of living may grow weaker, even if we find the will to do it, and there would still be islands of nature intact enough for such a change

During humanity's long history, we have learned to be instinctively cautious of animals and the dark, and we have survived as a species thus far. When it comes to the ways of using nature that were developed in the last couple of centuries, we lack similar instinctive experience. The organized harnessing of energy resources and raw material deposits increases the impact on our environment manifold, compared to that in the past. We live in a society of "opportunities", with no feel as to whether our way of life is hazardous to ourselves or not.

The only suitable action a state system could take to protect the environment would be its own gradual decentralization and the dismantling of its services. We are left with the option to start praying devoutly for the citizenry to begin to take responsibility of their own lives again. This is an exaggeration of our basic problem in the face of an inescapable pressure to change: meaningful acts toward "sustainable development" would clash with our values no later than when the entitlements we are used to are cancelled (e.g., the right to education and health services).

Our cultural burden is an anthropocentric moral code, which does not help us deal with our value questions when they are related with nature. Our attitude is described in the header of a newspaper: "Even one domestic animal killed by a wolf is one too many". One of the biggest obstacles in the way of change is probably western medicine, which promises to palliate people's fears and suffering. Who will approve of a mother, who will not give her child antibiotics, because she does not wish to contribute to resistant strains of bacteria killing more people in the future?

In a society that strives to direct and control all that is technically possible, even morality is like that. Our morality acknowledges only relationships between people. The rest of the non-living and living nature is by and large out of the reach of our morality, simply set to serve our short-term needs and indulgence. A doctor must do all he can to save a human life, and he has little opportunity to consider the long-term implications of this policy.

Indigenous people would not give up their entire wealth to sustain one individual, as it would endanger their whole existence. It appears to us that we can afford to do this because it is not we, but future generations, who will pay the costs.

V. Paralyzed Democracy on the Way Towards Dictatorship

In the future, state systems, which have organized the exploitation of the environment, will be compelled to play the conservationist to a greater extent. However, this role can only come second to these systems, after the primary task of making sure that the energy is supplied for their own upkeep.

The most logical development for the world would be to move towards sterner and sterner dictatorial regimes, which are ostensibly more capable of forcing even fierce change when persuasion has failed. People's pauperization in a kind of ecological dictatorship does not mean that the government has succeeded in preservation of nature. Increasing misery is the result of the government's need to direct resources for its own maintenance. Thus, people's and government's needs start to compete with each other.

When resources get low, governmental power will be transferred to the army already in times of peace. Well-fed, the army will stay working longer than any other institution even if international economies have broken down. Democracy has no capability to prevent its development towards totalitarianism when resources become scarce.

VI. Social Contract

Our society is highly organized and because of this, citizens' roles have to be clearly defined. In a constitutional state, jurisdiction should not be arbitrary and administration should be in accordance with elementary human rights. Human rights have quite a large support all over the world independent from cultural context. However, the government's legality to act as the guardian of these rights is unclear.

By social contract we mean a situation, in which the leadership of a society is given a mandate to govern by people, who previously lived without a society. A person benefits the society by giving away a part of his right to self-determination, while he gains the society's protection in exchange.

Jean-Jacques Rousseau developed the idea of social contract in 1762, during the age of Enlightenment. The legitimacy of a state's power is based on this idea of social contract. A central motivation of the people in establishing a society is to gain its protection. What happens to a state's legitimacy, if the state, as a system, is incapable of protecting the people from themselves (not just in practice, but in principle, too)?

Legally, the social contract is not a contract, because one can not choose to not sign it. By casting one's vote in an election, a citizen mandates others to act as his representative, and indirectly reinforces the state system's tenuous legitimacy. Voting creates something like a binding contract between a citizen and the state. Through forced membership the state as a society creates only one collective way forward, which means either common demise or salvation.

When I was born in 1965 in a Finnish hospital, I suppose I accepted that contract without much reflection.

VII. The Uncontrollable Society

The state system must fulfill its ever-growing need for energy and resources by expanding its power step-by-step outside its borders. Peaceful states expand diplomatically, others do so militarily. However, the need to control even larger territories is common to all states. Peacefulness turns into coercion if the desired ends are not met diplomatically. A state may put on a peaceful act for image reasons, and still ally itself with a more aggressive state in the hope of securing its position in the aggressive state's wake. These attempts to secure one's position without tarnishing one's image have grown more intense.

The Achilles heel of a highly organized society is its dependence on stable conditions.

Particularly its central areas, which are related with energy supply and the functions of the economy, are as important to it as is the citizenry's trust in the functioning of "their society" and economical system. In Finland, forestry has a central role in satisfying the society's needs for resources. This results in restrictions in ownership of forest. Many of them cannot be considered as democratic. Also, there has been a reform in mining law in October 2008, which makes it easier for companies to start mining activity, even if it spoils people's homes and traditional living areas.

The stability, which our system absolutely demands, is achieved within and outside the borders by means including violence ("peace by force"). While agriculture based on a single crop may bring great yields, the crop may be completely wiped out by a highly specialized pest. Our society appears strong, but it is standing on a few decaying columns. The growing need to minimize risks has moved our society further under the control of authorities. The fervency of the war on terror is a result of the state system's inability to control the risks it itself is creating.



"Götterdämmerung"

VIII. Decentralization or Collapse

In a decentralized society there is no central controlling hierarchy; there are small, independent blocks instead. In such a society, human activity cannot change the environment as dramatically as it can in our system. This is due to a difference in the ability to employ centralized energy and labour resources: a decentralized society is a self-regulating society.

To render the society harmless would mean especially dismantling and decentralizing certain dependencies. To the individual it would mean a rethinking of liberties and necessities. Developing the society has relied heavily on ideas of development that aim at large, homogeneous, and strictly hierarchical structures with an anthill-like division of labour.

We can react to a destabilizing world by pursuing our interests and our resources at the expense of others, hoping we will be among those who survive. To do this is to create instability elsewhere in the world. We may also consider we might not be among the winners. It then makes sense to think which path causes the least suffering to people and nature as a whole.

Society's decentralization would give rise to much instability, but we will end up decentralizing the society anyway, either in a controlled and gutsy way, or in a sanguineous crash when the growing energy feeds into our system ends. There can also be another domino effect which launches the crash of monetary economy. Maybe only an economic crash would prevent our system from overexploiting our planet's resources completely.

It is imperative that we develop and support alternative ways of life that function close to primary production. By being self-sufficient and by avoiding contact with the money economy, these alternatives may operate even when the conventional order starts to break down. Self-sufficient economies and communities are not useless even if there is no crash. In these communities people have an opportunity to live without damaging their environment.

Retreating from the consumer society is at heart a very gentle act that is easy to defend morally, and is also socially more or less tolerated. This places it among the easiest of the difficult paths we can take as human beings, who carry with us the ties and bonds of our values and our culture.

When we develop self-sufficiency, our thinking becomes less dependent on the prevailing modes of thought. Practicing self-sufficiency means broad knowledge and skills that do not fall in the hands, and become the property of universities and corporations, but remain with the people. It is a beautiful myth that universities practice science freely and for the sake of humanity. We have come a long way from that myth, if it ever has been a reality at all. A university acquires information that has commercial potential, and helps to monopolize that information in cooperation with pressure groups. Non-commercial entities easily become dependent on others, who may let them down at will and end valuable work in an instant. Self-sufficiency brings with it the freedom to disseminate know-how on organic living as one wishes, unafraid of competitors, allowing our intellectual legacy to be freely communicated and put to use, unimpeded by intellectual property rights and patent law. This way our thoughts may be freed, and allowed to focus on what is essential in the face of the looming challenges.

VII. Experiences of Resource Use on a Self-sufficient Farm

Considering both global and local events, I have concluded that the overall most effective force for change has to come from the grass roots level. It is not all-powerful, but neither is any other way or actor.

From 1992 through 2004 I lived a self-sustaining life in Valtimo, in the northern part of North Karelia in Finland. The way people work with self-sufficiency is similar all around the world. A single human being, buying no food whatsoever, needs surprisingly little arable land to feed himself throughout the year. Approximately 500 square metres (1/8th of an

acre) is sufficient if one picks mushrooms and berries and can be thrifty. I consume about 200 kilos of mushrooms a year, most of which I dry. I pick about the same amount of berries, and I preserve them using a special method that employs no hermetic sealing and no additives – not even sugar. Inverting the jars regularly keeps the berries in excellent condition for years.

In running a self-sufficient economy, I aim to do things from beginning to end by hand as much as possible. To make cloth I wish to build a spinning-wheel to make yarn. If possible, I try to make the tools needed to make the spinning-wheel as well.

All food farming begins by composting the outhouse and house waste well. Land is tilled with a pitchfork. Firewood I collect with a human-pulled cart and a hand saw. To make clothes I begin by shearing sheep and cultivating flax. I go on to spin thread which I then weave into cloth. Linen thread I have mainly used to make fishing implements. Baskets I make from willow.

The working time needed to reach this level of self-sufficiency is about half a day, provided that working time is spread evenly across the whole year. Eating meat is not necessary. With time I have returned to my vegetarian diet. Living near a lake, fishing is a more economical way to get food than keeping animals. Hunting might be in the order of energy input between fishing and keeping animals - depending certainly on circumstances. Grazing animals utilizes them for energy collection. They convert plant nutrients into meat, which we then eat. Animal husbandry, excluding indigenous reindeer herding, is not necessarily advantageous in terms of energy collection especially here in the north. The long season when animals must be fed indoors means that preparing the animal feed takes a lot of work. Given the amount of work that is needed to keep animals, one can collect more energy by farming than by eating meat. On the other hand, wool and leather are superior materials for making clothes, and replacing them with linen causes a lot of extra work. Keeping animals imposes a very regular working routine making it more difficult to optimize other job complexes, which in turn reduces the efficiency of animal husbandry when compared to a livestock-free natural economy. Whether a natural economy prospers or not depends largely on weather conditions, and on one's ability to schedule tasks for the most suitable occasions.

In this series I have not dealt with the usefulness of animals in doing work. In Finland, it is often taken for granted that horses are needed in a natural economy. However, the upkeep of a horse is no minor issue, and a horse can easily eat what its work is worth. In a natural economy one should minimize risks, and animal husbandry always means surprises one must be prepared for. In order to plough, a horse needs already cleared field, and machines and tools a gardener does not need. I have not found any reason to get a horse, but instead have found many reasons not to get one.

I believe horses became common on Finnish farms because the farmer was not free. Taxation in particular forced the people to produce goods that do not spoil, such as tar and cereals. The heavy logging needed for tar burning required horses, and once acquired, the horse could just as well be used for farming too. A peasant's life was hard because the peasant's economy could not be organized simply according to natural circumstances. The peasant keeps the society standing, so authorities have tried to control the peasant throughout history.



Final Observation

The conflict between the unknown paths travelled by our contemporary society, and the well-tried ways of a natural economy, is obvious. When will it be time to admit that only a natural economy, that has been practiced throughout human history, offers us a reliable model of a sustainable coexistence of humans and nature?

An inflexibility of the mind and the spirit, our ability to prove to ourselves anything we wish to believe, is the strongest obstacle on the way to understanding. Our unlimited desire to make experiments favours the invention of even wilder plans to solve our accumulating energy deficit. At times these plans seem like sheer escape into fantasy. To slow down climate change, some researchers have considered separating carbon dioxide from air in large industrial plants, and then pumping it underground. This happens with use of energy and resources. A creeping uncertainty of our course will always push some people to labour even more frantically in the same direction as before. The fact that humanity has survived and even created advanced cultures without combustion engines is of no interest to these people.

Lasse Nordlund

The writer is farmer and a social thinker, who occasionally trains people in matters of self-sufficiency.

Translated from Finnish in 2008

How to Preserve Berries and Fruits Without Sugar

We might think that everything about preserving berries has already been invented and new methods could only be found based on complex scientific research. This is exactly the time for the inventors of perpetual motion machines and other home-spun experimentalists to start their own research. I, however, discovered the preservation of the berries without sugar and sterilization by coincidence.

As a boy, I spent a lot of time with a microscope studying bacteria. I was collecting samples of whatever promised me something new to observe. I raised microbes in bottles and jars. In order to do this, I had two bottles full of water from the pond nearby. I let them stand on my table for long periods and after some time I had a look whether some new bacteria was sprouting. One of the bottles I sloshed around every now and then, but the other one I left standing. When I was cleaning up I perceived something, which led me to try a new method of preservation ten years later. The forgotten bottle had formed – as you can guess – a thick and smelling layer on the surface of the water. That was the desired bacteria culture. However, the water in the bottle, which I had every now and then been shaking, was clear. The conclusion was, that movement prevented the growth of the bacteria.

Later I doubted that this could work with the berries, and I started to make a series of experiments. I mashed the berries and put them into jars with a screw cap. I turned them upside down every day and stored them in a cool place. I did not heat up the jars or the berries. The results were promising: the berries smelled fine and I did not get any stomach ache. Unfortunately, the berries' sweetness had suffered and there had also been some fermentation. Turning the jars did not seem to work on yeast, even if it did work on other bacteria. Mashed, but not heated up, cell activity continues in the berries and the process requires sugar. That is the reason why mashed lingonberries get more and more sour; as the winter goes on they even contain other substances which prevent the growth of yeast and other bacteria.

The breakthrough was reached by the following procedure, which has delighted me and others over the past 15 years, with hundreds of kilos of tasty and naturally sweet berries. In the procedure I blanch the berries. In other words, I let the berries boil for about one minute. Since it is such a short time, it is not equivalent to canning or sterilization. Here is the recipe:

I boil a little bit of water, into which I drop the berries as a whole. After a short blanching, which stops all cell activity, I put the berries in glass jars with a skimmer, so that the jar is absolutely filled to the top with berries, and then I close the lid. I turn them lid downwards and allow them to cool. The lid bends inside due to vacuum, and this is of use later when observing the preservation process. The jars with leaking lids I use first. After boiling of berries, the amount of liquid increases. This juice I use for the next round, because I want to preserve berries and not water. Boiling can take more time, if there are a lot of berries compared to the amount of juice.

The next step is to move the jars to a cool place and turn them upside down daily during the first week. In the second week it is necessary to turn them every second day, in the third week every third day, and so forth. One-year-old berries need turning only once a month or less frequently. It is not important to turn the jars extremely exactly according to this schedule as the most important period for the preservation is the first few weeks.

In the berry season, I deal with large amounts, and because of that I boil the berries in a big kettle on an open fire. The open fire heats the juice very quickly. When I have blanched and filled up the jars, I pour the next bucket into the hot juice. This hastens the process of preservation. However, I advise you to start with small amounts and observe the jars: whether the preservation has been successful. In my case, the only time when the berries had gone bad, had happened when I tried to find out how often must the jars be turned.

I have successfully preserved blueberries, cloudberries, strawberries, raspberries and currants. Usually I mix them, because otherwise I would have to use different juices for blanching the berries. Currants seem to be most sensitive if turning is forgotten. Apples seem to

require most care but my studies are unfinished. Combining better preserving berries, like lingonberry and cloudberry with weaker ones such as raspberry and strawberry, makes the results still safer. Nowadays, while preserving lingonberries I do not mash them anymore with a club. I let the blanching do the job of breaking up the berries. They preserve in their own juice in open jars as normal puree but at the same time they retain their sweetness.

I believe that I did not really invent this method. I am pretty sure that even the Stone Age people knew about this method of preservation because it functions with certain limitations also in the open jars. Stirring the jars is difficult, but it can be replaced by regular and dense mixing.

Before the Winter War, the Finnish government published a booklet wherein they urged people to prepare for hard winter and increase the supplies of food from nature. As a help for preserving, sugar, plus other preserving chemicals were mentioned, but these were also scarce during the war. If there was information about preserving berries without sugar, it would have probably been mentioned in the booklet. How can this kind of information vanish? Maybe because most of the old preserving guides that I have seen, have been published by the sugar industry.



Berries preserved by turning the jars



The contents of this booklet may be used and distributed freely.

"The foundations of Our Life" is also available in German, Italian and Finnish, copies of which can be ordered from the author.

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BACKCOVER:

Technical progress is a illusion and consumerism is something you can free yourself from.

In his writing, Lasse Nordlund observes and discusses the self-sufficient lifestyle. For over a decade he has subsisted on natural resources, and made a living, independent from fiscally driven agriculture. He makes his clothes from scratch by sewing flax-fibres with a handmade spinning-wheel. His experiences give him keen insight and enable him to make sharp conclusions about our society's relationship towards nature, energy, money and the meaning of work.

"A strong desire to take part in building society clashed with gnawing issues of conscience: could I participate in developing a society I felt was built on nothing? For me, self-sufficiency became synonymous with liberty of conscience. Producing everything I need by myself meant an opportunity to choose from the bottom of my heart what to put my labour into. From 1992 through 2004 I lived a self-sustaining life in Valtimo, in the northern part of North Karelia, Finland. I was surprised by how little money one can get by: my dependency on money would drop to 30-50 Euros a year."

– Lasse Nordlund

This essay contains an important statement in these times when over a half of humanity stays in cities. While people living in the countryside become fewer in number, our understanding about the basics of our livelihood becomes weaker. By proving that satisfying life in self sufficient way is an option in Europe today Lasse Nordlund presents us an eye opening argument in the spirit of Henry David Thoreau.