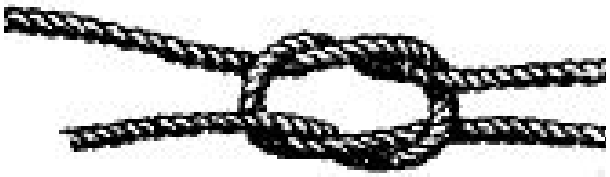
Complectere

Living in alpine style

Oliver López Corona



Basic principles for decision making in a complex world

Dr. Oliver López Corona is an applied mathematician and interdisciplinary physicist. A member of the national system of researchers in Mexico, he is an explorer of life who, giving Lévy flights, studies and practices antifragility.

To my clan, the Featherclaw;
to my mentors;
to my academic father, Pablo Padilla.

PREFACE

We live in a complex world, highly interconnected that changes rapidly, but at the same time we are immersed in a lifestyle and political systems that try to systematically and artificially isolate us from randomness (i.e. combat every wildfire), a process known as fragilization that produces several unintended consequences (i.e. yuge wildfires). It is also a time in which, as never before, those who make these fragilistic decisions that hurt us individually, collectively, and even our natural environment; are isolated from the consequences of their decisions and do not pay for their errors (no Skin in the game), but do benefit every time they can.

In response to this, it is important to speak out openly against those processes that isolate us as individuals and society from the forces of chance and evolution. On the contrary, it is key to promote all decisions, strategies, and processes that minimize catastrophic and scalable risks in exchange for assuming lower and manageable ones; at the same time that they maximize the benefits of those decisions, even allowing themselves to expose themselves to unexpected gains. This work is part of the recognition of the need to continue generating a deep understanding of the concept of Antifragility while promoting its responsible practice.

Complectere book is my personal contribution, that will be delivered into individual chapters/essays to give my readers optionality about what parts of the book they really want to read.

In this way, this is a strange book because it deals with a subject that requires two different but complementary approaches. On the one hand, I will talk about the scientific bases of complexity and randomness, but later in order to enter the subject of decision-making, I will do so from my experience as a practitioner and risk-taker, mainly using my years as a mountaineer and explorer. As a scientist, I have about twenty articles in specialized international journals and a similar number of presentations at national and international conferences. As an explorer, I've participated in various expeditions such as 1) Exploration in the jungle of Alta Verapaz, Guatemala (1999). First absolute world climb in El Escudo, the North wall of more than 1000m of La Encantada, Cumbre de Baja California (1999). 2) Tour of the Sierra de Cuchumatanes in Guatemala (2000). 3) Journey through the desert of Coahuila, Mexico (2001). 4) Crossing the Iberian Peninsula by bicycle, 2000Km pedaled. (2002). 5) Probable first western crossing in the Great Altar Desert (Sonora), in just 34 hours without stopping, being the fastest (2002). Crossing a variant of the previous route (2003). 6) Cycling through the Atacama desert, Chile, from the sea to the Andes on the border with Bolivia (2005). I was named one of the three best student mountaineers in the history of the Association of Mountaineering and Exploration of the UNAM and I was nominated for the Student-Athlete award of the UNAM (2002).

The term "Complectere" that gives the book its title is constructed from the Latin root

plectere which means "to braid, to bind" to which the prefix com- is prepended, with which the word acquires the sense of the duality of two opposing elements that are intimately intertwined, but without canceling their duality. Thus, the term complexity that comes from Complectere, refers to that which remains intertwined due to the effect of opposite and complementary forces: emergence (randomness) and self-organization (order). Systems in a dynamic regime between order and randomness reach the highest level of computational capabilities and achieve an optimal configuration between robustness and flexibility. The empirical evidence indicates that it is in this state that living organisms, ecosystems, and the Earth itself are healthy.

Another interpretation of complectere from a more random process perspective is that it describes what is known as Lévy flights, which are processes of exploration of the space of possibilities where a completely random local process is combined, with some infrequent jumps of much greater magnitude than typical first process steps. This has been shown to be the way in which the foraging patterns of most animals have evolved. Reinterpreted as an investment strategy, it could well correspond to what Maestro Taleb calls the Barbell strategy, where most of the money (say 80-90%) is invested in very safe instruments and the remainder (20-10%) on very volatile instruments. This avoids the risk of catastrophe (at most you lose the volatile bottom) and at the same time exposes one to the possibility of positive Black Swans.

This understanding of the probabilistic origin of complexity puts us in a position to understand how we can make good decisions in contexts of high uncertainty and complexity. It is here that the current formal tools are somewhat limited and it is better to jump to the practical knowledge, codified by Taleb in his concept of Antifragility. Antifragility is not just robustness or resilience, it is as its name suggests the opposite of fragility.

Fragile systems are the one which loses, which are broken by volatility or time (time allows the expression of volatility). The opposite of fragile is what gains from volatility or time.

In this sense, one of Maestro Taleb's many genius ideas is having realized that in terms of decisions it is impractical if not impossible to try to predict, control, or avoid the random nature of our environment, specifically the Black Swans. So instead of pursuing that chimera, Maestro changed his focus to looking for the best strategy in the face of the unknown, volatility, or time.

Thus, one can go on identifying some basic principles to achieve antifragility, for example exposing oneself to the right kind of randomness; never take catastrophic risks for example. Make a lot of small and local mistakes, because they get a lot of experience and information about the systems (Barbell strategy). I will discuss these ideas through examples of mountaineering and exploration expeditions. Many of them are famous because their participants or the events that surrounded them, others are my experiences; but in all of them, it is about exemplifying an important characteristic of

decision-making in complex contexts.

From there I propose a set of everyday applications of these ideas and concepts to achieve what I have called an Alpine lifestyle or a Lindy lifestyle. All these applications make very intensive use of the idea of a via negativa, that is, to subtract the trivial, the artificial, not necessary, from our lifestyle.

Finally, we are moving towards a transgenerational understanding of risk, understanding our responsibility at different times, and grouping scales. Arriving at what I have called Taleb's Maximum Antifragility Principle, which states that the best decision in a context of complexity and uncertainty is one that avoids damage and maximizes convexity in payments.

Finally, I review a work in progress by Taleb on his proposal for Multiscalar Locality as an organization proposal based on a complex perspective that recognizes the random nature of the world and the ideas of Antifragility.

A few words of caution may be necessary at this point. My experience as a writer is restricted to academia, so this is obviously not a literary book. Also, perhaps I should recommend reading directly to the teacher NN Taleb who of course is ahead of me in erudition, clarity, and philosophical depth. You would also benefit from reading the original chronicles of Carlos Rangel. So I sincerely recommend you not to read my book. I want to be very clear about this ... most of the ideas in this writing most likely come from one of these teachers: NN Taleb, Alejandro Frank, Carlos Rangel, among others. I doubt that I have introduced many new things except the connections between them, that is, between the unknown, complexity, and risk-taking in the adventure. When one has read and admires a teacher as much as I admire them, a kind of intellectual intertwining invariably forms. I have tried to be careful about citing and referencing whenever necessary and I hope I have not omitted anything (unless otherwise stated, the images used come from wikipedia or wikicommons and are under a CC free use license), from being so, I ask you to let me know dear reader.

If despite these warnings you decide to buy and read it, I hope you will find connection nodes for your own ideas

Living in Alpine style

Life in alpine style is a great metaphor for practicing Antifragility in the pursuit of a Lindy life for several reasons: the alpine style implies accepting the risks of the adventure and at the same time avoiding transferring them to others; it predominantly uses the ***via negativa*** to lighten “weights”. This makes it possible to be faster in recognizing the effect of non-ergodicity in risk taking; of course, to be able to move/react fast requires great physical **preparation** (anticipatory thinking); it also requires a mental predisposition to accept and handle uncertainty and failures; it implies a “fair play”, aesthetics and ethical imperatives

There is no adventure (life) without risk of death, Nietzsche said that one can die of being immortal. In the Toltecayotl philosophy, it is said that death is our best friend, a counselor, it makes us have philosophical hormesis in a certain way. Through overcompensating philosophically, we may be able to focus on the important things in life. The Tyrol declaration of which I write in more detail in Appendix A, is largely a request to accept the risks of the sport and assume responsibility for the adventure, recognizing the necessity of good risk management, through trained judgment, skills, and self-responsibility, that is an essential factor in the practice of mountain sports. Likewise, due to the great diversity in mountain sports, each individual can establish what is an adventure for him, where his abilities and the assumed dangers are in balance.

In terms of fair play and style, the 2012 ascent of the Cerro Torre’s “Compressor” route by Kennedy and Kurk, caused an impressive controversy by withdrawing about 125 bolts (artificial security and climbing elements put in the wall to facilitate the climbing and reducing risk), making the first clean ascent of the southeast ridge of Cerro Torre in just 13 hours. This route is famous not only for the impressiveness of Cerro Torre and its intrinsic difficulty but mainly because in 1970, the mountaineer Cesare Maestri climbed it in an effort of two seasons, in which he used a gasoline compressor that weighed approximately 135 kg (300 pounds), the use of thousands of feet of fixed ropes and an unprecedented number of bolts into the rock, about 400 in all. The resulting route became known as the Compressor Route. Among the many criticisms, Mountain magazine published a story entitled "Cerro Torre: a desecrated mountain", and even Messner wrote an essay about it: "The murder of the impossible." The reason behind this savagery on Maestri's part was due to his previous expedition to Cerro Torre history. In 1959, Maestri, together with Cesarino Fava and the famous Toni Egger,

made an ascent to the at the time unclimbed northeast ridge of Cerro Torre. In one of the final moments of the ascent, Fava turned around leaving Maestri and Egger heading to the top. Six days later, Fava found Maestri lying on his stomach and almost buried in the snow. Back at base camp, Maestri claimed that he and Egger had reached the summit, but that Egger had been swept to his death by an avalanche as they descended. Multiple doubts arose regarding Maestri's account of having reached the summit and even about Egger's death. That is why Maestri returned in 1970 to climb the mountain without a hint of doubt. What he did in such a vandalic way is for many, the confirmation that he never could ascend by his means, as he claimed back in 1959, and that the whole story is false.

The first uncontested ascent was made by Casimiro Ferrari, Daniele Chiappa, Mario Conti and Pino Negri in 1974. Days after Kennedy and Kurk's ascent, on January 21, 2012, Austrian climbers David Lama and Peter Ortner made the first free ascent of the same ridge, demonstrating that the face can be climbed using the purist ethic, without the use of bolts. Lama described their rise as the greatest adventure of his life. In 2015, Rolando Garibotti and Kelly Cordes demonstrated that the photo Maestri claims was taken at Cerro Torre was actually taken from another mountain, the Indio Profile. In a paper written by Kennedy and Kurk (which is the basis for this section), climbers ask: “The question that remains is why? Maestri's actions were a complete atrocity. His use of bolts and heavy machinery was scandalous, even for the time. The Southeast Ridge was achievable by legal means in the 70s, [Maestri] stole that climbing to the future. " This is interesting because it recognizes nature’s aesthetics as an intergenerational resource.

Without risk, there is no adventure and life should be lived as an adventure.

In addition to the ethical and fair play component, another problem that the history of Cerro Torre shows is the tendency of modernity to eliminate randomness, volatility, the risk of our lives, for the sake of "achieving the objectives". Over optimization leads to fragility and to context dependence. Think for example in world class weightlifters or powerlifters, who in most cases will develop chornicall injuries that are primarily of the overuse type, not traumatic injuries, that compromise joint integrity[1] with terrible elderly outcomes.

[1] See for example: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1322916/

As pointed by Taleb about antifragility in Medicine[2], one apparent error in the literature is to disregard the second-order effect when making conclusions from empirical evidence. Examples are dietary guidelines based on composition without regard to frequency. For example, the use of epidemiological data on the Cretan diet focused on composition and not on how much people consumed each form of food. The same is correct with any form of sport, you most probably find yourself within a sigmoid type of dose-response curve, that implies that early in training you get low benefits; then if you continue, the benefits start to speed up (even in a kind of exponential way); but then if you continue to increase the dose (train harder and more frequently) these benefits slow down and eventually you cease to benefit and start to hurting yourself from training.

Even more, I agree with Maestro Taleb that at least one source of most of our physical, mental, and spiritual illnesses is the lack of randomness and stressors. He is undoubtedly correct when he says that we are far better at managing scarcity than abundance. But how to get out of this situation?

Messner did so in his domain (mountaineering) through what he later called “resignation mountaineering” style. Using the principle of the via negativa, he voluntarily renounces technologies and aids, in order to live an adventure experience, a human experience. How could a normal person do it? How can we stop being technobioents and go back to being classical humans?[3] Here are some initial ideas.

Over time I have practiced many sports, but I think I was lucky to have started rowing very young. Being an Olympic sport, the training I received was very systematic and created a solid foundation for me to maintain a life close to sport in general. There, I also began to practice three physical activities that have accompanied me most of my life, weightlifting, running and basketball.

As a mountaineer and still a couple of years later I was running a lot, finishing three marathons and a half marathon. In that same university period, I also practiced Aikido, Kempo and Kendo. More recently I practiced Traditional African Dance, Muay-Tai, Capoeira, Kung Fu and Bujinkan. So, in the 32 years, from the eight when I started rowing, to the forty that I am as I write these lines, I have tried all kinds of training.

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[2] https://arxiv.org/pdf/1808.00065.pdf

[3] The term technobiont referees to the modernity highly coupling of humans with technologies that takes them out of universal scaling laws of energy use for example, meaning technobionts behaves very differently from Hunter-gatherers (Classical humans), see https://www.researchers.one/article/2019-01-1

In the same way, I have been an athlete for pleasure and high performance. Based on that diverse and accumulated experience, I want to present here some fundamental principles of physical and mental training to achieve a Lindy lifestyle. This is important, you cannot achieve a Lindy lifestyle if you do not work in a coordinated way, mind, and body.

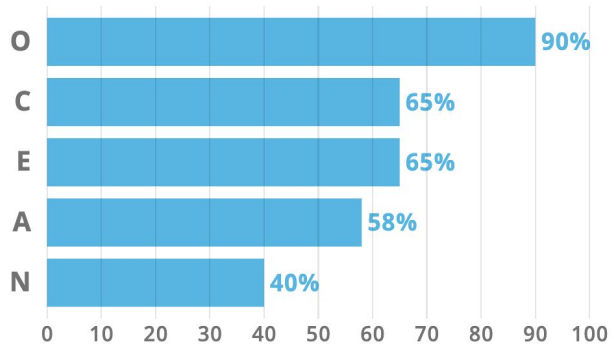
Surviving and even thriving in contexts of deep complexity and uncertainty is above all a mental game that involves getting to know yourself in depth. In these contexts, both our attitude and emotions behave as allies or enemies when we face the unknown, the randomness, the uncertainty. You need to master your mind to adapt and reinvent yourself, as many times as needed. This of course also implies recognizing what type of personality we have, want, and can build.

Taking it with a lot of skepticism (remember the IQ lessons that Taleb considers largely a pseudoscientific swindle), Gerlach et al. (2018) recently reviewed more than 1.5 million self-reported personality surveys and found that there are at least four distinct groups of personality types: average, reserved, egocentric, and role model. These personality groups are based on five widely accepted basic personality traits: neuroticism, extraversion, directness, kindness, and conscientiousness.

The five personality traits are known as the Big Five, the five-factor model (FFM), or the **OCEAN** model; are a taxonomy for personality traits that uses the statistical technique of factor analysis on data from personality surveys that seek to identify some keywords that the respondent uses to describe himself. For example, someone who described himself as conscientious is more likely to use terms like "always ready" rather than "messy." This theory is based, therefore, on the association between words not on neuropsychological experiments. Which should give us a guideline to be cautious about believing too much in the results.

The five basic personality factors according to this approach are:

Opening -**Openness**-- to experience (inventive / curious consistent Vs / cautious)
Awareness -**C**onscientiousness-- (efficient / organized Vs to easy / neglected)
Extraversion - -**E**xtraversion-- (outgoing / energetic Vs lonely / reserved)
Kindness -**A**greeableness-- (friendly Vs defiant / detached)
Neuroticism -**N**euroticism-- (sensitive / nervous Vs confident)



Openness (**O**) is associated with people who tend to think in an abstract and complex way. These types of people in general tend to be creative, adventurous, and intellectual. They enjoy playing with ideas and discovering new experiences. In contrast, people with low scores on this dimension tend to be generally practical, conventional and focused on concrete. They tend to avoid the unknown and follow traditional paths.

Using a simple tool I obtained, for example, that I identify myself in 90% with the keywords that correspond to O; 65% with C; 65% with E; 58% for A, and 40% for N. By the standard interpretation it implies that I am essentially an Empathic Idealist, that is, a type of person who uses intuition and creativity to help others. As the second component of my personality, I would be an analytical thinker or a person who tends to solve logical problems with complex rational analysis. To a lesser extent, I am the practical caregiver type or someone who helps other people in a practical and daily way. And lastly, I have components of mechanical logic, which would be a feature aimed at ensuring precision and efficiency in logic systems. Putting these four components together, according to this psychological approach, I would be a person who “thinks of innovative ways to improve systems to make the world a better place; using established institutions and proven methods to maintain stability, security and achieve well-defined objectives ”.

Following the metaphor that we have been using repeatedly throughout the book, let's think again about a space of possible decisions that can be made throughout life as if it were a physical space that we want to explore. How do we want to explore it? The answer we have found is that we want to do it by doing Lévy flights, which represent a complexity-based or Barbell strategy that has the characteristics of balancing processes of self-organization and emergence. This balanced dynamic enhances to retain good decisions already found while still exploring the space of possibilities. It is a scale invariant space exploration process that is characterized by many local random steps of the order of the characteristic length scale (the mean step size) and from time to time

some very large (compared with the mean) steps, called a flight. This type of space exploration has been demonstrated is the way animals move in a complex environment. In other words, we want to live neither only in mediocristan nor only in extremistan.

Even more, this balance between these complementary processes known as criticality, has been recognized by Cocchi and coworkers (2017), as essential for cognitive functions which usually require the coordination of neural activity across many scales, from neurons and circuits to large-scale networks. As such, it is unlikely that an explanatory framework focused upon any single scale will yield a comprehensive theory of brain activity and cognitive function. These are key characteristics of what is called a complex system and as such, it requires to understand how a large collection of components (i.e. neurons) - locally interacting with each other at the small scales - can spontaneously self-organize to exhibit non-trivial global structures and behaviors at larger scales, often without external intervention, central authorities or leaders. The properties of the collection may not be understood or predicted from the full knowledge of its constituents alone (Domenico and coworkers, 2019). In that context, an important number of works in neuroscience and across many other disciplines have identified that the multi-scale processes related to complex systems (as the brain itself) arise from so-called critical phenomena that occur very broadly in the natural world.

Rather than having a central control mechanism, complex systems distribute their organization across components integrating through their interactions. Self organization may produce physical/functional, structures like crystalline patterns of materials and morphologies of living organisms, or dynamic/informational behaviors like shoaling behaviors of fish and electrical pulses propagating in animal muscles. As the system becomes more organized by this process, new interaction patterns may emerge over time, potentially leading to the production of greater complexity. In this way, contrary to simple systems, characterized by non or only a few weak interactions and a constant configuration space (in terms of the observer) for which the properties of the whole can be understood or predicted from the addition or aggregation of its components (reductionism core property); in complex systems, the whole cannot be understood or predicted from the knowledge of its components because the interaction between components of the system generates novel information and exhibits non-trivial collective structures and behaviors at larger scales.

When these two processes of self-organization and emergence are in balance, the systems tend to produce fluctuations that do not have any privileged spatial or temporal scale characterized for a power law in the frequency space with a scaling coefficient near to one which has been observed in healthy brain activity. Most interesting is that

under this critical state, both complexity and Fisher information are maximum (Pineda et.al. 2019; López-Corona and Padilla, 2019) which conferred the systems with optimum capabilities to construct internal representations which are essential to perceive and respond to environmental changes and to interact with other similar entities. The better these representations (that extract, summarize, and integrate relevant information) the greater the competitive advantage, which can eventually make the difference between survival and extinction. Applied to brain criticality these should translate into greater cognitive capacities.

In this way, a depart from Criticality (maximum Complexity and Fisher Information) means a decrease of the system's capacity to respond to perturbations and so it also loses its antifragility. A system is antifragile if exhibits a non-linear convex response (gain) from perturbations / aleatory / stressors / time, a characteristic proposed by Taleb (2008) as essential in healthy systems.

So on the one hand we want to cultivate personality characteristics that allow us to feel comfortable under the uncertainty, the new, and the fear. Mark Twight says in "Extreme Mountaineering" that it is the mind that produces fear and therefore it is under the influence of the mind. As one of the most successful extreme climbers of his generation, Mark Twight assures us that no one controls a mountain situation, that thinks so, is just vanity. Instead of seeking control, he suggests we get used to giving up control and acting in situations of chaos and uncertainty. He affirms that one can tame fear to use it as an energy source, focusing on what lies ahead, beyond the haze of randomness. That distant destination is a Lévy flight, they are our life dreams or long-term plans. But of course, to be able to rid the haze of randomness, in addition to that vision that allows us to maintain willpower, we also have to focus that desire in a disciplined way to make one movement at a time solving each specific challenge of the climb, until finishing the long one and get to a safe meeting. The latter is the local (mean dominated) random search in the space of solution of the climbing problem.

Interestingly enough this balance is not new to human wisdom, we may understand it better or in major depth but as explained by Jordan Peterson in "12 rules for life" it is present in the Tao's symbol of the Ying-Yang in which we see two abstract serpents, one black and one white. The white one represents "The Order" that in Peterson interpretation is the social structural relationships by well defined consensual rules that result in predictive behaviors that enhance cooperation. On the other hand, the black serpent is "The Chaos" or the creative, random, unpredictive aspect of social interactions. In the traditional interpretation, Order is associated with male characteristics while Chaos is related to the feminine. According to Tao's wisdom, the

good life is found in the line between the Order and Chaos, which is amazingly almost the title of the classic book on the field “Complexity: Life at the Edge of Chaos” by Lewin and as we have discussed briefly here and in-depth on “Complectere: Introduction to complexity” this balance between order and chaos is the definition of criticality.

Every living being or group of them needs to sense and react to the environment, so any advantage in terms of better sensing or inference capacities will eventually lead to ecosystemic or evolutionary advantages. For example, if for the effect of heritage or mutations you have better eyes in some sense, that allow you for example to distinguish a predator in the background, then you have an advantage and your survival and reproductive probabilities increase.

We know that under the maximum complexity we find also the maximum of computational capacities, meaning the maximum capacities of inference. Then it makes sense that individuals and societies tend to be in its complexity maximum, which occurs when the system is in criticality.

The fundamental thesis of Peterson is that the world and life are essentially messy (chaotic) and that in order to generate the conditions for social cooperation we need to embrace a minimum set or personal rules that additionally will provide for the individual, the path to a more happy and meaningful life. Rule 1: “Stand up straight with your shoulders back” is based on the recognition that social hierarchy is a universal strategy conserved through basically all the animal kingdom; and that hierarchy depends on self-responsibility, confidence, and balance. Rule 4: “Compare yourself to who you were yesterday, not to who someone else” is a control (in the sense of sense and act to achieve a goal) type of rule that sets a proper mechanism of self-improvement. These are very clear practical rules that come from the author's vast clinical experience. Take notice that Peterson has been criticized by Taleb and others by his use and understanding of statistics and in particular for defending pseudo-scientific metrics such as the IQ. Nevertheless, I find some very interesting points when he talks from his clinical background or in terms of freedom speech defense or debunking modern feminism or gender BS ideologies. So maybe a good example of domain dependence.

As we have said, in a more abstract perspective Peterson's work tries to promote the context needed for order (self-organization) that may take place. In that sense, a complexity based approach would be found for example in the “Design and Control of Self-organizing Systems” book by Carlos Gershenson. He identifies five mechanisms for relieving tension among individuals or groups:

Tolerance, seen as the acceptance of others and their goals as for example when an individual allows another into its territory or even gives up its own territory completely or partially to prevent conflict.

Courtesy, as the opposite of Tolerance as when a new individual in the territory opt to search for another territory to avoid conflict.

Compromise. A combination of Courtesy and Tolerance for example when two animals share the same territory. If resources are sufficient, tolerating each other is less problematic than fighting one another.

Imposition. This could be seen as forced Courtesy, for example in some primate societies, α-males “police” over the members of their group to prevent conflicts (Flack et al., 2006).

Eradication. As a special case of Imposition as when an Immune system eliminates some cells that are not necessary for the organism.

Apoptosis. This would be a special case of Courtesy, where one individual or group would destroy itself for the sake of the system.

The author also identifies mechanisms for enhancing synergy as cooperation, individuals, altruism, and exploitation; as well as a trade-off to cope with complexity. For example, Economy/Redundancy trade-off in which solving a problem with as few elements as possible is economical. Nevertheless, this kind of minimal system tends to be very fragile. On the other side of the coin, too much redundancy can also reduce the speed of adaptation and increase costs for maintaining the system. Again a good balance is needed.

Suffering voluntarily allows us to exercise our will and gives us access to real luxury, the one that resides within us.

It is well known that Hermann Buhl was young, his favorite thing was to go out to the mountains in the worst possible weather, and even then he used to make small snowballs that he carried in his hands to develop psychological endurance and physical capacity. He climbed the routes near his home in winter, even in stormy weather. He used to travel to the mountains by bicycle, pedaling hundreds of kilometers. This alpine and resignation approach paid off for Hermann Buhl when he made the first solo ascent of Nanga Parbat in a legendary saga. He is considered one of the best climbers of all

time because among other reasons was particularly innovative in applying Alpine style to Himalayan climbing. He made in 1953 the First ascent of Nanga Parbat, 8126 m (26,660 ft), going solo and without bottled oxygen in the summit climb. On the way back from the summit he was forced to stand still on a rock ledge for the entire night at 8000 m altitude (considered the dead zone), in order to survive until the following morning. He also participated in the first ascent of Broad Peak, 8051 m (26,414 ft).

Today most of the "mountaineers" who climb the Iztaccihuatl arrive by car at the foot of the mountain, they are dressed with the latest technology, they never get cold, they do not get wet, they carry GPS (they do not need to orient themselves and they do not get lost), they climb with the latest technology crampons and ice axes.

When I trained with Carlos Rangel we had some practices where despite bringing food and water, we did not consume it just to experience thirst and hunger in a relatively controlled context (a terrain with known and simple ways out for example). In the same way, we could walk all night or spend the night without using tents, shelters, or sleeping bags. In general, he use hicke Iztaccihuatl in shorts and a shirt, he covered himself only at night or when the weather got really bad; He taught us to use maps and a compass, to orient ourselves with the stars, with the sun; to set fire with local materials; to build shelters; to close a wound using spider web; to build an igloo on the Pico de Orizaba; to carve steps with the ice ax to avoid using crampons; looking for water from rock runoff or caves to take refuge; he taught us to live in the wild in much the way a human hunter-gatherer would have.

Carlos Rangel was a biologist, explorer, and Mexican writer, who in 1971 was a founding member of the Mountaineering Association of UNAM, being a head coach from 1989 to 1995 and its president from 1995 to 2006. We got recognition for walking the approximately 2,500 km of the Baja California Peninsula; he explored for 23 years the Sierra de San Pedro Mártir, especially “La Encantada” the highest mountain of the peninsula, climbing its Northeast wall of more than a thousand meters in 1999; he was a well-known explorer of the Sierra Madre Occidental discovering the oldest wooden masks in the world in Durango; he sailed the Mar de Cortés on a primitive sailboat and began the Mares de México Project in 2000, which remain unfinished. In this project, he completed the navigation of Mexico's eastern coast (the Caribbean Sea and the Gulf of Mexico) ended in May 2006 with a solo journey of 500 kilometers from Tampico (Tamaulipas) to the port of Veracruz. He was a prone writer with more than 300 articles, 4 books and participated in a Discovery Channel documentary about the first descent from the Barro basement in Querétaro. But he was also a philosopher of the adventure:

“I look down. I find it curious not to be afraid. Everything seems beautiful and simple to me. But I know that I must be careful because not being afraid is more dangerous than carrying it with you…”

I remember very well such a vivac practice in Iztaccihuatl with Eduardo Tovar, a tough old-school climber who did some really tough expeditions in South America. In that vivac, it rained and it was very cold at night. The minutes passed painfully slowly until the sun finally peeked out. What a pleasure, what a luxury to feel the sun on your face. Suffering voluntarily allows us to exercise our will and gives us access to real luxury, the one that resides within us. In my experience, there is no greater pleasure than drinking water when you are very dehydrated, eating when you are really hungry, lying down when you have walked many hours. Sometimes we overlook the extreme luxury that is, for example, having running water in our homes. So, there is a set of little personal strategies one can do to live a luxurious life:

Do you want to taste a gourmet meal?
Fast.

Do you want to enjoy human contact?
Private of him, be silent one day, disconnect from all social networks.

Do you want emotions?
Leave your safety, take a risk.

Contrary to what one might think, using the via negativa and culture of voluntary resignation to build a Lindy lifestyle, rather than leading us into an austerity existence, gives us access to true luxury.

Very well you will say but how does one begin that construction of life in alpine style, a Lindy style: Little by little.

It was not to the Grandes Jorases that Messner made his first ascents but to the mountains near his home in his native Tyrolean valley, on very easy routes as a small child. You need to embark on this construction as a long-range endeavor, you have to give yourself the time to try many different alternatives and to fail, but fail early when it has no deadly consequences. As in climbing, many people get confused and think that life is a goal-oriented activity, instead of understanding that its purpose is to have experiences, sense. Then, it would be interesting to have a plan on how to cultivate the

qualities of personality compatible with a life in Alpine style; how to acquire the philosophy that allows us to be happy even in the midst of chaos. For me, it is clear that the starting point is the books on the one hand and the experiences on the other: complectere, barbell.

This is very interesting because recent work by Evans et al. (2014) shows that the most important predictor of future academic success is how many books are in the home. This phenomenon the teacher Taleb in the second volume of the Incerto, The black swan, describes the relationship between books and knowledge using legendary writer Umberto Eco:

“The writer Umberto Eco belongs to that small class of academics who are encyclopedic, insightful and not-null. He owns a large personal library (containing thirty thousand books) and separates visitors into two categories: those who react with "Wow! Signore professore dottore Eco, what library do you have. How many of these books have you read?" And the others, a very small minority, who understand that a private library is not an ego-boosting appendage but a research tool. The library must contain so much of what you don't know how your financial means can allow you to put there. You will accumulate more knowledge and more books as you get older, and the increasing number of unread books on the shelves will look at you menacingly. In fact, the more you know, the larger the rows of unread books will be. Let's call this collection of unread books an anti-library. "

A starting point to build an anti-library could be the recommendations of Taleb himself at:
http://web.archive.org/web/20100726061952/http://www.fooledbyrandomness.com/favbooks.html

or his reviews at Amazon:
https://www.amazon.com/gp/profile/amzn1.account.AHMHNR4MRTDLMBOOT6Q7LX2WP5YA/ref=cm_cr_srp_d_gw_btm?ie=UTF8

Of course I would recommend anyone from Messner, but especially “Solo”, also “My life to the limit” or "Everest without oxygen" and some classics in adventure culture such as:

- The country of long shadows, Hans Ruesch
- Walden - Life in the Woods, Henry David Thoreau
- Bridge in the jungle, Bruno Traven

- The teachings of Don Juan (and the other three volumes of his work), Carlos Castaneda
- Kon-Tiki, Thor Heyerdahl
- The Seven Pillars of Wisdom, Thomas Edward Lawrence
- The Conquerors of Uselessness, Lionel Terray
- Touching the Void, Joe Simpson
- Annapurna first eight thousand, Maurice Herzog
- The Congo River , Peter Forbath
- Tuareg, Alberto Vázquez Figueroa
- That my gene Go surfing you, Yvon Chouinard

Anti-Work

The first time I read Maestro Taleb was not through his main work of the Incerto but on the advice of a dear friend in a Medium publication: “How To Legally Own Another Person”. When I read it I had what in principle I had been looking for: a full-time academic job with tenure track. In my case, I was at a very well-known private university with a very good salary on a very interesting subject, the interaction between the environment and poverty. There was only one problem, my immediate boss wanted to exercise that role in a very hierarchical way, that is, she wanted me to work for her more than with her. In that sense, she would propose the objectives and projects to be developed and then I would have the "freedom" to find the best way to bring them to fruition. Additionally, she wanted me to comply in the form of a sub-alternate scheme, in terms of requesting permits, work schedules, etc. This was a culture shock that is neither my personality nor was I used to it.

From a very young age, I worked intermittently with my father and brother in a family electrical engineering business. As it should be, I started as a general assistant and little by little I began to learn more about the business. However, my mind was too restless and that job did not satisfy my innate intellectual curiosity. Eventually, this combined with a student strike (which lasted one year from 1999-2000) led me away from my career in Engineering and into the world of mountaineering and adventure, it also led me to change careers to physics.

Adventure and freedom have two very problematic aspects, on the one hand, once you experience them you do not want to live without them; on the other hand, they make you have your skin in the game. Having skin in the game, in addition to activating a

second brain (the one you need to survive), also seems to help us to clearly see our life perspectives. I decided to change majors to Physics and began to strive to achieve my dream of being a scientist. Fortunately, I had the luck or the wisdom to work with wonderful mentors who always gave me as much intellectual and physical freedom to do my master's and doctoral work as I wanted to. Coming out of my doctorate, I worked for a short time at the National Laboratory for Sustainability Sciences, which studied topics that were super interesting and relevant to society but which had a very hierarchical structure with very little freedom. So when I had the opportunity to do a postdoctoral stay with a great mountaineering friend and academic mentor throughout my undergraduate degree, I didn't hesitate. With him I once again enjoyed the intellectual and physical freedom that is indispensable for me, working on the frontier of science on alternative theories of gravity. Unfortunately, the two years of postdoc passed too quickly and I got what seemed like a very good job at a public university, but turned out to be a work and academic nightmare. After a little over a year, I managed to quit that job and got to the one I had when I first read Taleb. I was then faced with an ethical and personal dilemma: would I exchange my freedom for a job that seemed suitable for what I had been looking for?

> Continuously in life it has happened to me that the teacher comes when the student is ready.[4]

Maestro Taleb says in that article that generally speaking, all organizations want a certain number of associates to be deprived of a certain part of their freedom. How can you become the owner of these people? First, by conditioning and psychological manipulation; Second, you promote them to have some skin in the game, forcing them to have something important to lose if they disobey authority, for example losing their insured monthly income, which allows them to pay their mortgages, car loans, and children's tuition. The real estate market is said to have seen its takeoff in the United States, driven by the government conjunction with banks to promote a homeownership culture (via mortgage loans). But why? Why would a state want a population in debt in a systematic way? If they can screw your boss to hell anytime you want without going broke, you are much more likely to be self-employed, to join unions, to fight for your labor rights, etc. If, on the other hand, you have a lot to lose if you don't have a job, then

[4] Se que esta frase se la escuche a alguien pero con sinceridad puedo decir que no recuerdo a quién, así que no puedo darle crédito

you have effectively lost your freedom. Ironically, it might be better to have an employee than a slave, and this held true even in ancient times when slavery was around.

People who are in a formal employment regime love the regularity of the payroll (it is almost an addiction), with the special envelope on their desk on the last day of the month and without which they could act like babies deprived of breast milk, says Maestro Taleb. Someone who has been employed for a while exhibits clear evidence of submission. The evidence of submission is shown as a product of having undergone the ritual of depriving himself of his personal freedom for nine hours every day for years, arriving on time at an office, denying himself his own hours, and not having hit anyone. For Taleb, having an employee is having an obedient house dog.

Maestro says that although employees are expensive because you have to pay them even when you have nothing to do for them (you lose your flexibility) and actually "talent for talent", they cost much more than a free professional; even when the lovers of paychecks tend to be lazy, they have an important aspect in the game: the risk is shared with them, enough risk to be a deterrent and a fine for unreliable acts, such as not showing up on time. So when you hire an employee what you are really buying is the reliability of having their workforce when needed. It is true that reliability is a great lubricant of business transactions, many people decide to have a country house, which is inefficient compared to hotels because they want to make sure it is available if they decide they want to use it at will. In this way, the employee-slave manifests itself in different ways in a company, the most common in large corporations is to overpay an employee and let him know it, thus inducing a constant fear of losing his (undeserved) status.

So in terms of building a lindy lifestyle, what do you do about work?

From my perspective, the best thing would be to be an active risk taker, to be an entrepreneur. Of course, you have to know that in general 9 out of 10 companies go bankrupt before the first year, of those that survive, 9 out of 10 go bankrupt in the next 10 years. So you have to know that entrepreneurship is a risky game and that you will probably fail more than once before finding a stable business. When you have found it, then you will discover that you have to evolve and adapt to changes in your context. Entrepreneurship is failing, learning, adapting, failing, learning ... in a continuous loop. As in mountaineering adventures, I think that you should start as an entrepreneur as young as possible, if you go bankrupt in a lemonade business it is ok, fail often but early in the game, not at the final ginning shot.

Secondly, I would put the option of being a free professional, artist, or artisan. A free person who can choose his clients, establish their hours, and place of work. This is also an active risk taker, a person with skin and soul in the game, so why do I put him second? Because an entrepreneur can leverage his employees and therefore has an unlimited pay profile, he is not exchanging his time for money, but the time of his slaves, I mean employees, for money. An artisan is necessarily limited in his payment profile because he cannot make more products than are physically possible for him. An extraordinary story that exemplifies this very well is "Small baskets in series" included in the selection “Basket of Mexican stories”, by B. Traven.

The plot of the story tells the meeting between an American tourist and a Mexican indigenous who makes baskets of straw and other fibers collected in the tropical fields that surrounded his town. As a good craftsman with his soul in play, the material he used was not only well prepared but richly colored with dyes that the craftsman extracted from various plants and insects by procedures known only to members of his family.

Although the artisan actually lived on what his milpa produced, he continued to make these baskets as a compliment, but above all, because it was part of his family identity. In each one, the most beautiful designs of flowers, butterflies, birds, squirrels, antelopes, tigers, and a score of other animals inhabiting the jungle were admired. The admirable thing was that that symphony of colors was not painted on the basket, it was part of it since the fibers dyed in different shades were interwoven so skillfully and artistically that the drawings could be admired the same on the inside as on the outside of the basket. And those ornaments were produced without consulting or previously following any drawing. They were appearing from his imagination as if by magic, and as long as the piece was not finished no one could know how it would look.

Of great beauty, these baskets also had a practical value in the home of those who bought them as they were used as containers for sewing materials, jewelry, centerpieces, etc.

On weekends the artisan went to town to sell his art, traveling a long way, leaving his home at midnight. Each basket represented for him around fifteen or twenty hours of constant work, not including the time he used to collect the liana and the other fibers, prepare them, extract the dyes and dye them. However, it was very rare that customers would pay the price asked by the craftsman and bargain with him, after all, it was just a little bit.

One day Mr. Winthrop came to buy little baskets that he sold for eighty cents:

“—Friend, if I buy ten baskets, what price will you give me?

The Indian hesitated for a few moments as if calculating, and finally said, "

If you buy ten I'll give it to you for seventy cents each, sir."

"Very good, friend." Now if I buy a cent, how much will it cost?

The Indian, never looking fully at the American, and only occasionally taking his eyes off his work, said politely and without the slightest flash of enthusiasm: "

In that case, I would sell them to you for sixty-five cents each.".

Mr. Winthrop bought sixteen little baskets, all that the Indian had in stock. "

Time passed and when Mr. Winthrop saw the success of the beautiful Indian handicrafts in his home, he decided to return and set up a small import operation.

In his new meeting, Mr. Winthrop began to say

“—You say if I carry a hundred baskets, you give for sixty-five cents. Right, friend? "It's true, boss."

"Well, if I want a thousand, how much will each one cost?" This was more than the indigenous could calculate. He became confused, and for the first time since Mr. Winthrop arrived, he interrupted his work and reflected. Several times he shook his head and looked around as if asking for help. Finally, he said:

"Forgive me, boss, but that's too much; I need to think about it all night. Tomorrow, if you can honor me, come back and I will give you my answer, patroncito. "

The next day the American went to receive the economic proposal:

“—The price, well calculated and without mistakes on my part, is the following: If I have to make a thousand baskets, each one will cost four pesos; If I have to make five thousand, each one will cost nine pesos, and if I have to make ten thousand, then they

cannot be worth less than fifteen pesos each. And I repeat that I have not made any mistakes. "

When the surprised buyer questioned the indigenous enigmatic proposal, he received an even more incomprehensible explanation:

“Well, boss, what do you don’t understand? The issue is very simple: a thousand baskets cost me a hundred times more work than a dozen and twelve thousand take so much time and work that I could not finish them in a century. Any sensible and honest person can see it clearly. Of course, if the person is neither sensible nor honest, he will not be able to understand things in the same way that we understand them here. For a thousand baskets much more mat is needed than for a hundred, as well as more plants, roots, bark, and mealybugs to paint them. It is not just getting into the undergrowth and gathering the necessary things. Root with the good violet tint can cost me four or five days of searching in the jungle. And possibly you have no idea how long it takes to prepare the fibers. But there is something more important: If I dedicate myself to making all those baskets, who will take care of the milpa and my goats? Who will hunt the bunnies to have meat on Sunday? If I don't grow corn, I won't have tortillas; If I don't take care of my little land, I won't have beans, and then what will we eat? "

The artisanship is beautiful but it has this scaling effect that is impossible to rid itself of. Thus, from a wealth-generation perspective, effectively the free professional or artisan is less suitable. However, I believe that this limitation has a certain intrinsic beauty and even introduces certain control mechanisms in the economy that tend to keep it in "good health". I sincerely believe that it is necessary to worry when free artisans and professionals diminish among the population. Now, it is true that there are some artisans/artists who can generate a profile of payments without a cap, for example, writers who become bestsellers.

If due to opportunity, talent, luck, or personality, one ends up being an employee then we will have to try to find a job that aligns as closely as possible with our values and needs; that it gives us a certain margin of freedom and creativity (one can be an artisan under salary); always maintain a "fuck your money" attitude; avoid debt so as not to be so fragile to the loss of employment; If possible, establish a symbiotic relationship with the employer (better if it is a visionary entrepreneur), recognize and appreciate the vital role that risk takers, especially entrepreneurs but also appreciate and make others to appreciate your

contribution to the creative processes; and never become a parasite (rent hunter) or fragilist (acquire antifragility at the expense of the fragility of others).

Would I exchange my freedom for a job that seemed suitable for what I was looking for?

After reading these ideas from Taleb that resonated with my past as a risk-taking practitioner, it led me to change my job to the one I have now as I write these lines, in which I have a scheme based on freedom, work self-management and where I have the opportunity to be a craftsman of science. However, in the context of austerity in the federal government (on which my position depends), it has become increasingly evident to me that it requires generating greater optionality through the generation of my own projects. If possible employment should not be your only option but a part of your portfolio… try to be an artisan under salary.

Antifragile body in antifragile mind

Regarding the physical part, first I am going to share with you a summary of the training proposed by Mark Twight in "Extreme Mountaineering" that would have the objective "to make you as indestructible as possible" and then I am going to share my proposal of a very simple Lindy-type training for everyday life.

The complete training lasts approximately 22 weeks, which in principle could make you ready to face a big personal challenge, whatever it might be. The level of difficulty and adventure of that personal challenge would depend entirely on your physical background and goals. For someone who has never done sports in their life or very sporadically, that personal challenge could be to climb a very simple little mountain from home that does not involve anything technical; or take a walk for a couple of days. It could also be swimming a lake, pedaling a mountain route. Or simply break the personal best in a specific sport that you like.

The plan has 6 different stages that focus on developing different qualities necessary to face whatever comes your way. As any athlete knows, the basic principle of physical development is that of hormesis or the overcompensation processes that the body undergoes when faced with stressors. In order to generate more body mass, one has to

generate micro-tears that, depending on how they are produced, promote the body to grow more muscle fibers or to thicken the existing ones. Of course, if we overdo by generating real damage that exceeds the hormesis process, we will injure ourselves.

From that perspective, the saying “No pain, no gain” is true. Interestingly enough, this phenomenon of hormesis (overcompensation) is equally true in terms of cognitive abilities. In that sense, Taleb in "Antifragil" anti-intuitively advises being a not-so-good speaker. If you speak a little low, the audience will overcompensate by drawing more cognitive resources which will make them understand and retain more information. There is also the opposite of post-traumatic stress syndrome, which could be called a post-traumatic gain syndrome. Thus, in order to constantly maintain the hormesis process, it is necessary to present the body and mind with multiple stressors of varying types, frequency, and intensity. That exploits our evolutionary capacity for antifragility, we get better with volatility.

Week ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Foundations	x	x	x	x	x																	
Power						x	x	x	x	x												
Strength and cardiovascular endurance									x	x	x	x	x									
Prolonged cardiovascular resistance														x	x	x	x					
Resistencia muscular														x	x	x	x					
Slow down																		x	x			
Rest																				x		
Optimal shape																					x	x

Foundation

At this stage, the emphasis should be on general cardiovascular exercises such as walking or running uphill, jogging, biking, swimming, or rowing. This is a stage that requires spending time, doing different exercises one after the other. For example, you can run for 40-60 min on flat ground and then enter a general weight session at 50% of your maximum weight doing a wide variety of exercises. For those unfamiliar with gym work, it would be helpful to have Arnold Schwarzenegger's "The Encyclopedia of Bodybuilding" at hand.

It would also be convenient to do a Cooper test. The Cooper test measures aerobic endurance, that is, the body's ability to make long-term efforts. The test has certain characteristics: It lasts 12 minutes of measurable effective exercise, in this case, an

uninterrupted race with the intention of traveling the greatest possible distance in that time on completely flat terrain, without obstacles. Before the test it is advisable to record your heart rate in a full minute (not in fractions of minutes); jog for 5 to 10 minutes and do calisthenics. At the end of the test, allow 5 minutes of walking (do not stop) until you reach your normal breathing; five minutes after you have finished running, take your heart rate again within a full minute, this repeats again after 10 minutes. Assess your condition level using the table to the left.

As for strength, the most common test is a progressive load test, which is performed both with pushing exercises such as the chest press or squats; as well as with traction exercises such as chin-ups with ballast or with Olympic exercises. In all these exercises, you start with a lightweight, generally that of the bar, and end with a load of a maximum repetition (1 RM). To set ideas one should know his 1RM for deadlifts; squat; dominated; oars; military shoulder press and chest press.

In a complementary way, to estimate our level of muscular endurance, the push-up test is usually used, which consists of doing as many push-ups as possible in one minute. Of course, before starting the test, we must perform some calisthenics and warm-up exercises.

Power

This training is essentially done in the gym, it is good to keep in mind the relationship between weight and number of repetitions with the effects they generate on the body. In this sense, it must be remembered that the number of repetitions in a series is always designed to reach muscle failure. I mean, on the last rep of your set you should barely be able to finish the move. If you can't finish the movement with proper technique, then you should lose weight. If, on the other hand, you finish it very easily, you must add weight.

Cooper test (Athletes & Juniors)

Age	M/F	Excellent	Good	Average	Bad	Terrible
13-14	M	> 2700 m	2400 - 2700 m	2200 - 2399 m	2100 - 2199 m	< 2100 m
	F	> 2000 m	1900 - 2000 m	1600 - 1899 m	1500 - 1599 m	< 1500 m
15-16	M	> 2800 m	2500 - 2800 m	2300 - 2499 m	2200 - 2299 m	< 2200 m
	F	> 2100 m	2000 - 2100 m	1700 - 1999 m	1600 - 1699 m	< 1600 m
17-19	M	> 3000 m	2700 - 3000 m	2500 - 2699 m	2300 - 2499 m	< 2300 m
	F	> 2300 m	2100 - 2300 m	1800 - 2099 m	1700 - 1799 m	< 1700 m
20-29	M	> 2800 m	2400 - 2800 m	2200 - 2399 m	1600 - 2199 m	< 1600 m
	F	> 2700 m	2200 - 2700 m	1800 - 2199 m	1500 - 1799 m	< 1500 m
30-39	M	> 2700 m	2300 - 2700 m	1900 - 2299 m	1500 - 1899 m	< 1500 m
	F	> 2500 m	2000 - 2500 m	1700 - 1999 m	1400 - 1699 m	< 1400 m
40-49	M	> 2500 m	2100 - 2500 m	1700 - 2099 m	1400 - 1699 m	< 1400 m
	F	> 2300 m	1900 - 2300 m	1500 - 1899 m	1200 - 1499 m	< 1200 m
50+	M	> 2400 m	2000 - 2400 m	1600 - 1999 m	1300 - 1599 m	< 1300 m
	F	> 2200 m	1700 - 2200 m	1400 - 1699 m	1100 - 1399 m	< 1100 m

Cooper test (Experienced athletes)

Gender	Excellent	Good	Average	Bad	Terrible
Male	> 3700 m	3400 - 3700 m	3100 - 3399 m	2800 - 3099 m	< 2800 m
Female	> 3000 m	2700 - 3000 m	2400 - 2699 m	2100 - 2399 m	< 2100 m

From 1-4 reps, sheer strength is increased but not muscle mass. Muscle fibers tend to thicken and a physical appearance of muscle density is obtained.

4-9 repetitions achieve improvements in both strength and muscle mass. This means that existing muscle fibers thicken and new ones are formed.

Of 9-15 repetitions a balanced improvement is achieved between strength, muscular endurance and body mass.

After that there is no increase in strength or body mass and it doesn't really correspond to gym work anymore.

Skimble's Workout Challenge: 1-Min Max Push-Up Test

Ratings for Men, Based on Age (full push-ups)

Rating	20-29	30-39	40-49	50-59	60+
Excellent	> 54	> 44	> 39	> 34	> 29
Good	45-54	35-44	30-39	25-34	20-29
Average	35-44	24-34	20-29	15-24	10-19
Poor	20-34	15-24	12-19	8-14	5-9
Very Poor	< 20	< 15	< 12	< 8	< 5

Ratings for Women, Based on Age (kneeling push-ups)

Rating	20-29	30-39	40-49	50-59	60+
Excellent	> 54	> 44	> 39	> 34	> 29
Good	45-54	35-44	30-39	25-34	20-29
Average	35-44	24-34	20-29	15-24	10-19
Poor	20-34	15-24	12-19	8-14	5-9
Very Poor	< 20	< 15	< 12	< 8	< 5

* source: American College of Sports Medicine (ACSM)

In this power stage, after you've done calisthenics and warmed up your muscles, aim to do six sets of 2-4 reps. An important safety point is that you must avoid reaching negative exhaustion (the negative part of the movement, if you are doing bicep curls, this corresponds to not being able to lower the weight yourself) as this causes tremendous damage to the muscle tissue that requires in the best of cases much longer recovery time, with a very high probability of injury. Keep in mind that muscle regeneration takes between 48 to 72 hours and one will not regain maximum power capacity in a specific exercise until after 5-9 days. More specifically, it is recommended by Twight to stay at 85-95% of the 1RM weight.

The exercises to develop in this stage are: deadlift; squats; military shoulder press; Row or pull-ups. To complement the muscular efforts, one can do exercises such as bicep curls, tricep extensions, chest press, among others, as part of the warm-up. In this way, you can focus on one of the 4 primary exercises per day leaving an interval of 5-9 days before repeating a session of one of them.

Also, remember that you must follow basic barbell guidelines to avoid injuries or very serious accidents, remember that risk happens fast and that every possible

accident will occur in time, so protect yourself all time. These guidelines point basically to three main aspects: (1) increase weight very slowly, if you cannot maintain the technique, drop some weight; (2) try to lift with a partner; (3) use racks, even with partners.

Strength and cardiovascular endurance

This training is essential to have the necessary capacity to deliver enough oxygen to the muscles. One of the physiological adaptations that are sought with this type of training is to increase the number and elasticity of the capillaries. In this sense, weight training works very well because large anaerobic efforts constrict the blood vessels, increasing blood pressure in the positive part of the exercise and when the effort is released, the restitution of blood flow stretches the vascular walls. That's why the combination of strength training with cardiovascular resistance.

In the cardiovascular part, any type of exercise will work as long as you can work above your anaerobic threshold (AU) which is calculated approximately as 90% of your maximum heart rate (FCM) which is estimated as HRmax = 220 - age. To achieve this you need to do, for example, five sprinting runs (always make some prior warm-up and subsequent loosening) that take you to 105% of your UA in about 30 to 45 seconds and keep it there for about 60 seconds, after which you rest for 4 minutes. The warm-up and loosen up should be done at 30-40% of your AU or as a rule of thumb at a pace that allows you to carry on a conversation for about 15-20 minutes.

Another way to achieve this training is through high-intensity resistance sessions where the goal is to work at 97% of the AU for a period of 60-120 minutes, after a suitable warm-up of 10-30 minutes.

As a rule of thumb and in order not to depend on a watch with a heart rate monitor, as with muscle failure, one can think of UA as an anaerobic failure, that is, a running step that you could only sustain for a minute. Over time, the experience will easily tell you what step you need to warm up, to do sprinting or high-intensity endurance races.

In both the strength block and the cardiovascular strength-endurance block, organize the training sessions in blocks of three days of work by one of rest, doing the heaviest load the first day after the rest.

Prolonged cardiovascular resistance

This is a type of training where body and mind are fully worked because it forces us to deal with training at moderate levels (80% of the UA, to take advantage of the fat-burning metabolism) of effort for a prolonged time between 2- 4 hours. These training sessions are opportunities to exercise necessary psychological skills when faced with ongoing challenges. They are also opportunities to learn to "get in the zone" or do active meditation.

Muscular endurance

It is the equivalent of prolonged cardiovascular endurance and is achieved by reducing weight and increasing repetitions above 16. At this stage, you may experience a bit of muscle loss, but it is essential to withstand challenges that involve climbing, lifting small weights many times, carrying a heavy backpack, etc.

In any of the blocks, you need to pay close attention to recovery. It is best to shower after training, starting with no more than 5 minutes of hot water and then about 3 minutes of cold water, especially on the back of the neck (there we have a temperature detection center) and on the trained muscles. Repeat the hot-cold cycle at least twice, finishing with cold water.

Finally, the period of slowing down is something that you must do little by little, and rest does not imply doing absolutely anything but walking sessions, for example at 60-70% AU for about 30 min a day.

Now, the training plan described above is ideal. It's what you want to do to go to war, to the mountains, to survive a bloody zombie apocalypse. But if, like me, you have more professional, intellectual, and family responsibilities that would not allow you to do this (when i was in my mountaineering peak i use to train 3-5h every day), it is worth remembering the “Pareto law”, 80% of the result is generally obtained with 20% of the effort. In other words, it is not necessary to complete this entire plan to build a life in the Lindy style.

I am convinced that it is enough to work on the cardiovascular strength-resistance block of 3-4 sessions per week, trying to have a couple of prolonged cardiopulmonary resistance sessions per month, preferably in some outdoor activity. It would also be very convenient to generate at least one burnout day each quarter. These days of exhaustion should involve all the capacities that the training plan implies in a session of at least 6 hours of continuous work.

Less is better

In an alpine/lindy lifestyle, we have to think about the nutritional context in which our classical Homo Sapiens ancestors developed:

- Essentially we evolve to survive in scarcity. This means that having overly homogeneous eating habits (three meals or, like many modern diets propose 5 meals a day) is not optimal, especially once we have finished developing. In the same way, our body benefits from intermittent fasting of at least 18 hours once a week, which is very easy to achieve if you skip dinner and breakfast. In the same way, it is highly plausible that fasting for 3-5 days once a quarter is extremely beneficial.
- There was a limited supply of certain types of food and therefore it was impossible to eat too much of them. This should be a real red flag for sugar, salt, and high carb food, for example.
- Fruits and vegetables were eaten fresh. This seems not to be important but it could be key. The teacher hypothesizes that the benefits we get from eating fruits and vegetables do not come from vitamins but from a set of toxic chemical compounds that plants generate in response to aggression and that trigger hormesis in our body.
- Protein consumption was essential for brain development and continues to be so at an early age including red meat and eggs. My impression is that nobody is certain of the adequate amount of protein intake, since 1943 the values recommended by the United States government have been modified a dozen times. Approximately 0.8 g could be taken for each kg of body mass per day for a normal person, but if you are training in a Lindy way you could require up to twice that amount.
- Breast milk is absolutely essential for the development of children and its consumption has implications for health into adulthood. Breast milk is recommended as exclusive food for infants up to 1 year of age, and with complementary feeding up to 2 years of age, since it contains all the necessary nutrients for proper growth and development. It also contains immunoglobulins and other substances that protect the baby against infections and helps to strengthen the mother-child bond, promoting adequate psychomotor development. It is also recommended to extend breastfeeding to two years or more according to WHO recommendations. Infections and allergies are rarer in

> breastfed infants than in bottle-fed ones. Although it is true that the child comes to the world protected with antibodies, this protection disappears at birth and the immunoglobulins or antibodies present in breast milk take their place and protect them until their own body generates them. The baby receives the first milk during the first days of life, this milk, also called colostrum, is very nutritious, thick and yellowish, provides important antibodies that strengthen its immune system and line the intestinal wall. Now there is even evidence about the importance of microbiome transfer from the mother's breast during lactation.

Under all these initial considerations, what we could conclude would be a Lindy diet. One meal when not training, two meals when training normally to three meals a day if training is getting serious; consume a diet essentially based on protein consumption, eliminating most carbohydrates, sugar, and salt. Drink essentially only water, complemented with wine, coffee, herbal infusions, and very important fermented beverages for maintaining microbiota health. Avoid as much as possible all industrialized products (which I don't know if they can be called food). Do intermittent fasts as described: once a week from 18-24h; once per quarter for 3-5 days. Consume fruits and vegetables as fresh as possible and free of pesticides.

Because of its importance, I want to make it very clear about, **Why I won't say no to meat.**

Homo sapiens have been eating meat for at least… ever, but let's say some 200–300 thousand years. Of course, hominids eat meat before the appearance of *Homo sapiens (HS)*, many think that eating meat was in fact one major precursor for brain evolution, which would ultimately lead to HS perturbation as a species. In 1995 the *expensive tissue hypothesis* was proposed by Leslie Aiello and Peter Wheeler. This idea basically states that as both gut and brain tissue are composed of metabolically expensive tissue that requires a disproportionate amount of energy to function properly, then a big brain is incompatible with a big gut. This basic trade-off translates in smaller guts but the same or more energy requirements (as the brain got bigger), then the only way to make it work if changing diet to one that provides a high level of nutrients, energy but easy to process, that is meat! (see Pobiner, B. 2016, Meat-eating among the earliest humans. *American Scientist*, *104*(2), 110–117.)

In this way, our gut, brain, and diet have co-evolved with the animals we eat, and the technology we used (i.e. fire and cooking had a yuge effect) in what we have called the ecobiont ontology. Even more, this implies also that for example our gut microbiota also

co-evolved in a meat-based diet. A second order effect is that gut microbiota has a direct connection to our brain, which is called the gut-brain axis.

Dysbiosis of gut microbiota has been related at least with 50 human pathologies at the moment, including bowel disease, autoimmune diseases, metabolic syndromes, and neurological pathologies for example depression; and second order effects by interactions, remains to be understood in depth. Of course a major diet change such as No meat most probably has a deep impact on our health, in our microbiome, and our brain. The problem is that organisms have evolved to deal with perturbations, so several interconnected compensatory processes would enter into functioning so the diet change could provoke a chronic but sub-clinic condition (meaning it would diminish our health but little by little without taking us to the emergency room) and then become silent until the damage is too serious.

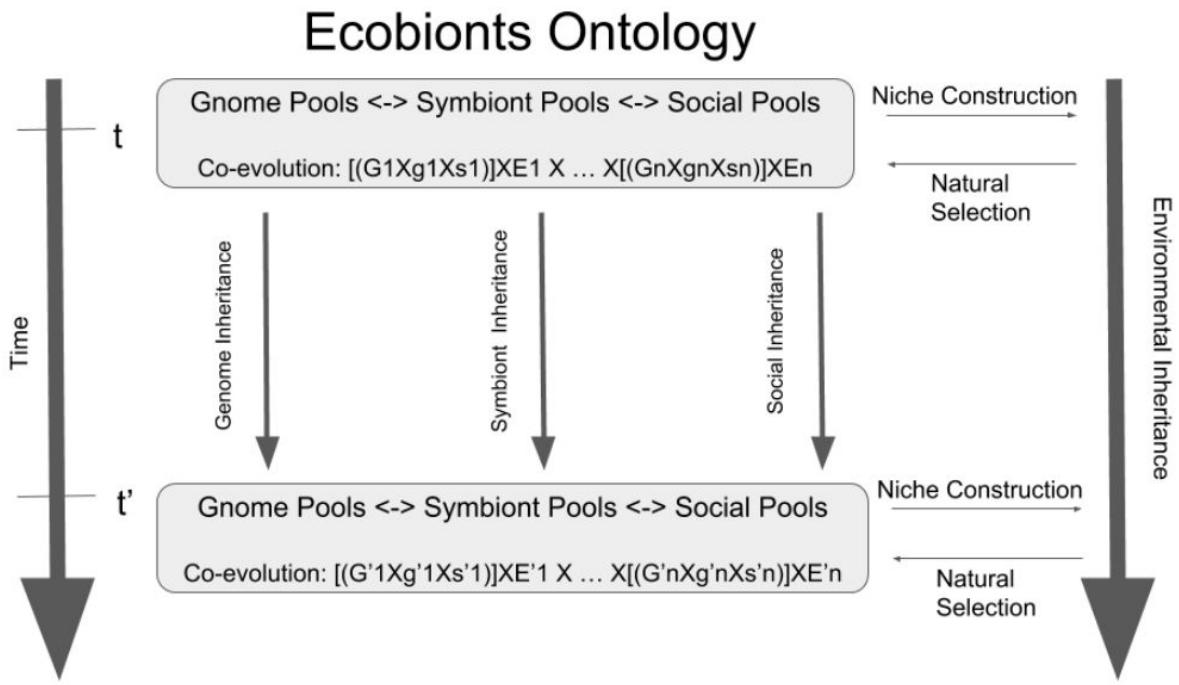


Figure 7: Theoretical model for the Ecobiont Ontology. We consider a set of interacting pools (genes, microbiome and social) that co-evolve from some arbitrary time t to t', by means of natural selection and niche construction. In the co-evolutionary multidimensional process G_i is the genotype of the population i that is coupled with its symbionts (g_i) and together as an holobiont co-evolve with local environment E_i forming one coherent evolutionary unit; which in turn co-evolve in parallel with many other of this units or Ecobionts.

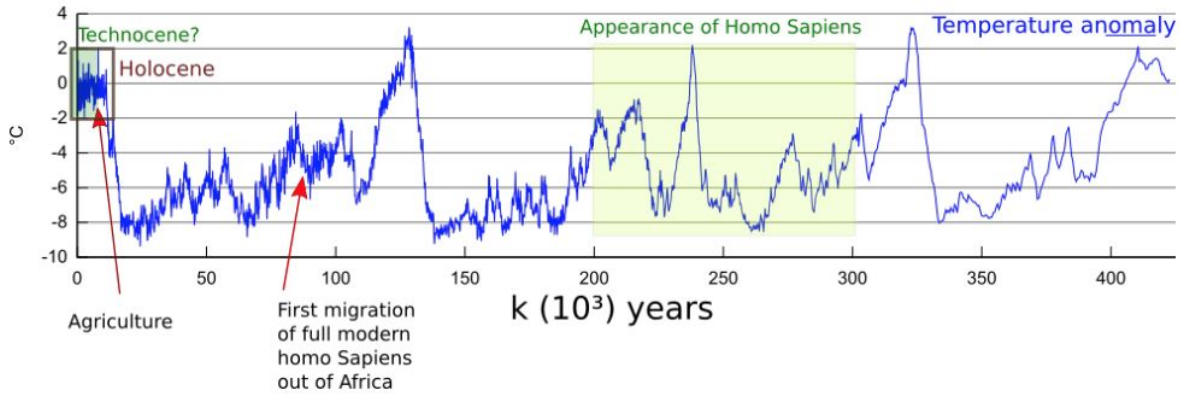


Figure 3: Data of Temperature anomaly (Celcius) from 420,000-year Vostok (Antarctica) ice core record (`https://gcmd.gsfc.nasa.gov`). The reference zero is present year and to the right we have the past in a scale of 10^3 years. Some important events for *Homo Sapiens* are marked in the figure. The appearance of *Homo Sapiens* is in light-green area, whereas Holocene Stability Domain (HSD) correspond to rectangle and inside it in dark-green is the Antropocene or porpoised Technocene

Anecdotal but informative:Of course because this silent condition it is very hard to have rigorous statistics about vegan effect on human health, then we should invoke some risk logic into the case and ask: In absence of evidence which would be the safest curse of action, continue with Lindy time proved diet or go with an untested new one? even more, should we recommend or worse, impose this on the global human population?

Just consider that agriculture is a very recent phenomena in the species history and that vegetarian or modern vegan diet is only possible (without inmediat major bad consequences) because of modern biotechnological improvements on crops. Promoters of traditional farming as Antonio Turrent admit that even when a diet based on milpa products such as maize, beans, chili, etc. may be (again no data available) nutritious enough for an adult it is not for young kids (i.e. we know eggs have key amino acid for brain development). Now to be fair no meat diet is not new either, is the way the poor population has to cope with limitations, gabish? So I'm very skeptical of the "don't eat meat and save the planet"[5]

5 https://docs.google.com/presentation/d/1gwHwXEI6nYYEuOdyyUxjXzWZf9XFD-eWGr0J4cANzyg/edit?usp=sharing

Staying healthy is vital

As our grandmothers and grandfathers said, you have to stay as far away from doctors (and especially hospitals, as possible).

The first reason for this is because the vast majority of physicians fall into the “Principal Agent” problem that occurs when a person or entity the “agent” (physician) can make decisions or actions on behalf of another person or entity: the "principal" (patient). This dilemma exists in circumstances in which agents are motivated to act in their own interest, which is contrary to those of their principals and is an example of moral hazard.

One of the clearest examples And sad of this ethical dilemma is the extremely high number of cesarean sections that occur in Mexico. The WHO usually recommends its use when a vaginal delivery could lead to medical complications, which according to NOM-007 should only be used in 15% of patients. However, in Mexico, there are three times as many cesarean sections as recommended (45 out of every 100 births) by the international body and it is estimated that about two out of three are unnecessary.

The belief that cesarean sections are safe is one of the main reasons that the practice has increased, however, that is far from the truth. This intervention increases the probability of bleeding, infection, removal of the womb, and injury to neighboring organs. Additionally, it causes systemic damage to the newborn by depriving it of inoculation (transfer) of the vaginal microbiome. Let us remember that the microbiome controls or intermediate an endless number of processes in the organism, it has a very profound impact on the risk of obesity, diabetes, allergies, and other chronic diseases.

On the doctor's side, perhaps the most important factor is the time because while a scheduled cesarean section lasts about an hour, a natural delivery usually lasts about 12 hours on average. So the agent has a perverse incentive to over-recommend the procedure to principals.

Cesarean section is without a doubt one of the most fragile interventions one can think of. The Lindy version of giving birth would be what has become known as respected or humanized childbirth. The term refers to respect for the rights of mothers, children, and their families at the time of birth. It promotes respect for the particularities of each family

- ethnicity, religion, nationality -, accompanying it through making safe and informed decisions.

Respected childbirth implies generating a family space where the mother and the newborn are the protagonists and where the birth unfolds in the most natural way possible.

When we speak of respected childbirth, we mean that the woman follows her own labor pulse avoiding all kinds of unnecessary interventions, as well as for deciding how to control pain during childbirth.

In our family, we experience both. Our first child was born through respected childbirth, which in reality is or was very difficult to get in Mexico City. In the public sector, none of these recommendations were followed at that time, the most important for us being immediate adherence. After much research, we came to the conclusion that there were only two doctors who really conscientiously followed all the principles of respected childbirth. After saving and borrowing (it took us several years to pay that debt) we had a wonderful experience in every way. For our second child, there were complications and the same doctor from the previous time told us that in that case there was very little chance of being able to have a natural birth. With still a significant debt in tow, seeing that we would not have the opportunity to have a delivery anyway, we decided to change to a well-known family doctor. The result was distention of the rectus abdominal muscles that we stupidly entrusted to the same doctor who applied a wrong technique and also failed. By threatening to sue for malpractice, he returns our money that he contributed to a third operation with a specialist plastic surgeon.

Never ask a surgeon if he thinks you should have surgery! Maestro Taleb recommends rephrasing these types of questions to What would you do, doctor, if you were me? with which very different recommendations are obtained. When my father was ill with cancer or rather when the symptoms of cancer were evident and he was diagnosed, a Cuban doctor told him that if he were my father, he would not have surgery, he would restrict chemo and radiotherapy to a very small number of rounds and recommended that he enjoy what was left of his life (about a year). In his opinion and knowledge, the type of cancer my father had

was the type that is rarely treatable. A very renowned surgeon told him the opposite. - Don Oscar, give me the opportunity to operate it, you will see that it goes well - he said. What he did not tell her is that the previous treatment was going to significantly decrease her quality of life; that it was very likely that he would die in the operating room or upon leaving it because of how weak he was; that if they survived their quality of life would have been very bad. Indeed, my father contracted a hospital infection in the operating room that led to his death, not without much suffering for him and my mother.

That is why it is vital to stay healthy because once sick one is exposed to systemic accidents, a second-order effect in treatments, a cascade effect, and iatrogenesis in general, about which I will speak in detail in the next chapter.

On a napkin

Life in Alpine Style is the art of constructing your life at the edge of Order and Chaos, balancing those attributes of your personality and lifestyle that promotes certainty, predictability, structure, organization, safety; with those that enhance creativity, innovation, risk taking. For these we need to find the core of tings and strip them from the rest, allowing us to experience life in the must unfiltered way. We need to expose ourselves and even embrace stressors (in the correct magnitud, frequency and type), do hard things, and leave our comfort zones to build a both antifragile mind and body.

In that terms,here there are some competencies[6] I think are necessary to not be a Turkey and to be able to build an alpine lifestyle:

- Systemic competence: being able to understand the root causes of problems complex, for example, by identifying the various interactions between causes and effects. In the same way, it is necessary to recognize the actions and the motives behind them considering different actors. We must be able to understand the dynamics, the distant and cascading effects, as well as the reactions and inertias that appear in the approach of the problem.
- Ethical competence: because complexity is fully expressed in real world problems; We must know the concepts and methods to contrast values and evidence on specific problems, putting into practice the principles of justice, equity and socio-environmental integrity of sustainable development, in such a way that a consensus is reached among the different social actors on how to

[6] Originally identified in our article: https://www.researchers.one/article/2019-01-2

make decisions that lead to the common good and allow progress towards sustainability.

- Precautionary thinking competence: Due to their complexity, real world problems tend to be perverse and therefore it is necessary to be able to assess when it is absolutely necessary to implement an intervention rather than allowing the system to self-organize and never do it if such intervention directly or indirectly entails the possibility of catastrophe.
- Strategic competence: this competence implies being able to design and implement collaborations, interventions and strategies to tackle complex problems. It would be of special interest to improve the ability to act in scenarios of incomplete information and inconclusive evidence.
- Proficiency in detecting false narratives: Because complex problems can be analyzed from different perspectives and disciplines, they are an easy target for the false narratives of charlatans or pseudosciences. That is why it is important to have the ability and ability to detect possible false narratives and expose them.
- Competence to avoid teaching birds to fly: most of us who are trained in institutional higher education tend to underestimate the practical solutions and the empirical experience of local actors and on the contrary to believe that they can describe the mechanics of the ball football, they are qualified as the new Messi. A child does not need to understand the mechanics of riding a bike to do it and very well[7]; in fact the development of the rockets was much more an exercise in trial and error than science and design.
- Finally, it is essential in all this to always have the Skin in the Game and be aware of when we have the skin of others in our game. Even more, we should seek to have the soul in the game. In terms of work, this guides us towards taking active risks as businessmen or entrepreneurs or towards being free professionals, artisan

[7] https://youtu.be/HwvXs0FTeKk

EPILOGUE

As I began to read a proof of the manuscript, my friend Pedro Díaz Meade wrote this to me that I believe is an excellent reflection that captures a good part of the spirit of the book:

“It seems ironic to me that you qualify life as anti-fragile, it pretends to be in the magical network of chance and necessity, in the loom of the interactions of heredity, space and time, but each "individual" that passes through this state, whether marveling or not at the gift of this capricious universe, we are all mortals and fragile ... inexorably fragile. Life is therefore supposedly anti-fragile but volatile in time and space. "

I sincerely hope that reading Complectere has raised many interesting questions and perhaps even provided a couple of answers. But above all, it serves as a first guide to building a Lindy-style life.

During the writing of this book, it was quite clear to me that in this adventure of starting to live in an alpine style, we will most likely need to build a community that motivated us and with which to share the path. My contribution in this sense is to be part of the project http://lindy.otrasenda.org/ which states:

We live in an unprecedented time in human history for two fundamental reasons: never before has our environment been so complex and with very infrequent, unpredictable and high-consequence random events (Black Swans); never before have those who benefit most from development and decision makers (Fragilitas), have been so isolated and protected from risk, its costs and its consequences. In response to this, the Lindy community is outspoken against those processes that isolate us as individuals and society from the forces of chance and evolution. On the contrary, we speak out in favor of all decisions, strategies and processes that minimize catastrophic and scalable risks in exchange for assuming lower and manageable costs, while maximizing the benefits of those decisions, even allowing ourselves to expose ourselves to windfall profits. We seek to generate a rigorous understanding of the concept of Antifragility at the same time to promote its responsible practice.

Children of chance, an almost impossible event, which makes us unique. We are brothers of the fire, which is fanned by the wind. We are the survivors of the survivors. At Lindy we demonstrate in favor of our wild nature that thrives on the unexpected, that finds in the optionality ways to make, build, create. That nature is fully manifested in the classic virtues of scholarship, honor, and aesthetics. In Lindy we speak out in favor of the Greek over the Roman, we seek wisdom over knowledge, the organic over the artificial. We deny the fragile, the one who wants to strip us of the mystery of the unknown, to deceive us with the apparent but deadly stillness of indifference. He who eats the fruit with pride but without the humility and courage that only

climbing the tree gives. We express our gratitude and admiration to the hero, the innovator, the entrepreneur, the builder, the craftsman. We are wild creatures, we are fire, brothers of the wind.

Welcome to the tribe

Appendix A: Ethics of Adventure[8]

Much could be said about ethics in mountaineering, but it would be worth starting this digression as in the stories, at the beginning.
It is common for the concepts of ethics and morals to be used without much distinction, so we will take a few lines to clarify the difference and establish common ground on which we will build later.

As humans began to live in society, the complexity of interpersonal relationships forced him to establish a set of norms that allowed the survival and development of primitive societies.

In this way, we can give the first definition of Moral as the set of rules aimed at regulating the behavior of individuals, to increase the chances of survival of the society that issues them or to allow greater harmony among its members. This set of norms that arise collectively, are transmitted generationally and are subject to evolve due to the dynamic nature of the environment, both external and internal, of the society that creates them. The minimum set of rules that a particular society decides that its members must comply with gives rise to regulations, codes, and finally laws.

Within this external framework that restricts the behavior of the individual, additional restrictions may arise that the individual himself creates from what he personally considers to be good or bad. We can then define ethics as a set of reasons, principles, and norms that a particular individual decides to follow as guidelines for their own conduct and that arise from a particular set of values, which are constructed both from interaction with society and from society. evolution of the individual.

We could then conclude that there is a hierarchical scheme of norms that regulate the behavior of social man.

1. Moral. It constitutes an external restriction imposed on the conduct of the individual.
2. Regulations, codes, and laws. They are the minimum set of restrictions that society will impose and force its members to comply with.
3. Conceptual ethics. A personal set of values, reasoning, and reflections that serve as guidelines for individual behavior.
4. Axiomatic ethics. It is the set of personal norms that directly regulate the actions

[8] This appendix is a writing that I recently found in a 2006 email to Carlos Rangel in the context of a restructuring of the mountaineering and exploration association to which we belonged. I did not modify anything, to illustrate my state of mind and ideas of that time, which must certainly have evolved since then into Complectere. What is written in this appendix was meant for adventure in the mountaineering context but apply to an alpine lifestyle in general.

of the individual.

The ethic of adventure A good way to protect the environment is to remember that while you are there, you are a visitor. When you visit a friend you are always careful to leave the person's home as you found it. You never think of littering the carpet, cutting trees in the garden, putting soap in your drinking water, or etching your name on the living room wall. When you go to nature the same courtesy applies. Leave everything as you found it. Walking and camping without a trace are signs of a skilled hiker taking care of the environment. So travel very light on the earth.

The Principles of *Leave No Trace* "Leave No Trace" is a nationally recognized program of skills education and ethics education in the field that is recognized in the US. The "Leave No Trace" principles are not rules but guidelines to be followed at all times. The principles of Leave No Trace might not seem important at first glance, but its value is apparent when you consider the combined effects of millions of other visitors just like you. A badly placed campfire or campfire is of little consequence, but thousands of them seriously degrade nature as we all would like to experience it. Not leaving a mark is everyone's responsibility.

THE PRINCIPLES

- Planning and Preparation
- Travel and camping on durable surfaces
- Dispose of waste properly
- Leave everything as it was
- Minimize the impact of campfires
- Respect wildlife
- Being considerate of other visitors

Leaving no trace depends more on attitude than rules and regulations. Many of the camping practices you choose should be based on your specific situation, which includes many variables for a given area, such as soil, vegetation, wildlife, humidity levels, visiting season, etc. **Planning and preparation** Proper planning and preparation of the trip helps hikers to achieve the objectives set but with safety and enjoyment, as well as minimizing damage to natural and cultural resources. Campers who plan can avoid unexpected situations and minimize their presence by simply following area regulations such as observing the group size limit. **Proper planning ensures**

- low-risk Adventures because campers get information regarding geography and weather and prepare accordingly.
- Properly placed camps because campers are given enough time to reach their destination
- . Proper bonfires and minimal litter by careful planning of food, packaging, and proper equipment.

Camping and travel on durable surfaces Damage to land occurs when visitors trample vegetation or communities of organisms beyond recovery. The resulting desolate areas turn into undesirable roads, campsites, and soil erosion.

Concentrate on the activity or disperse it?
In high-use areas, campers should concentrate on their activities where vegetation is already absent. Minimize damage to resources by using existing roads and selecting existing or designated campsites. In more remote and less frequented areas, campers generally spread out. As they walk, they take different routes to avoid creating new paths that cause erosion. When they camp, they scatter tents and cooking activities -and move camp daily- looking for other campsites. Always choose the most durable surfaces: rock, gravel, dry grass, or snow. These guidelines apply to most alpine establishments and may be different in other areas, such as deserts. Learn the techniques of Leave No Footprint for your specific activity or destination.

Pack it up and take it away
This simple yet effective phrase encourages visitors to take their trash and take it home. Raise awareness to take from the field all the extra materials taken by your group or by others. Minimize the need to carry wrapped food and take on the challenge of taking everything you bring with you.

Sanitation Hikers produce dirty water and human waste that require special attention.

water dirty
Help to prevent contamination of natural waterways. After throwing away the food particles, remove the water you washed the dishes with at least 70 meters away from water sources, lakes, and streams. Use biodegradable soap too far away from that water.

Human waste
A hole should be made 15 to 20 cm deep and one hundred meters away from water, roads, and campsites.

Leave what you found
Allow others the feeling of discovery: leave rocks, plants, animals, archaeological artifacts, and other objects as you found them.

Minimize site disturbances
Don't dig around the tent or build shelters, tables, or chairs. Do not drive nails into trees or cut or damage bark and roots by tying horses to trees for long periods of time. Replace rocks and shallow branches that can be moved from your camp. In high-impact sites, clean up the area and dismantle anything that could cause a greater impact, such as multiple campfire sites, tables, and chairs.

Minimize the use of the campfire

Some people cannot think of a campground without fire and many areas have been degraded by the overuse of fire and the increasing demand for firewood. Lightweight camp stoves prevent this overuse. If you do fire, the most important thing to consider is the potential damage to the site. Real Leave No Footprint fires are small. They use dead firewood. When possible, burn all wood to ash and remove all trash and food from the fire.

Respect animal life
Fast movements and loud sounds are stressful for animals. Consider practicing these methods:

- Observe animal life from afar and avoid disturbing them
- Give animals ample space, especially during nesting, birth, and breeding seasons.
- Store food and keep garbage and food scraps away from animals so they don't pick up bad habits.

Respect for others

- Travel and camp in small groups.
- Keep the sound low and leave radios, cassette tapes, and pets in your home.
- Select camping sites away from other groups to respect their privacy.
- Always travel and camp quietly.
- Make sure the colors of your gear and clothing match the environment.
- Respect private property and leave the doors (open or closed) as you found them.

Why not trash?
The time it takes to degrade Cigarette butts: 1-5 years Orange and banana peels: More than 2 years Plastic bags: 10-20 years Aluminum cans: 80-100 years Plastic holders from Six-Pack containers: 100 years Bottles of glass: 1'000,000 years Plastic bottles: Undefined

My ethics and spirituality in adventure

Well, so far, what I have done is basically enunciate the codes and regulations that we as mountaineers and explorers must observe. However, ethical dilemmas that are difficult to resolve continually emerge in the talks between mountaineers because despite being within the framework of the exposed regulations, there are different ways of appreciating the same fact, that is when the ethical part of mountaineering enters, of which we have hardly spoken. Now, instead of making a complicated dissertation about specific ethical dilemmas, it may be more helpful to change focus and ask if these ethical problems could be solved by introducing a basic idea: The Earth is alive. The importance of introducing this idea is that if we accept it as valid, our codes and

regulations would have to change perspective, since until now its structure is completely anthropocentric. Putting Earth as the subject of our ethical discourse, the question of whether it is valid to put x number of bolts on a route or not, would cease to be a question of style, since we would only have to answer ourselves: What hurt Earth Less?

But of course, what we must do first is question very seriously the issue, for which I will share with you a fragment of a book that I wrote about a set of expeditions to the Great Altar Desert:

When in 1855 the president of the United States Franklin Pierce wrote to Chief Seattle, the great chief of theRed *SuquamishIndians,* who wanted to buy his land. He replied with the following letter[9]:

"The Great Chief of Washington sends us a message to let us know that he wishes to buy our land. He also sends us words of brotherhood and good will. We appreciate the detail, because we know that you do not need our friendship. But let's consider his offer, because we also know very well that if we don't, the white man may take the land away from us with his firearms.

Chief of the Pale Faces:

How can you buy the sky or the warmth of the earth? That is an outlandish idea for us. If no one can possess the freshness of the wind or the brilliance of the water, how is it possible that you propose to buy them?

My people consider that every element of this territory is sacred. Every bright pine that is being born, every grain of sand on the beaches of rivers, streams, every drop of dew in the shadows of the forests, every hill and even the sound of insects are sacred things to the mentality and traditions. from my town.

The sap circulates inside the trees, carrying with it the memory of the Redskins. The Pale Faces forget their nation when they set out on their journey to the stars. The same does not happen with our dead, they never forget our mother earth.
We are part of the earth. And the earth is part of us.

The flowers that scent the air are our sisters. The deer, the horse and the eagle are also our brothers. The gorges, the wet pastures, the heat of the horse's body or ours, form a single whole.

From the aforementioned, I think the chief of the Pale Faces asks too much when he

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[9] Tomado de TC McLuhan (recopilador). *Pies desnudos sobre la tierra sagrada.* Outerbridge y Lazard, New York, 1971. Traducción de Andrés Hurtado García

wants to buy our lands.

The chief of the Pale Faces says that by selling them our lands he would reserve for us a place where we could live comfortably. And that he would become our father. But we cannot accept your offer because this land is sacred to us.

The water that circulates through the rivers and streams of our territory is not only water, it is also the blood of our ancestors.

If we sold our land to them, they would have to treat it as sacred and they would have to teach their children the same.

Everything that is reflected in the crystalline waters of our lakes speaks of the events of our people. The voice of my father's father is in the murmur of the running waters. We are united in the rivers that quench our thirst. The rivers drive our canoes and feed our children. If we sold them our lands, they would have to treat the rivers with the sweetness of brothers, and teach this to their children.

The Pale Faces don't understand our way of life. Pale Faces do not understand the difference between two clods. You are foreigners who come at night to usurp what they need from the land. They do not treat the earth as a sister but as an enemy. You conquer territories and then abandon them, leaving your dead there without caring about anything. The earth kidnaps the children of the Pale Faces, she doesn't care about you either.

The Pale Faces treat the mother earth and the father sky as if they were simple things that are bought, as if they were necklace beads that they exchange for other objects. The appetite of the Pale Faces will end up devouring everything in the land until it turns them into deserts.

Our way of life is very different from yours. The eyes of the Redskins fill with shame when they visit the towns of the Pale Faces. Perhaps this is because we are wild and do not understand you.

In the populations of the Pale Faces there is no tranquility, there you cannot hear the opening of the spring leaves or the fluttering of insects. We discover that because we are wild. The noise of their populations insults our ears. What use is life to human beings if you cannot hear the lonely song of the nightjar, if you cannot hear the nocturnal noise of frogs at the edge of ponds? As Red Skin I don't understand Pale Faces. We have a preference for the gentle winds that whisper over the ponds, for the aromas of this clean wind, for the mid-day drizzle or for the environment that the pines scent.

For the Redskins the air is of incalculable value, since all human beings share the same breath, all: trees, animals, men. The Pale Faces are unaware of the air they breathe,

they are dying insensitive to the pestilence.

If we were to sell our lands to them, they should know that air has immense value. They must know that the air shares its spirit with the life it supports.
The first breath of life that our grandparents received came from this breath.
If we sell them our lands they have to treat them as sacred. In these lands even the Pale Faces can enjoy the wind that animates the flowers of the prairies.
If we sell you the land, you must treat the animals like brothers.

I have seen thousands of buffalo rotting in the fields. The Pale Faces kill buffalo with their trains and leave them lying there, they don't kill them to eat them. I do not understand how the Pale Faces place more value on a smoking machine than a buffalo. If all the animals were exterminated, man would also perish amidst enormous spiritual loneliness. The fate of animals is the same as that of men. Everything harmonizes.
You have to teach your children that the ground they walk on contains the ashes of our ancestors. May the earth be enriched by the lives of our fellow men. The land must be respected.

Teach your children what ours already know about the earth: it is our mother. What the earth suffers will be suffered by her children. When men spit on the ground, they spit on themselves.

We are sure of this: the earth does not belong to man, but man is of the earth. We know. Everything is harmonized, like the blood that relates to men. Everything harmonizes.
Man does not weave the destiny of his life. Man is only a strand of that fabric. What he does in the fabric he does to himself. The Pale Face does not escape that fate, although he talks to his God as if he were his friend.

In spite of everything, maybe the Redskins and the Pale Faces are brothers. But that will be seen later. We know something that the Pale Faces may one day discover: they and we worship the same God. You believe that your God belongs to you, just as you want to own our lands. But it's not like that. God belongs to all men and their compassion extends equally between Redskins and Pale Faces. God highly esteems this earth and whoever damages it will provoke the wrath of the creator.

Perhaps the Pale Faces will become extinct before the other tribes. Okay, keep infecting their beds and one day they will wake up drowning in their own rubbish. You will advance full of glory towards your own destruction, encouraged by the strength of the God who brought you to these places and who has given you a certain power who knows by what design.

It is a mystery to us that you are here, because we still do not understand why they exterminate the buffalo, or why they tame the horses, which are wild by nature, or why they destroy the landscapes with so many talking cables.

What has happened to the plants? They are destroyed.
What has happened to the eagle? It has disappeared. From now on life has ended. Now survival begins ”

For us, these words would seem at best to be beautiful metaphors, but we would not think that literally, the Earth is alive, much less the wind, the rivers, the mountains, or the sea. Animals are foolish to us, they have no feelings and they are there to be used. We would never think that they are our brothers, that they should have the same rights, and that we can learn a lot from them.

For the Northmen, the Inuit, dogs were teachers from whom they learned to live and the polar bear was considered equal to Man. In general, many cultures throughout history have considered the earth a living entity and in many cases even a deity. But then, how is it that today thinking that the Earth is alive becomes so absurd?

For me, the process began at the dawn of civilization with the rise of agriculture. With the domestication of plants, Man began to distance himself from his existence as an animal, his needs were the same, as now, but the way to satisfy them changed dramatically. When Man was nomadic, there was a balanced relationship between the prey he hunted and the plants he collected with his own population and movement. This type of behavior can be described in a first approximation by the well-known Lotka-Volterra models and its qualitative behavior is easy to see. If the resources of a human population A for some reason increase, then population A grows, but as it grows it needs more and more resources, in such a way that after some time when resources are scarce the population decreases; as they decline, both prey and plants have enough time to recover their populations and then the population A to be able to support new individuals once more, thus maintaining a balanced periodic behavior.

This behavior permeated all the behavior patterns of societies, they knew well that if in one season they consumed all the plants of a species, for the following season there would be no more of those plants, which could force them to move to another location. , which in turn would imply an enormous effort. Life expectancies were not so great and death was seen from a more natural perspective, without as much drama as we see it today. When the Inuit elders, for example, were no longer able to fend for themselves and be productive for the family, they were simply left to the perpetual ice. Something that in the first instance could seem cruel. In our society we have so lost our relationship with death that we resist with all our might to leave this world, forcing our bodies to endure horrible cancer treatments, for example.

We could then ask ourselves what attitude is truly cruel? With agriculture, a completely different population behavior emerged. The more individuals in the tribe, the more hands there will be for sowing and therefore the growth of the population can be maintained as a supply of food can almost always be guaranteed. With this variant, we stopped being tied to the populations of the plants and animals that we consumed, which produced a radical change in mentality. With the passing of the generations, the vision of interdependence between different species was lost, leading us to our current

belief that all resources are unlimited and therefore we can have whatever we want of what we want.

For a long time, even when we departed from the vision of interconnection, the farming peoples maintained the belief of the Earth alive because they still depended on the rains, the sun, they were affected by frost, floods, and other natural phenomena. This helped to have a balance although less with the environment. In a report commissioned by the Secretary-General of the United Nations Conference on the Human Environment, Maurice F. Strong, it is mentioned that “The intimate and inescapable interdependence that exists between living beings implies certain stability, certain dynamic reciprocity. Its weakening or destruction unleashes the ability of creatures to destroy each other and even themselves. ”

Unaware of our link with all the species that surround us and having forgotten Mama Earth, Man embarked on a technological career that allowed him to control almost all the factors of food production, find a cure for a large part of their illnesses by prolonging their life span as well as the probability of survival, unleashing an excessive growth of the population. Our population growth has been so disproportionate that our relationship with the other species on the planet has once again become evident on a global scale.

Around 1790 Robert Malthus commented on the matter “... how the human population grows according to a geometric progression, while food production grows according to an arithmetic progression ... and since an arithmetic progression has nothing to do with a geometric progression, then the population is condemned to vice, misery ... ”

Now we know that since the planet's resources are limited, the population cannot grow without measure as proposed by Malthus, but tends to a constant value. However, this population value could be such that we are overloading the planet's capacity anyway; we still don't know that. What we do know is that we have seriously damaged all of our ecosystems; that even when we have great technologies, people continue to die of hunger in many parts of the planet; that far from being more prosperous, the majority of the human population lives in poverty, a poverty that we have created ourselves. "Men have gone to such an extreme that they often starve, not because they lack basic goods, but because they lack luxuries" Thoreau.

We have made hundreds of species disappear from the planet forever, we have caused a hole in the ozone layer and probably we are altering the global climate by overheating the planet; in short, we are very far from our happy world. Under this gloomy panorama of the future, perhaps it would be convenient to face it as the Mayans did, from behind, looking at the past. Why can't we think that the Earth is alive? But why should we bother to determine whether the Earth is alive or not? Well, if from our analysis we can conclude that the Earth is alive, this could produce an ideological revolution that we as a society need if we want to survive. But before answering that question, let's reflect a bit on an even more basic question, what is life?

However simple the question is, its answer has eluded science and philosophy for

centuries. In elementary education, they taught me that living things are born, grow, reproduce, and die. But a virus can remain dormant indefinitely, so is a virus alive? Our bones are alive and yet they do not reproduce, although they do regenerate. It is clear to me that the definition of life they gave me was incomplete, to say the least.

Dr. Wan Ho, a biochemist at the English University of Milton Keynes, commented during a 1995 television interview, "Life is all the colors of the rainbow in a worm." Dr. Ho's answer referred to a method of observing microbes. , fly larvae, and worms that he used in his experiments. Using a polarizing microscope, some species of worms displayed an exceptionally bright range of colors, but only while alive. For Dr. Ho that was life. Quite a plausible answer gave the context.

Friedrich Engels gave an answer that, while grim for most, could well be the more formal answer. For him, "life is the state of being of proteins" True, but too abstract.

If we go to an atomic scale, right at the moment of death, the total state of the set of atoms that make up the body would be physically indistinguishable before than after death. Of course, analyzing life at the atomic level is an unfortunate path, since life has more to do with levels of organization than with the basic components of living organisms.

It seems that when trying to define life or its history, we ran into a multitude of seemingly insurmountable problems, in fact in 1951 Gödel proved that given a complete set of axioms, there will be at least one theorem derived from them whose validity cannot be testable. In other words, a definition cannot be built with the absolute certainty of its veracity from only a finite number of premises.

The fact is that we lack reliable data on many important aspects of life, its emergence, and evolution. Neither do we have the possibility of conducting precise experiments to remedy this deficiency, with which life is not susceptible to being strictly defined from a scientific point of view. Therefore its definition necessarily falls within the field of philosophy, within which, any definition of life is valid as long as it is consistent with logic and observable facts.

For all the above we could affirm that the Earth is alive, however precisely because the definition of life may be different for different people, the most powerful argument I can give in favor of the thesis of the living Earth is my own experience. During our physical preparation to go to Altar, Elvia and I would continually go to Iztaccihuatl, entering through the town of San Rafael, to go up to what was the Chalchoapan refuge, going and coming back in a single day. On one occasion, in addition to the ascent, I was working fartleks which I got too tired, so much so that during the descent we had a very bad time. The sun was setting behind the forest below us, a group of clouds threatened rain, and the temperature was dropping considerably. As the training session was planned for one day, we had little food, water, and clothes. I was trying to walk but my body was getting more and more tired, I was shaking non-stop and I felt like I was fainting with every step. In the latter case, Elvia would cover me with all my clothes and

go down to ask for help from the alpine rescue, which would take several hours to receive assistance, which would put me in serious danger of going into hypothermia. I knew very well that I had to get down on my own foot but the strength was lacking. As I walked I was touching the plants and from time to time I put my back against the trunks of the trees, asking them to lend me a little energy. In a moment when I almost fell to the ground, I knew unequivocally that I had to stay in that place to recover. I told Elvia that I felt I should lie down right there, she understood and helped me lie down. Curled up, I asked Mother Earth to help me, I concentrated strongly on the energy of the soil, the air, the sun, and the plants around me and little by little I felt myself recovering.

But how did Mama Tierra help me? Is that possible or was I helping myself using the right attitude? Just a few days before Elvia and I were discussing the parallels of the beliefs of the Men of Knowledge of ancient Mexico with some of the modern cosmological theories of Physics. The Men of knowledge of ancient Mexico held that the universe was an infinite conglomeration of energy fields similar to filaments of light. They even claimed that the world we know is only a partial view of the universe in which only a limited set of energy fields are perceived and that we are capable of perceiving totally different worlds.

Within the scope of Physics as far as we know, there are four fundamental interactions in the universe, the strong nuclear, the weak nuclear, the electromagnetic, and the gravitational. In a simple way, we can think that the first two are responsible for the formation and stability of atomic nuclei, electromagnetics determines how atoms and molecules interact to form larger objects, while gravity governs how these objects are organized. These interactions are explained fundamentally with three theories, the electromagnetic theory described by Maxwell's equations, the relativity proposed by Einstein, and quantum mechanics.

Of course, it is desirable to have a single theory capable of explaining all of Physics, however, the attempts so far have been unsuccessful. For a long time, the unification effort focused on elementary particle theories. In these theories, the existence of carrier or intermediary particles of the interactions is proposed. It is interesting to note that intermediaries have been found for all interactions except gravity. However, during the 1960s the first of the so-called string theories emerged.

String theories are based not on dimensionless particles, but on one-dimensional elements, strings of zero thickness, which make up all manifestations of energy, depending on how they vibrate. In a particle theory, the gravity between a particle of the Sun and one of the Earth is caused by the emission of a graviton by the particle of the Sun and the absorption of said graviton by the particle of the Earth. While for string theory, the particles that form the sun and the earth are formed by strings that when vibrating in a place and time in the universe manifest the particle of the Sun and the Earth, while gravity is interpreted as another string interaction that vibrates differently.

Another interesting aspect of string theory is the fact that they propose a structure of the universe that needs from ten to twenty-six dimensions, but then why do we only

perceive three spatial dimensions and one temporal dimension? One possible answer is that it is a phenomenon of scale. If we look at the surface of the pavement at about three centimeters, it will appear rough and full of curvatures. If we look at it from about 5 meters away, it seems completely flat and smooth.
Finally, if we see it from a considerable height, we will see it smooth but curved along with the surface of the Earth. In this way the remaining dimensions of the four known ones may be bent at distances too small or great to be perceived. In this way we could think that everything is made up of strings of energy and that these strings interact with each other in such a way that all beings are linked. These last paragraphs could well convince me that it is really possible that Mama Tierra helped me, but I'm not too concerned about her argumentative strength, for my Mama Tierra is alive.

With this we do not hope to have convinced you, we only intend to open your minds to new possibilities, and who knows, one day walking down the mountain towards a distant point, when having a pink sunset in front of you, gently close your eyelids to feel the subtle touch of the wind in his face, perhaps then it is Mama Tierra who convinces them.

Children of chance, an almost impossible event, which makes us unique. We are brothers of the fire, which is fanned by the wind. We are the survivors of the survivors. In this book I speak out in favor of our wild nature that thrives on the unexpected, that finds in optionality ways to make, build, create. That nature is fully manifested in the classic virtues of scholarship, honor, and aesthetics. In that same I am in favor of the Greek over the Roman, the search for wisdom over knowledge, the organic over the artificial.
I thus deny the fragile, the one who wants to strip us of the mystery of the unknown, to deceive us with the apparent but deadly stillness of indifference. He who eats the fruit with pride but without the humility and courage that only climbing the tree gives. I also express my gratitude and admiration for the hero, the innovator, the entrepreneur, the builder, the craftsman. We are wild creatures, we are fire, brothers of the wind.