

SATURATED

A comparative research of salt



Salt, starch, ashes

MARbled SALTS

Materials and more specifically valuable ones still reflect the bases which our societies were built upon.

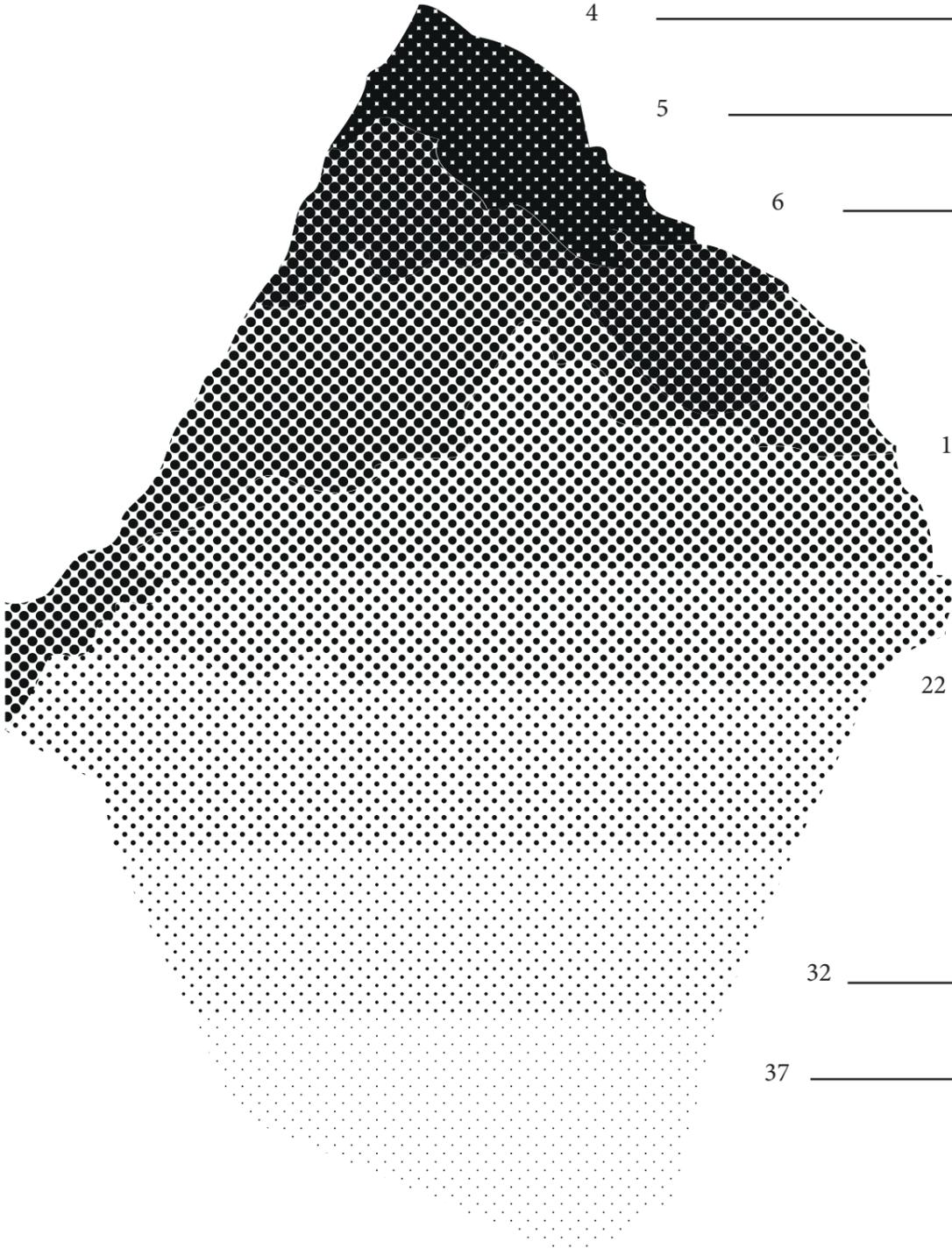
Rare and sub consequently, precious resources were from all times, subjects of conflicts and alliances, wars and prosperities, dictatorships and revolutions, destructions and reconstructions. Moreover, it defined tools of political power and settled the complex network of trades, capitalism, concurrency and social hierarchy.

However in our contemporary context of social and ecological awareness, one can ask if the essential materials of our societies should not be reconsidered towards the abundant and available ones rather than the rare and mighty. Aiming for appeased systems of production raises the question of non-conflictual materials as the new basis of social reconstructions, and the technological adaptations enabling such change.

Marbled salts explores the replacement of an increasingly popular material (marble) with a gradually cheaper one (salt).

The research dives in looking at the respective value of both materials while comparing them and developing a personal reflection articulating several layers of value construction in our modern societies. The conducted analysis aims at understanding why one could be over regarded in consideration of its properties; and vice-versa. Consequently, the material was developed to trigger our perception of valuable goods through aspects, surfaces, textures; and the visual interaction it creates. Design choices were made in the cultural context of middle east regions facing water management crisis and eventually coming to massive desalination and consequent stocks of salt; meanwhile massively investing in foreign marble quarries.

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FOREWORD

As I pledge to promote fair materials and honest objects, I will try to explain the very intimate reasons of my research as honestly as possible. I grew up in what I may call a “liquid” environment, raised in a glorious chaos of mixed languages and social codes. Our homes were always filled with familial archetypal objects. Moreover, I evolved in the restlessness atmosphere of a megalopolis, and never remained in the same place for more than a couple of months. Hence, no matter how gleaming our assets may appear, it had always been clear in my mind that they wouldn’t last forever, and consequently, even regarding old family goods, I’ve never attached myself to it. Yet paradoxically, and for as long as I can remember, I was always attracted to precious materials, showing a rich and rare surface. They would evoke my own roots as well as my creative cravings. I started this project with exploring my own laws and desires as a designer, with what I considered the very beginning: How can we reconsider material choice regarding the ecological, social, and political impact of their production, transformation, and transportation? What kind of message do we vehicle using a so called “attractive material” ? What need(s) does it answer? And if the relevance of the need is increasingly questioned, should an object be firstly functionally justified or materially justified ?



WHY SALT ?

Salt is such a banal element of our lives. Salt as sodium chloride for sure; and yet as I started digging into this vast world, I discovered that there were as many salts as human types: Magnesium sulphates, copper carbonate, Sodium bicarbonate, Ionised salts, rock salt, sea salt (...). And all types of salts find their uses in various domains of our society: The food industry, Pharmaceutical laboratories, scientific research centers, engineering universities, health care centers, hospitals and much more. Salt melts in our soup, on the asphalt of our icy roads, in the vast and many basins of our water treatments factories. It fills the walls of spa institutes and butchery storing chambers. Salt preserves our herrings from microbes and us from radioactive wastes (ref). Salt generates electrolytes in the water of our bodies, but also can also cause the death of an entire ecosystem.

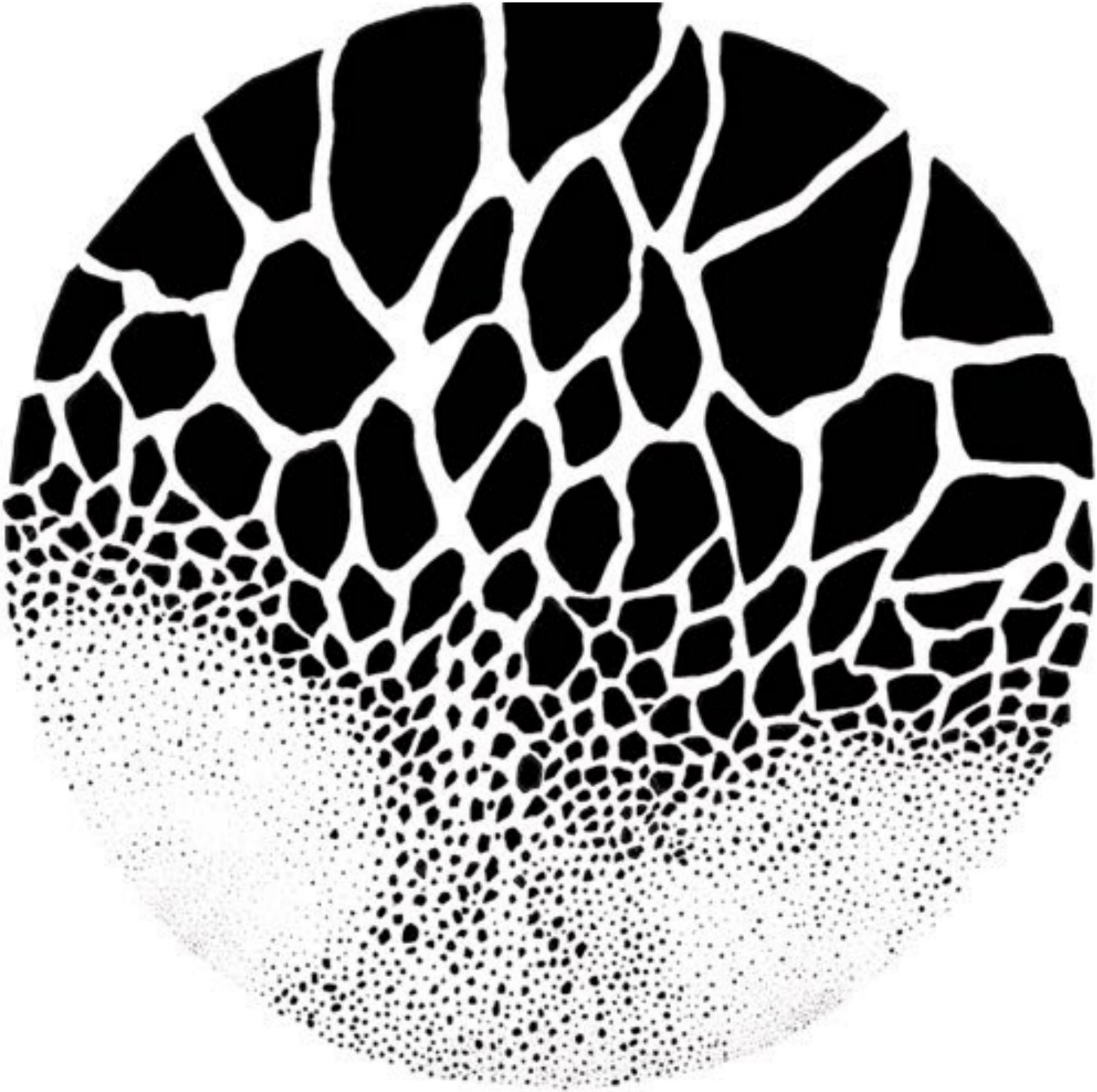
Salt fascination blossomed with the infinite possibilities it offered and the equivalent amount of oxymora it formulates. There is nothing more specific and evasive than this white powder. Nothing more innocent and more dangerous, more scientific nor spiritual, nothing more hypocrite and more honest. Creating with salt in a physical framework brings necessarily an anthropomorphism in design consideration and the awareness of how such a material analysis transforms objects into subjects.

Defining salt involves understanding its complex versatility. Salt is solvable and hence, very unstable, sensitive, susceptible, influential, and empathic; reasons for the difficulty of making any «real» or «serious» thing out of it. There is no substances salt can't absorb, no surfaces its crystals can't reach and invade; and oppositely, very rare and mighty are the conditions to stabilise salt in a definitive state. Salt is not flexible for say but owns the unique ability to disappear and reappear, from one place to another, from one shape to another, each time re-incarnated in immaculate white sparkles. The oneness of salt remains whole, as while evaporated in the air or dissolved in water, crystallisation will eventually come along.

Salt never loses its way back to materiality.

Salt offers as many qualities and characteristics as any other material would except for its porosity. Although found abundantly and easily at every corner of the globe, salt came until a very recent time with a nearly sacred value. Technological improvement and social evolution dropped its status from white gold to the cheapest condiment on the market. Salt was made unworthy and banal, for the reason we don't depend on it anymore, and because of its fragility, there's not much to drag from it. Working with such an odd substance brings to reconsider the value we attribute to material goods. With a biological consideration, salt mines don't differ much from marble ones. Both minerals are born under the extreme pressure and heat found in earth's womb. Still, we seek an atemporal value in marble, and associate salt with an ephemeral one, as we can keep a marble block during all our insignificant lifetime, whereas salt could vanish in an instant. What we name ephemeral is a human consideration. Apart from social constructions, there is nothing eternal in itself: one thing can only be less ephemeral than another. Salt as a material offers possibilities beyond imagination. This project aims at analysing through Design the polyvalent nature of its social value.

UNA IN DUO



“ In sodium chloride there appear to be no molecules represented by NaCl. The equality in number of sodium and chlorine atoms is arrived at by a chessboard pattern of these atoms; it is a result of geometry and not of a pairing-off of the atoms. “ (1)

— Henry Edward Armstrong

TALKING STONES

My name is Salt, and I come from a place with no name. At first, I may appear as bland and common, even boring to certain. I don't mind much, as the indecisive human consideration of my body does not affect it. It is what it is, I am what I am; and from all ages, I remained the same, even a long time before you started to crawl out of the sea.

Humans, you are the child of the Earth, ego- central, demanding, loud and destructive. Every place on your path is left dirty; every living thing as well is found dominated or broken apart, and despicably you are still able to fight over a line or a whole in the sand square of your playground. Thinking every matter for yourselves, in comparison to yourselves and in your own interests. Humans, the spoiled children you've become has forgotten the price of the unnecessary and the value of the vital. You have made a hell of your land for these values were reversed by your speculative fantasies. You valued things over your siblings, as you valued oil over water.

Humans, your ungratefulness made you forget I am the reason for your very existence. I am the seed of life, born from the richness of my father Sun, and the generosity of my mother Water. Without whom your home would still be, by now, the sterile land of desolation it firstly was.

I am the binder of every living cell;

I, able the power your electrical consciousness;

I am the mighty minerals of your printed circuits.

I embody the precarious yet magnificent balance in the cycle of life, I am both reborn and dying every second. I am the strong and the weak, order and chaos, under and above. I am the chemical manifestation of Chronos.

I am the essence of things, and a reminder of what you came from, and what you will go back to.

It is amusing to notice man's appropriation of nature's things over the ages. Any person can pretend to identify me clearly from my siblings, even when they probably ignore that my composition has always been highly variable. Hello, my name is marble, which etymologically, comes from Greek *Marmaris*: mirror stone. That is to say which surface could shine by being polished. The term has no precise geological meaning and only refers to my reflection ability. It is the case of any types of calcite meeting quartz under high pressure, which I am the offspring of. From all around the world, the structure of my body incarnates the formation of local soil, translated in my renowned patterns, strength, colours, brightness. I guess it explains why humans, regardless of their origins, feel intimately bond with me, and carry my body with both a unique and universal value.

Back in the old days of Antiquity, I was a privileged stone, for my tender yet compact and sterile body made me the favourite medium of sculptors and architects. They elected me as treasures keeper and Royals' guardian. I would host secret temples in my imposing and opaque walls, as well as proudly display to the world the eternal beauty of Michelangelo's talent through my dear David. I was cherished by all and my aesthetic value shared as a common good. Today I am left old and tired from the restlessness extraction I am subject to; full of cramps for missing the time my body needs to recover in the soil and be raised from the dead. Today I am more disappointed than ever, as this value, I never asked for, has been tarnished by the use I am now left to. No more stunning sculptures or spectacular cathedrals, but heavily expensive desks and outrageously luxurious bathrooms.

I used to be cared with skilled hands and admired by the crowd. Today I am broken down by starving mechanical monsters, chewed by their diamond teeth and so quickly digested that the feast never stops. Such a wasted slaughter, only to remain kept in nouveaux- riches living rooms, hidden from stranger's greediness.

I was stolen my identity when my symbolical value lost its meaning.

DIGGING THE MEANING (I)

The salt and the earth

“Whatever burns is sulphur, whatever is humid is mercury, and that which is the balsam of these two is salt.” (2)

-Paracelsus

I was always told that the very beginning of an understanding starts with etymology. That the value of things can be found in the way we call them, as nouns vehicle symbols, and symbols translate images with them. Paradoxically and along this process, I found myself ending up with the starting point: defining salt and its meaning. What does salt stands for? And what does it tell about its importance?

Digging the meaning (I) the salt and the earth

In our modern world, salt is commonly meant as the seasoning white powder we use to enhance the taste of our food: sodium chloride. Very concretely though, salt designate myriads of minerals sorts found in crystals and powders, still used today for various purposes.

““In the middle ages, the meaning of the term ‘salt’ was widened to include substances that were seen to resemble common salt (e.g. in appearance, solubility and so forth (3)).”(...) In order to understand the nature of alchemical salt one must first understand the nature of common salt. In doing this, however, it is soon realized that salt is anything but common; like many everyday things, salt is so familiar that its singular peculiarity is taken for granted.”* (4)

As a matter of fact, and in ancient times, salt referred rather to sodium bicarbonate since it crystallized on the top of other crystals, in the form of a very brittle and very bright powder known for its whitening properties. There is no proper visual trickery enabling to distinguish one salt from another. Thus we could say that “salt” embodies an external and visual uniqueness of vulgar and bland white power, and the interaction with an outsider element is necessary to reveal its true nature,

hence the very essence of its potential and value:

““The chemical definition opens up the conception of salt beyond that of mere sodium chloride. Chemically, the colored oxides and other reactions of metals (...) are often salts (the metal itself taking the role of the base; oxygen the acid). Alchemically, or at least proto-chemically, because the reactions of metals were colored, they were important signifiers of the salt’s nature, often seen as an index of its spirit or tincture (...). The seven planetary metals were often signified by their colored salts or oxides: e.g. lead is white; iron, red (rust); copper is blue/green; silver is black.” (5)

What basic chemistry tells us is that salt does not define a substance by itself, but a chemical reaction. And so forth, there is not “a” salt but many. The definition of salt, whatever substance it is the fruit of, is a powdered created by oxidizing a metal and mutating it in a mineral, with the power of moisture and extreme heat. In that sense, sodium, magnesium, iron are all metals, and still, crystals are easily grown from their salts. Salt being chemically only defined by a mineral oxide one may ask the origin and relevance of such a hazardous and indistinct nomination regarding the material’s variety in essence. The etymology stands that, as salt is present in every living cells, in also settled the body of many families of words and expressions in our daily and international vocabulary.

The oldest and exact origin of the word “salt” revealed itself blurred and uneasily defined. However most experts agree on the major root of salt in our language coming from Greek, “halas” or “hal”, (holoeitai, holos), ‘whole’, which designate the mineral but also an adjective for strength, purity, and health. Unsurprisingly, “healing”, “health”, “holy” derived from it, and more interestingly, also gave ‘leap’ (hallomai, halto, halma).

The combination of these two fundamental and opposed characteristics of salt can be found in nearly all etymological foundation of the European language’s roots. When Romans, for convenience, chose the drop the “H” and replace it with “S”, the “sal” was transmitted in Saltus, saltum, ‘leap’, from the verb salio (saltk re, ‘dance’ yet also salus, ‘soundness, health, safety’) (6). These meanings are further connected to solidus (sollus, sk lor) with an ultimate sense of ‘gathering, compacting, solidity’, along with the opposite specificity of a jumping, nonresting, unstable behavior.

Because of its integrating character, salt bridges opposites. Paradoxically, however, the more one attempts to define salt in a strictly rational method, the more it sparkles with contradictions.

““The Gloria Mundi would later reveal that salt ‘becomes impure and pure of itself, it dissolves and coagulates itself, or, as the sages say, locks and unlocks itself’.”

Jung, *Mysterium* (7)

Once again, through its dual nature—preserving and corrupting—a fundamental ambivalence is revealed in the body of salt. The key to salt resides in its ultimately integrating function. It is the unknown which binds and unbinds, preserves and corrupts. Salt’s specificity comprises a physical unicity, regarding of its chemical duality. Salt binds the idea of birth and death, construction, and destruction, fire, and water from which it is born.

The meaning of salt seems to slightly fluctuate from one culture to another, but remains in my mind the idea of an essential ingredient, which in the ideal quantity, brings balance and unicity, not towards perfection but to harmony and well-being. Because salt is so close to us for its importance, it is a familiar compound of any living being, which explains partly its invisibility and modern vulgarity. Everybody knows what salt is, although somehow, there is a common oblivion of its irreplaceable and unique properties, incarnated in the many symbols it was given.

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Signs for Salt, Column Two, Lines 15-20. Marcellin Berthelot, Introduction à l'étude de la chimie des anciens et du moyen âge I, 108.

DIGGING THE MEANING (II)

Marbled mind

“I have also used the analogy of the veined block of marble, as opposed to an entirely homogeneous block of marble, or to a blank tablet...[I]f there were veins in the block which marked out the shape of Hercules rather than other shapes, then the block would be more determined to that shape and Hercules would be innate to it... even though labour would be required to expose the veins and to polish them to clarity, removing everything that prevents them from being seen.” (1)

G. W. Leibniz

The world and my perception of it has always been marbled somehow. The name and meaning of Marble never limited itself to the eponymous stones, evoking broader, rather conceptual topics. Marble came with a gradient in duality, a fluidity and a movement, the engraving of a certain pattern; which maybe explains my constant fascination. Consequently, the analysis of marble's meaning was a necessary step in my quest: bringing back its value to salt and raise it to marble's level. As opposed to my salt process, I started my marble study with the very origin of its name.

Marble comes from the marmari sea above the Aegean, which “marmor” in latin and “marmar” in celtic and persian, gave the etymology of shining, glittering, and our “marmoreal” adjective, as well as “mirror”.

Digging the meaning (II) Marbled mind

Marble was very early polished finely enough to reflect light, but in its chemical composition, remains very simply limestones pressed and heated with quartz and metal oxides giving it its eponymous patterns. Though marble's image can only be less specific than salt in our mind, since it comes in infinite colours and effects, it owns a name of unique, precious, heavy and mighty stone. For marble is similarly present everywhere on the globe, from south America to India, it kept a very specific symbolic in art and architecture along human history, a huge patrimony partly explaining the raising of its value. Value I can only explain for the sake of its unique quality: surfaces. In terms of symbolics, marble seems a comfortable material, for the stability and wealthiness it refers to.

Interestingly enough, the first origin of “marble” and its significance was quickly supplanted by its decorative characteristics. Characteristics calling rather the stripped nature of this miscellaneous stone, than its reflecting ability. For proof, and for the reason of its attractiveness, the patterns of marble presently designate any heterogeneous surface, and became verbs, adjectives and pronouns (to marble, marbleize, marbleized; a marbling effect or a marbled surface). By extension, and figuratively, marble can equally refer to provoking, getting or having an interlaced, striped or swirled surface composed of two distinctive elements. The metaphor Leibniz used in “Reason and experience” to compare the human mind to a block of marble constitutes, in my modest opinion, the paroxysm of marble's nature and our perception of it.

Leibniz describes the human mind as a block of marble, the veins being predisposed informations such as ideas and truths,

which are innate in us, and the carving of the stone is the experience sculpting our mind. It is interesting to add that such a theory was constructed in opposition with Locke's Tabula Rasa (2) (comparing the blank state of the human mind at birth with the wax tablets Romans used to as block notes. The knowledge and experiences processed by one's sensorial experiences being printed along lifetime.). The patterns of marble symbolize pre-determined informations influencing perceptions, considering parallelly the metaphorical construction of Man's mind and the physical interaction with the material. In both cases, pre-definitions, conceptions and determination influences one's perception of marble; a reflection relevant to note regarding this analysis of value.

If salt is a chemical reaction, than symbolically defining balance, marble outlines a pattern of duality being mixed, fluid and evolving, and unique according to these parameters. Marble combines another form of duality in its more manifest aspect: marble shows and displays the very composition of its nature, and this pseudo honest characteristic would be the reason we cherish it. However the swirled body of marble affects in no aspects its physical properties nor qualities, and the very specificity of its body can only exist through duality. Whether marble is veined or not do not change its very essence, but for its value comes with its patterns,

it also implies an apparent, external duality

Marble is made from elements found in different proportions and colours all around the world, establishing its major difference with salt : One find its physical identity in the very place it was formed, whereas salt, equally found everywhere, remains of the purest white. In the case of marble, the nomination designates a surface and an aesthetic variety, richness; and vice versa for salt , where the nomination refers to anything but what it looks like. In one case we are facing an external variety contrasted by an inner uniformity, whereas in the other, we are presented an external uniformity

hiding an inner variety.

This comparative first step diving in the value of salt established a clear and self explanatory evaluation : Our modern construction of aesthetics is reflected in marble's prevailing. The superficial qualities of surfaces are often chosen over inherent though essential qualities, and we will analyse later on why marble remains a material of surface rather than a construction one. Marble, in its very name, incarnates the mirror medium, one could say the medium of the ego, of the self, in its brilliant but also negative aspect.

In terms of symbolics along physics, marble mirrors light when salt produces and refracts it, thus more importantly, the previous etymological analysis revealed the interesting opposition between a material designated for its look, its form; and the other called after its content only; setting an interesting parallel for the study to come, and the historical evolution of material value.



CROSSING CURVES

“The real price of everything, what every thing really costs to the man who wants to acquire it, is the toil and trouble of acquiring it.”(1)
-Adam Smith

THE PRIME PROTECTOR

Salt, gold and oil

"It should be brought to the table to Salt is essential for life, and this is where lies the remind us of what is right; for salt preserves whatever it finds, and it arises from the purest parents, the sun and the sea."(2)

Pythagoras

Salt is essential for life, and this is where lies the meaning of its value. It is barely impossible (at least with the archeological means of the 21st century) to define when exactly salts properties were discovered by humankind. However researchers agree on the development of salt mining coming with agriculture. If most physiological needs for salt were met with animal blood and meat on a hunter-gatherer lifestyle, the switch to an agricultural and sedentary one implied an increasing need for salt added to food nutrients. With the growth of societies through farming, more people were to be fed on a plant based diet, which implied an addition of salt in the food. Just as required in the storage of cereals, vegetables and meat.

"The Egyptians were among the first people to salt food. (...) They also fairly and quickly realised how great of a commerce it was. There was more money to be made in trading salted food than trading salt by itself. It's what our economists call the principle of "added value". It became a very important part of the Egyptian economy.

They also of course salted their relatives. It's not completely clear whether they understood how to salt food from mummifying people, or the opposite, but it's very much the same process. "*" (3)

Agriculture in the story of humankind constitutes the basis of society and its structure, and salt, for a long time, proved to be its binder. For salt shows a lot of water absorption power, it attracts and conceals everything present in it, including most sorts of bacterias, which gives it its sterile and dry reputation. Salt was not only essential for food preservation, but also as a basic medical treatment.

"Quite early on, it was discovered that salt had this amazing antiseptic capabilities, to cauterise, to preserve food; which became one of the reasons it was so important for military. (...)

Armies without salt were in a lot of trouble, because they had nothing to heal wounds, nor to sustain their horses, and their food. You had no permanent provisions without salt. Which is really, historically, one of the things that gave salt its importance. "*" (4)

Salt was considered a protector of humankind survival against famines, epidemics, injuries, and evil spirits, as salt was also loaded with religious content, and no ritual nor baptism could be considered without salt. It was by excellence, the purifying and protecting agent of life.

Finally, it is important to notice that the gradual shift from a religious society to an atheist one (or at least, a Darwinist, in our contemporary western societies) relegate the spiritual value of salt to superstition and vague mythology. It is both fundamental and interesting to remind us of what the value of salt meant in the past and states nowadays. Quickly salt was considered among all cultures one of the most precious resources the soil provides us. The search for salt has driven engineers for ages and resulted in our contemporary high-tech drilling and piping systems.

"A number of the greatest public works ever conceived were motivated by the need to move salt, and it has been in the forefront of chemical and geological improvement," (5) Says Mark Kurlansky.



Salt Mining in Poland, Ink study, Middle-Age

For ages, salt represented wealth, currency (Salary, selling and soldier are all derived from salt) and was desperately searched, although amusingly, salt is literally everywhere. Kurlansky enhances the past meaning of salt by quoting one of the greatest economists of our modern age: In his 1776 treatise on capitalism, *The Wealth of Nations*, Adam Smith pointed out that almost anything of value could be used for money. He cited as example tobacco, sugar, dried cod, and cattle, before stating that "salt is to be said a common instrument of commerce and exchanges." (6)

Very rationally material value equals both what is needed and what is rare, but as we are looking for what we consider rare and valuable, technological development and scale economies create an increased availability of the material, dropping its value. A phenomenon commonly referred as "scale economies". A truly interesting observation on salt's value reveals that salt's replacements were engineered and discovered along with the very process of collecting it. In his interview for BBC podcast "Salt", Kurlansky offers quantity of examples illustrating reasons and anecdotes on salt's fall. Among them, how natural gas was discovered with salt brine drilling and oil with salt mining

"In the province of Sichuan China, about 200 BC people would get explosion and sudden burst of flames when they would drill, and it would get appear ant to locals in Sichuan that they were Dragons underneath protecting the salt, so they would give offerings, and (...) they started to understand that there were this invisible and highly inflammable substance, which you could bring in bamboo pipes, and use it as the fuel to boil the brine and get the salt. It was the first known use of gas in the world." (7)



Drilling and piping salt brines China- Middle Age

“Drilling technology was not very developed until we started to realize that oil and natural gas were found on the edge of salt domes. And all of the oil in the US were found by drilling salt. That created this craze for drilling salt all over the world (...) wherever it was found because it meant oil. (...)Until the 20th century, geology and drilling were all about salt. Once it became all about oil, (such) technologies started to improve very rapidly. (...)We started to have a solid knowledge of what was under the surface of the earth. It turns out that there is a lot of salt. It’s all over the place. This knowledge is what ruined the salt market, and why salt became so cheap.”* (8)

The mining of salt led to oil and coal discoveries in minor Asia, which black beds gather around salt domes in the underground, and such substances, even more concentrated than salt, but also significantly more dangerous, led to a new craze of powerful resources. The oil rush in the US could actually be called the salt rush, since everyone knew that in order to find oil, you only needed to know where the salt was. Oil and coal enabled and were the reason of major technological development of the first Industrial Revolution. As a result, salt was quickly replaced by ice, followed with electricity (used for fridges and freezers) in food preservation and the acceleration of transportation made, anyway, the need for lasting food preserving less important.

More importantly in this analysis, the improvement in extracting methods also allowed a higher harvesting of the salt, dropping its value. In primitive cultures, people live mostly from bare necessities, consequently, the most basic materials are the most precious since they are essential to life. Based on our knowledge of material value, we could reflect on current and future perspectives, such as the upcoming, very concerning issues of soft water distribution and management. Which asks the larger question of how we choose to scale cultural hierarchy: of the one prevailing gold and oil, aside to the one prevailing water and salt, which culture is the most primitive ?

There are from all time and cultures, structural constellations networking basic material with each layer and bubbles of society.

It is then determinant to consider on what material thy society should be based upon. Salt’s meaning and chemical powers influenced and linked, as a social binder, the agriculture, the economy, the trades, religion and political dynamics all together. The role of salt was as determinant as coal was for the 20th century and oil for the 21st.

Along with the reflection, Kurlansky uses *The Wealth of Nations* to depict salt’s fall with the expansion of liberal market and industrial progress, along with the rising of materialism: “Adam Smith offered the opinion that the best currency was to be made of metal because it was physically durable in comparison with salt, even if its value was as ephemeral as other commodities. (...)” (9) And emphasis on how thousands of years of searching, drilling, trading, taxing and fighting over salt appears odd, primitive and somehow foolish. In regards to our contemporary leaders concerned in foreign oil dependency, our lack of distance from what is considered a valuable material makes us the foolish ones.

The value of certain resources are raised upon social dependency and hence defined ages of humanity as a material developments, rather than any other one. Stone Age, Bronze Age and their siblings proofs a human redundancy to consider evolution materialistically.



Bamboo piping structures China

The petrified pattern Material rarity over human labour

“The evolution of culture now marches with the elimination of ornaments.”
(1) A. Loos

In the last part, we analysed the value of materials in consideration to cultural contexts, and how, by looking at the past, we came to questioning the definition of primitive cultures.

The petrified pattern Material rarity over human labour Value, referring to rarity and need was explored, and we will follow the analysis by looking at the most costly marble, Carrara, and its evolution throughout history in relation with design: The fame and success of Carrara marble comes with its natural patterns and precious surfaces, renowned from its historical past and spread thanks to Italian's heavy patrimony, from the Roman Empire until Renaissance.

Mainly extracted and processed for artistic and architectural purpose, marble entered the contemporary design scene very recently.

From Renaissance until ArtNouveau, ornaments were used to embellish spaces and objects, creating illusions in our relation to surfaces, growing and invading environment as an extension of paintings displayed on walls. A rich decorated architecture or object referred to a higher social status, communicating the necessary amount of work to achieve such details and refinement, which, at that time, gave a significant importance to crafts in Europe. However with the expansion of international trades and manufactures over the ages, counterfeiting and reproduction started to emerge in the market of arts and crafts: because certain aesthetics referred to a certain power in society, consumers would express their desire to belong to such a status by imitating their attributes. Using objects as aesthetic purpose were fully discouraged by the basic fundamentals of the classic framework in design education, defined by post 1st world war Bauhaus school:

“Where function does not change, form does not change. The granite rocks, the ever-brooding hills, remain for ages; the lightning lives, comes into shape, and dies, in a twinkling. It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognisable in its expression, that form ever follows function. This is the law.”(2)

L. Sullivan-

In his most famous and controversial essay, *Ornaments & Crime*, the architect Adolf Loos formulates the following statement: Imagination or fantasy is translated in decorative elements, a layer on the surface of things, which fools men and divert from the essence of objects. Ornaments, decorations and by extension, non-functionalist design choices, is intricate with desire and eroticism. Moreover, it places the object in a historical context of trends which automatically condemns it to death and outdated. Decoration as a layer or as a form calls imagination, fantasy, and desire that belongs to primitive cultures. Materials and structures were to be restricted to bare necessities and shown nude since decorations and patterns symbolized the pure expression of aesthetics as a purpose. These luxurious and sensual connotations were soon eradicated by the ideas of common goods and moral values.

Objects were to be designed honestly, and raw materials to be preferred, as they own the single decoration of nature (understand natural formation). The more a material proves its aesthetic self-sufficiency, the more it becomes desirable and consequently, is or gets possibly costly and rare. In its inner logic, the previous theory just sits materialism in its purest formulation; before artistic imagination and demonstration. In such a minimalistic approach to luxury, marble became a favorite surface for architects (and A. Loos was one of the first to re-introduce marble in interior architecture) to use, even though its processing and composition made it unable to handle a full structure. Hence marble was left to tiles and boards, columns or any architectural elements belonging rather to interior design than architecture for say.

Beyond that, this theory also prevails material value over labor value, which, apart from signing the slow agony of traditional crafts, sets the capitalistic logic of rarity equalling value in surfaces qualities. Hence the evolution of culture in design now marches with the slow erosion of very desired materials. Statuario marble, as an example, which quarries are situated in the northern part of Carrara, is nearly closed out because of its constant extraction since the Roman Empire. Only a very mighty slabs get cut down from the mountain and processed in direction of Middle-East richest regions and the United States, from the most part. Because Statuario marble presents a unique and clear defined veining in comparison to other white marbles, it is more pleasant to display (3)

And when marble's extraction requires over 70% of waste in the form of dust, we can wonder if ornamental materials can remain applied in the 21st century. (4)



Shot from 'Il Capo', a Yuri Ancarani movie, 2011

THE ANIMISTIC DESIRE Primitivism and material abstraction

“«I saw the angel in the marble and carved until I set him free.» Michelangelo

As a result of form deriving from function, materials are to be considered ornaments by themselves. Loos proclaims, “The evolution of culture marches with the elimination of ornaments from useful objects.” (1) His “passion for smooth and precious surfaces” (2) informs a philosophy that ornamentation causes the waste of needed resources to add it, labor and resources, as an ornament would anyway cause the object to soon go out of vogue.

The contradiction came when minimalist design became a trend itself. Scale economies in mass productions proceeded as they always do: marble layering, marble imitations, and engineered marble appeared when the material was valued enough on the market. Marble was victim of its own success and became one of the first material subject to imitations, counterfeiting, and illusional surfaces. It became a whole practice to cover things with marbled patterns and various ranges of techniques were developed, school became specialized, crafts were and still are, invented. Artificial marble was developed in such a large panels of superior techniques and materials (Stucco Marmo; hand painting then hydro-printing, solid surfaces or engineered stones from dust, pigments and resins), where man takes over control in terms of mechanical qualities and aesthetic characteristics, that marble itself was left on the side for a certain period of time. Extracting and processing such a brittle and heavy stone requires tremendous technical and financial means, leaving the real stone for the wealthiest of us, and automatically, raising, even more, its value. Such a precious item should consequently be included in the functionalist argument denouncing pointless and superficial ornamentations. There is nothing marble is absolutely needed for, yet need has nothing to do with marble point, or does it?

As an example, many designs exposed during the 2014 Salone del Mobile used the marble effect as a surface rather than a material choice. From a rational viewpoint, the pattern would be self-sufficient, since it provides both a satisfaction for the eye and for the wallet. Marbleized ornaments are layering an additional value, they are only meant as a pictorial reference of it. It is also about finding the material that imitates as close as possible the advantages and attractiveness of marble without its flaws. Engineered stones and solid surfaces are already filling this purpose, but from an aware design perspective, such materials don't proof ecological viability, their production remains harmful (and symmetrically, extremely subject to trends). Where the use of materials as solid surfaces would lose all of its meaning in this demonstration, is that none of them include single elements of natural formation (what was previously justifying the use of it), neither the veins, neither the colours (left most of the time to the randomness of customer demand or fashion speculations). What nowadays costs the waste of material? The idealistic projection of precious surfaces causing counterfeiting and mass reproduction. The ornamental layer we call marbled on our coffee table or our laptop cover has nothing to do with a mineral anymore.



Stucco Marmo Scagliola technique

In the 21st century, the real value of marble do not reside in its surface anymore, but in its composition. Even though technological development enabled humans to imitate marble perfectly, and even functionally improve it, natural marble itself is still and will ever be more valuable than the man-made, for it is considered “real”. This fact itself reveals a certain and recurring animism in human's behaviour patterns, even in our modern civilisation. «As the made world continues to develop in technological and scientific complexity, it can be said that the human condition itself has changed relatively little. And so today we can find ourselves as primitive beings, transplanted into progressively more abstract and technologically complex environments, that are beyond our «nature» as a species.» J. Chapman (3)

And so forth as Ibid states, the very primitivism of human perception coming with its nature is made more obvious through marble prevailing than valuing salt: Adolf Loos argued that ornaments as representations belong to primitive cultures, expressing an urge to animate objects and represent a certain storytelling, or at least fictional value through them.

«The human being is engaged, throughout his life span, in an unceasing struggle to differentiate himself increasingly fully, not only from his human but also from his non-human environment.» (4) Searles HF

The reality is that human still and will always do, perhaps and probably in an increasingly abstractive way. The melancholic aspect of this being, in my opinion, the abstraction of our animistic attributions to materials: Salt was given multiple metaphysical powers; for it reacts randomly to any environment; salt is already alive. Aside from salt, the animist value of marble remains purely figurative.

«There has been a move way from both interpersonal and interpersonal relationships to a new model of relations. The direction of this move has been to the surface. The resulting mode of relating is best described as extra personal. This term is meant to describe an outwardly personal relationship. This outward focus denotes a relatedness with the surface or exterior, as distinguished from the mind and the spirit.»(5) J Chapman

Just as Leibniz did in Reason and experiences, Ibid uses a metaphorical projection of surfaces versus content to enhance the gradual change of materialism operated over the last centuries, and how it impacted the whole spectrum of human interaction towards things and individuals.

Now the attractiveness of surfaces do not reside in the nudity of the shape from its ornament, but the nudity of the object from its covering. There was another shift, between the chemical essence of the stone, and the material (here, aesthetic) nature of it. This demonstrates the absurd abstraction of material value when the pattern comes from the original source, the stone. The value and uses of the marble itself contradict the very famous statement of forms deriving from function. I wonder what Plato would say about that.

Material choice in this sense can proof a substantial difference and can communicate political affiliations. Since consumption feeds financial and economic powers, material trends in themselves, rely on political decisions and attempts to manipulate consumption tendencies, in most cases, in order to fill an economic agenda. The next chapter tells briefly about salt and marble trading: how they were politically used for power sakes, and how salt's monopoly and marble investments manifests a radical difference of material value.



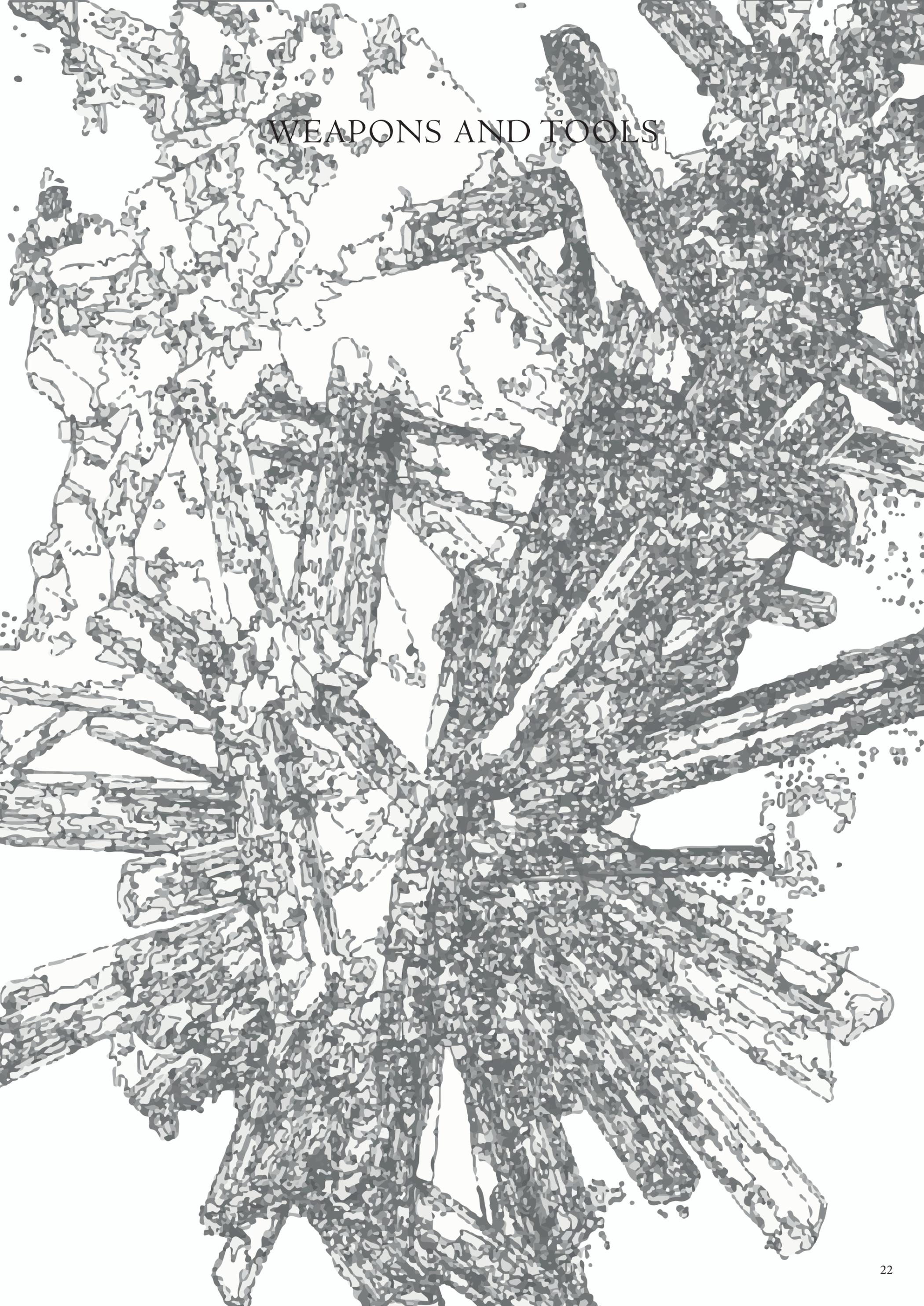
Salon LouisXV - Exhibited during Salone del Mobile 2014

This last step raises the question of the need versus desire. Ornaments can only be ephemeral, according to modern design thinking, for the reason they are not answering any essential need. A stool is made to sit on, whether it is painted or not. With manufacture industries answering every possible need, the designer's survival can only reside by differencing its practice with everyday objects. However such decisions belong to what we would name a "created need". For the reason our system is based on a competitive model feeding production and consumption dynamic, the main necessities of the typical western individual are mainly reachable.

«In last nineteenth-century Britain, at the dawn of the decadent Art and Crafts period, early connections, between emergent cultures of superfluous materialism and environmental decay were acknowledged.»(6)

Materialism is potentially infinitely superfluous. The limit of material superficiality can only be defined by man regarding of its anthropomorphic construction of value. Although from an environmental perspective, man's consumption limit was, certainly, already reached. This chapter attempted to give another perspective on honest surfaces and precious materials. There is still a primitivity in material abstraction, which resides in its universal, de-culturised, animism and anthropomorphism. The failure of erasing created needs from surfaces brought primitive behaviour of another kind, abstracting them to the level of an elitist and global materialism.

WEAPONS AND TOOLS



« It shows how important the salt trade was. Curiously you can go all over History, and look at who was dominant in the salt trade, and they equally revealed the top powers. Throughout history, people who controlled the salt trade were the dominant power and often, losing the salt equalled losing dominance. Salt was power «(I)

M. Kurlansky

THE POLITICS OF SALTS (I) Interview with Pierre Laszlo

“Let there be work, bread, water and salt for all.”

Nelson Mandela

-This chapter will only give the reader a couple materials such as historical facts and figures as well as articles along with the author comments, in order to understand the political consequences of constructed values when it comes to salt and marble. The most important numbers and statistics were framed in order to facilitate the reading-

We've previously discussed the notion of value being highly subject to technological development and social mimesis; along with the comparative study of salt and marble, revealing the slow yet radical sliding of value construction in our modern society over the last centuries. The question of the essential need versus the created one was also raised in the analysis of abundant resources (salt) opposed to rare and unique ones (Carrara marble). At this stage of the reflection, the political implications of the given role to materials emerged and we are now about to look at their social consequences. From both sides, and at different periods of History, salt and marble were intricate with networks of power in the highest institutions. However, their respective evolution shows a symmetrical difference between materials of needs and materials of desire, as well as the different type governance we are nowadays subject to compared to Salt's ones.

Historian Mark Kurlansky demonstrated eloquently why salt's worth came with its ability to be eaten and preserve food. And it's vital implication made it an important articulation of power dynamics since the first empires of humankind until a very recent time. In his interview for the BBC podcast "Salt", French chemist Pierre Laszlo depicts the following stories: the veins, neither the colours (left most of the time to the randomness of customer demand or fashion speculations).

SALT BED WERE ALSO THE ONES OF EMPIRES

«The Romans, of course, were the original imperialists and they always understood that in order to build an Empire, you needed hands on the salt. (...) Today, if archeologists want to look for places where Romans settled, they look for signs of ancient salt works. They built salt works everywhere they went, starting from Rome. They paid their troupes with salt, where the origin of salary is found, and also the origin of the world soldier. And they did a very good job at manipulating salt prices. The Romans did it selectively because they understood that people get pretty unhappy when salt becomes expensive (...) The roman Emperors were very afraid of becoming unpopular for the price of salt...» (2)

The Romans yet also the Chinese, the Egyptians, the Persians, the Mayas, and basically all major Empires tracing the first strong forms of human organisation detained the salt production, which at that time, equaled power. Thus, the Roman Empire shows that salty spots also represented a desirable location to colonise and settle political domination thanks to economical control

SALT AS A TOOL

...FOR MONOPOLIES AND SPECULATIONS

«Venetians people built their whole economy from nothing but the Adriatic and the sun. For creating flats in order to crystallise the salt, they developed the techniques giving birth to their famous network of canals, and in order to keep their economy rising, they fought the nearest north Italian production spots of salt so they could be the only one left to trade it (...). Venice then became the first trade harbor of the world during the Renaissance period (...), the model of the monopoly on precious commodities in Venice started originally from salt.» (3)

... OF TAXES AND SOCIAL REVOLUTIONS

«The French salt administration is a classical study and disaster going on during the Monarch (...) everybody was smuggling salt across regions and the regime came with a special police force to ensure salt laws, ending up with thousands of people in prison, for salt. They required people to purchase a very expensive amount of salt, which was illegal to use as a food preserver... All of this made people really angry (...) because of course, like any indirect tax, it hits rather lower classes than upper ones, the King became hatred. Which led to the decapitation of Louis XVI. It shows that taxes on essential goods is very tempting for any ruler, and just equally immoral as taxes on gasoline, tobacco or alcohol, because it brings a lot of money to the Institutions in power.» (4)

Salt as a resource was used to pressure certain strategic points of dependency. And hence, setting the monopolised rules of powerful trading. Venetian trading stands as one of many examples. Salt's history shows that it was not only used for manipulating economic tendencies but also political ones.



Gandhi during the Salt March March 1930

THE POLITICS OF SALTS (II) Papers perspective

If salt used to stand as a vital resource of need, marble, as we've argued before, can layer any surface with an eye-catching texture, bringing a desire or attraction for the object it is made off; at least, for some of us. There is an actual craze for marble in the world of design and interiors manifesting this trend and accelerating the extraction process. Whenever looking at the bigger picture of marble trend, the complex dynamics joining economic crisis, environmental concerns and global trading start to appear. The Telegraph depicts the international trading of Carrara marble in its article:

Osama bin Laden's family buys historic Italian marble quarries

By Tom Kington in Rome

7:34PM BST 31 Jul 2014

Osama bin Laden's family has become the largest shareholder in an Italian firm that quarries Tuscany's prized white Carrara marble, which was used by Roman emperors and the builders of London's Marble Arch.

The Bin Ladens – who have made a name building mosques in Saudi Arabia – are expected to use ever increasing amounts of the marble that Renaissance artist Michelangelo famously used to create his sculpture of David, an icon of Christian art.

The Saudi Arabian construction group controlled by the Bin Laden family is already a big customer of the luxury marble, buying 40 million euros worth last year – about 20 per cent of the quarry's output – said Antonio Menchini, a lawyer who represented the group during the purchase.

"This is likely to grow, and I believe the group sees this as a strategic investment and has plans to enter the business of working the marble on site rather than just quarrying it," he said.

The deal to invest in Tuscany, which emerged on Thursday, was sealed earlier this week when a subsidiary of the Bin Laden empire signed a 45 million euro deal to take a 50 per cent stake in Marmi Carrara, buying out the stakes held by four local families.

Marmi Carrara in turn holds a 50 per cent stake in four quarrying firms that between them hold the right to quarry one third of the marble, about 400,000 tonnes annually.

Known for its creamy white colour, Carrara marble was used to build by the Romans to use the Pantheon and Trajan's Column in Rome.

Centuries later it was used for Siena's famed Duomo, the statue to Robert Burns in Dumfries and the King Edward VII memorial in Birmingham. Around the world it has been used in the interior of Manila Cathedral in the Philippines, the Sheikh Zayed mosque in Abu Dhabi, Oslo Opera House, the Peace Monument in Washington DC and Harvard Medical School in Boston.

Recently the quarries provided the backdrop for a car chase in the 2008 James Bond film Quantum of Solace.

Today the marble is more prized than ever among wealthy customers in emerging economies like China and India, while rapper Kanye West reportedly ordered a table built from the marble with his guests' names inlaid in gold for his Florence wedding to Kim Kardashian, a reality television star, earlier this year.

Giulio Andreani, a lawyer representing the Tuscan vendors, said prices of the marble had risen by 30 per cent in the last five years, reaching as high as 3,000 euros per tonne, despite a cost of just 75 euros a tonne to quarry it.

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The July 30 deal valued the four quarrying firms part owned by Marmi Carrara at 180 million euros, up from just 27 million euros in 1999, said Mr Andreani, who added "There has been huge growth."

The deal adds to the 26 marble quarries the Bin Laden family already controls around the world.

But Mr Andreani shrugged off concerns that a marble associated with religious art would now be controlled by a Muslim group.

"This marble must be used for beautiful things, it doesn't matter if they are Catholic or Muslim," he said.

"Politicians were worried about losing control of the marble, but the producers already know the group and everyone is fine now," he added.

"It is important to have people who invest and who know how to run the business. Race and religion don't count."

Mr Menchini said al-Qaeda was not an issue. "There have been no obstacles because the group is linked to the Bin Laden family, but is nothing to do with Osama bin Laden," he said.



Marble dust field Andrea Ribolini photography

Europe.news denouncing the massive investments of foreign companies in Carrara quarries increasing the extracting pace, threatening local workers, natural ecosystem and familial business.

One morning, citizens of this small Tuscan city, tucked away on the western slopes of the Apuan Alps in northern Italy, awoke to a strange protest. Grievance signs in blood-red letters had appeared overnight on the city's statutes. "They have even taken my underwear," read the sign strung around the neck of Moretta (Little Brown Girl); "Quarries to the Carrarini," cried the note on the heart of the anarchist Alberto Meschi, one of the city's most famous sons, who campaigned for better conditions for quarry workers. A few hours later, all the signs had been swiftly removed.

Carrara is home to the world's largest marble field, formed in the Apuan Alps over 200 million years. From the air, the marble mountains look as though they were covered in snow. From close up, the high vertical faces and giant benches of the open-cast excavations are like colossal white cathedrals in a moonscape. The landscape provided the backdrop for a car chase in the 2008

THE 'WHITE GOLD' CURSE

For centuries, Carrara's marble has been the backbone of the region's economy and its pride. But now it has turned into a curse. The irreplaceable stone is being undersold, most of the small workshops where marble was carved have disappeared; a rare craft is dying and the environment is wrecked.



Salviamo Le Apuane: an ecological association militating for the stopping of Carrara marble extraction in regard of the harm made to local fauna, flora and landscape.

"Marble is in the DNA of the people of Carrara," says Gemignani. "It represents our history, our skills and even our wounds (for working the marble). A pact of reciprocal respect bound people to their mountains... But now it's all gone."

The pact has been broken by globalisation, market forces and new excavation methods. In 1920, less than 100,000 tons a year was extracted from the area's quarries. Today, the figure is more than five million, as local marble barons try to compete on price with producers in China, Russia and India by carving up the mountains at a relentless pace, using diamond saws and huge mechanical shovels.

Residents object that the industry's insatiable demand for quantity is devaluing their precious stone – underselling it in bulk as a mere building stone instead of recognising it as an artist's medium.

The conglomerate already controls 26 quarries around the world and has had longstanding commercial relationships with Carrara marble industrialists. But this operation ensures that the group now controls the supply of the "white" Carrara, which is experiencing a new golden era in Saudi Arabia, as well as in China and India. Carrara marble is one of the most precious kinds in the world. Because it is very soft, it is best used to create statues and works of art. We don't want it to be taken away and used to build new skyscrapers in Saudi Arabia. We want it to stay here and be used to make art."

Mayor Angelo Zubbani, on the other hand, enthusiastically supports the transaction. He says he is "optimistic" that it will create much-needed new jobs in Carrara and confident that the group will process the marble there, although no industrial plan has been presented. In 2013 alone, the mayor pointed out, the group placed orders for about €40m and used local sawmills to cut the blocks into slabs. In a town hit hard by the recession, this was a winning argument.

Fabrizio Lorenzani, 52, a sculptor and teacher at the country's only marble school, closes the door for the last time of the studio where he and his wife have spent years working. His is the last studio in the area to have been turned into a warehouse to store marble blocks awaiting shipment. "Ours was a place for dreaming... And now it is gone. Michelangelo's marble city has no room for its artists," he says.

At the turn of the century, Carrara was one of the fastest-growing cities in Italy – a vibrant centre of culture and art, known worldwide not only for its exceptional marble, but also for its master sculptors, skilled artisans and stonemasons. Trained at the city's Academy of Fine Arts (the oldest one in Italy) and the at the Marble School, they executed original commissions for renowned artists, reproduced copies of masterpieces and made decorative objects. Most of the marble fireplaces in London were made in Carrara's workshops – including those in 10 Downing Street.

Lorenzani and his wife have yet to find a new studio and the Marble School where he teaches – the only one in the country – has only 80 students enrolled this year, many of whom are not locals.

MOUNTAINS AND MEMORY

"Whenever I look at our mountains, I see more destruction: their shapes are altered, their peaks are disappearing," says Eros Tetti, who founded the campaign group Salviamo le Apuane (Save the Apuan Alps) in 2009. The association, which now has more than 10,500 members, has been studying the impact of the quarries and campaigning for the preservation of the region's natural and cultural heritage.

"When they are destroying the landscape, they are also destroying a large part of our lives and our past. If you walk in our mountains, you'll see that people don't work and live there any longer. Tourism and gastronomy had been a main part of our economy, but now it's all gone because of the quarries."

Modern mining techniques have not only increased marble extraction, but also the amount of broken stones and debris generated in the process. Of the five million tons of marble extracted each year, only 1.2 million is made of blocks; the remaining 3.8 million is fragments. Quarrying companies used to pour this debris along the flanks of the mountains, "painting them in white", but in the early 1990s multinationals such as Omya from Switzerland and Imerys from France discovered that far from being waste, these by-products were worth a fortune once cleaned and ground into a fine powder.

The powder, calcium carbonate, is used as filler in everything from toothpaste, cosmetics and foodstuffs to paint and paper. While the most expensive purest white statuario marble is worth between €2,700 and €3,000 a ton, processed calcium carbonate yields as much as €9,800 for 100kg on the English stock market. And the cost to these multinationals is a mere €4.20 a ton. Because the debris is so valuable, there is no incentive to carefully carve out the blocks of marble. Every day, 500 to 800 mega-trucks transport marble blocks and fragments from the quarries to the port and the processing plants.

Environmentalists worry that this unbridled exploitation is irredeemably mutilating their mountains. In 2011, a 40,000-hectare area between the provinces of Massa-Carrara and Lucca in the Apuan Alps was declared a UNESCO geopark to protect its exceptional fauna and flora and its unique geological landscape with deep crevasses and an intricate network of caves and karsts. Yet there are still some 50 active quarries there, in violation of the law.

"Even Focolaccia, the highest pass in the Apuans, between Mount Cavallo and Mount Tambura, is now an open quarry – the old salt route ran through that pass," says Tetti.

In addition, intensive quarrying is affecting the hydrogeological cycles and destabilising the mountains, and marble waste is affecting waterways. The Carrione river, which flows through many quarries, is now choked with detritus, causing devastating floods.

"Carrara will be studied in future textbooks as a prime example of economic and environmental regression: a century ago, we had the complete marble chain (mining, processing, transformation and artistic craftsmanship on site), now we have a mining monoculture aimed solely at the mass extraction and export of the raw marble, and, even worse of the calcium carbonate. It is incredible to find at the dawn of the third millennium, within the eighth-largest economy on the planet, such a shocking example of proto-industrial colonial style economy," says Canesi.

The previous examples illustrated marble as a subject of social disagreement. From a very specific view, marble extractions open to international markets are bringing conflicts of a new kind, and raising political concerns rarely faced before. On the other hand, the conjecture settled by the economic crisis and the massive investment of wealthy foreign companies represent opportunities of a different kind:

Carrara marble taken to a new dimension

FLORENCE, Italy — It was the last piece to go on the auction block: a life-size sculpture in creamy Carrara marble of the Italian opera singer Andrea Bocelli reclining in a ornate, oversized chair.

The Bocelli sculpture is the latest in a series of high-profile projects executed by Mr. Vanelli, whose family has been in the marble business for two centuries. Since taking the reins in 2001, he has been experimenting with expanding the boundaries of the business — and in so doing, changing the way people view marble and its uses.

The main vehicles for this exploration are two privately held entities: GVM, founded in 2005, and Robot City, founded in 2010, which now is charged with producing and creating projects done with robotics technology. Two other companies own the quarries and produce the marble slabs. The companies are separate from each other but controlled by Mr. Vanelli.

"Marble is a beautiful substance, better than granite, but it is just hard to work with," said Matt Hulsizer, the chief executive of Peak6, a Chicago investment firm that is a minority partner of Robot City. "Gualtiero said, 'I think I can make marble more available because of the use of robots and software.' And that is what really caught us." After researching options for the business, Mr. Vanelli got in touch with the German robotics company Kuka to develop robots that would allow marble to be cut with the precision of sculptors. (Robot City, meanwhile, developed and continues to update the specific software.)

The idea for using the dust from the robotic carvings to create products came after Mr. Vanelli received a bill from the specialized refuse company that comes to collect the dust.

"I love doing this kind of thing: How I can change an expense into a profit," Mr. Vanelli said.

He got in touch with 3D Systems, a United States company that is one of the leaders in 3-D technology, with an idea to somehow print the dust — along with resin — to create sellable artistic and design objects.

"It's stimulation for creativity," said Mr. Vanelli, showing off a miniature version of "Omaggio ad Andrea Bocelli," which was created from the dust. "How many people would love to be Michelangelo? It is a way for a person, say a bank director, to create something from marble."

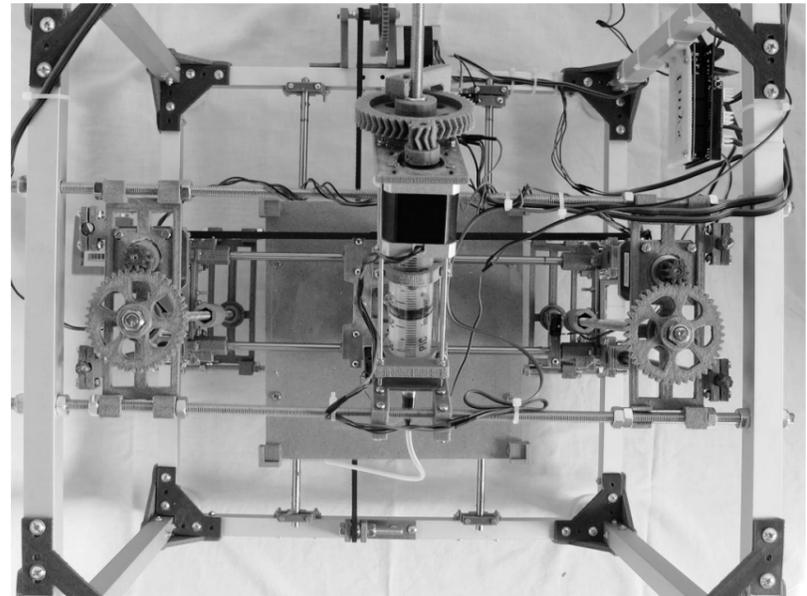
Mr. Hulsizer credits Mr. Vanelli for being willing and able to change the direction of his business. "I would say it was evolutionary for the business," he said. "I do not think you can separate and say the core business is still the quarry. Gualtiero is expanding the usage of marble that will make the quarry more valuable. He comes up with stuff and you are like, 'This is ridiculous.' He is quite brilliant."

Carrara Journal; Come back, Michelangelo, the Marble needs you

That would be the 1500's and 1600's, when sculptors supposedly fought over the white blocks and bricks hauled out of Carrara's vast quarries. Michelangelo did not merely sleep here; by day, he trudged up and down the vertiginous slopes in search of the perfect stone, and Carrara yielded the marble he used in the David and the Pietà.

Back then, Carrara was the undisputed mother lode of masterpieces. It had respect.

But Mr. Gori and various local officials are fighting back. They have spent the last five years trying to persuade contemporary sculptors, whose palettes have expanded to include everything from body fluids to formaldehyde-encased cows, to give Carrara marble a try.



Marble 3D printer- EcoMarble

"As long as they were fairly anonymous blocks of stone, it was O.K. with me," said Mr. LeWitt. He did not want anything ostentatious because, he noted in a telephone conversation, "nouveau riche houses always have a lot of marble in them."

So did the buildings of the Roman empire, which began taking marble from Carrara two millennia ago. Carrara had tons and tons of it, and still does. About 90 different companies mine 80 active quarries.

There are still plenty of markets for this marble among builders who use it for exterior or interior flourishes.

But Carlo Musetti, a geologist who works in the quarries here, explained that other mountains have marble, too, and that if countries like India or China began developing quarries, the cheaper labor there might mean they could collect and sell marble at lower prices than Carrara does.

Besides, Mr. Musetti noted, "marble is an exhaustible material." While Carrara may not run out of it anytime soon, its future planning must take that reality into account, especially because present-day environmental concerns have put some of the marble off-limits and technological advances have hastened the removal of the rest of it.

So Carrara is turning to its past to try to forge its future, in which artists and tourists flock to Carrara because marble once again reigns supreme, or at least gets as much consideration from sculptors as metal, concrete and other materials do.

"I doubt it," Mr. LeWitt said. "People don't carve stone much anymore."

Salt was a political tool for it represented an essential need. Even though there were speculations on salt, it remained permanently available in various places on the globe, and the conflicts related to salt did not result from it. Consequently salt was rarely a subject of conflict, and rather a tool of it. Marble politics, on the other hand, are articulated by the influence of international speculations and investments pressuring local crafts and productions, since even though marble is present everywhere, each type of marble has its specificity, thus where resides its value. Pricing a unique and rare resource makes it a sufficient pretext of conflicts.

If salt's value resulted in local monopolies and a domination of higher political powers, marble's value clearly manifests the domination of an international elite. There is no hierarchisation of the better from the worst in this reasoning, only the following observation: Materials of need are tools for conflicts, whereas materials of desires are the subjects of it.

ANTHROPOCENE Time still defining material value

«One of the things that attracted me to this story of salt is the whole notion of value. Here is this substance that was considered so valuable: (...) it was at the core of the existence and survival of nations and nowadays it ends up just being salt !

So maybe a few centuries from now, there will be some slightly peculiar writer that decides to do a book about the history of oil; and everybody else will say « Oil? Why oil?» (...)

It makes you just step back from this whole notion of value.” (1)

M. Kurlansky

What now causes the greatest value in materials of surfaces is no more the time involved in processing (from crafts to industrialization) but the time involved in natural formation. Whether would it be marbles, precious woods, and stones, the rare availability of the material is often caused by its extensively long growth, crystallization, condensation etc. and sometimes the complexity of extraction and transport. We've come to this point after examining the impact of honest designs on industrial production, and the prevailing of material value over human labor. Materials as a fruit of time increase surely their value in social constructions and provoked the phenomenon of crafts reproducing their attributes. It is important to precise that Carrara marble was put back under the spotlights of the Art and Design scene for the 2014 edition of Salone del Mobile (2). We've seen in the previous articles that this specific trend emerged both from economic challenges and cultural heritage needs. There was more a need for the marble to be used than a need for the marble to answer.

The core of this revival symbolic was however well resumed in the exhibition “Marble across time”, starring Tokujin Yoshioka, Aziz Sariyer, and Fabio Novembre. Curator and architect Edem Seker depicts the figure of marble as “ shifting from the static expression conveyed through brief time snapshot, crystallized in a marmoreal vision, and to a metaphor (...) that starts back in the past and project itself into the future”. (3) We value ideas, and we fiction the value of marble transcending time. When paradoxically, marble reveals itself quite a fragile stone without many interesting properties, compared to its sibling's granite and quartz. If the marble is slightly sterile, it remains highly sensitive to shocks, porous and, although it does not conduct heat well, marble cannot properly handle high temperatures either. Marble is thus left to the most formal and static function one can imagine. In its heavy form and content, marble stands one of the best medium for an artist and a nightmare for a designer. Therefore it is relatively safe to set that marble is use in design for the sake of the additional value brought to any object.

On the other hand, salt's value had everything to do with need and function, it was an essential and powerful ingredient of anybody's life; its value was not to be questioned, and was proofed by essence, with little regards to production's duration. As another illustration, 90% of the diamonds on the market are artificially produced, for the demand reveals itself too high considering the available sources on the planet (and are also conflictual nests of local and international politics) (4). However, it remains extremely dangerous and energy consuming to engineer diamonds. With this example, and referring to solid surfaces in the previous chapters, precious materials own their very specific cycle of life, unadapted to human consumption pace. Just as it takes hundreds, thousands of years for rocks to be formed; only a seed and decades are required to grow a tree.



SmartDust.com

The Anthropocene defines Earth's most recent geologic time period as being human-influenced, or anthropogenic, based on overwhelming global evidence that atmospheric, geologic, hydrologic, biospheric and other earth system processes are now altered by humans. The word combines the root «anthropo», meaning «human» with the root «-cene», the standard suffix for «epoch» in geologic time. The Anthropocene is distinguished as a new period either after or within the Holocene, the current epoch, which began approximately 10,000 years ago (about 8000 BC) with the end of the last glacial period.

Original Source: The Encyclopedia of Earth.

The New York Times and other related articles (CF paper's perspective) made the status of marble very unclear, the precarious situation being depicted differently according to respective views. One on hand was presented a material to be extinct, and the environmental concern going along; whereas on the other, the death of local crafts resulting in an economical burst and effort to renew marble use. For it was previously stated, marble's heavy connotations can hardly get bent or adapted. The problem of marble use might not reside in the extinction of this material but rather in the connotation of its very value: just as the ecological core of this project is not about replacing marble for such purposes, but stating salt as a new kind of marble to address different sustainability questions.

In the future, the salt will be more and more left on our hands as the global warming reduces our stocks of soft water diluted in salt water. Desalination will surely become a systematic and necessary step for human survival. (5) The salt question does not come from our need, but from the material one: here we stand with all this salt, what to do with it? Envisioning anything real, tangible, or serious made out of salt remains highly delicate, as long as it needs to last. Salt is such a sensitive and empathic thing, that it absorbs anything nearby, whether would it be cigarette ashes or the most exquisite perfume.

Whenever water comes, as micro-drops suspended in the air or as a liquid puddle, the crystals start to melt and salt to crumble down.

Salt offers the unique paradox of a fluid mineral.

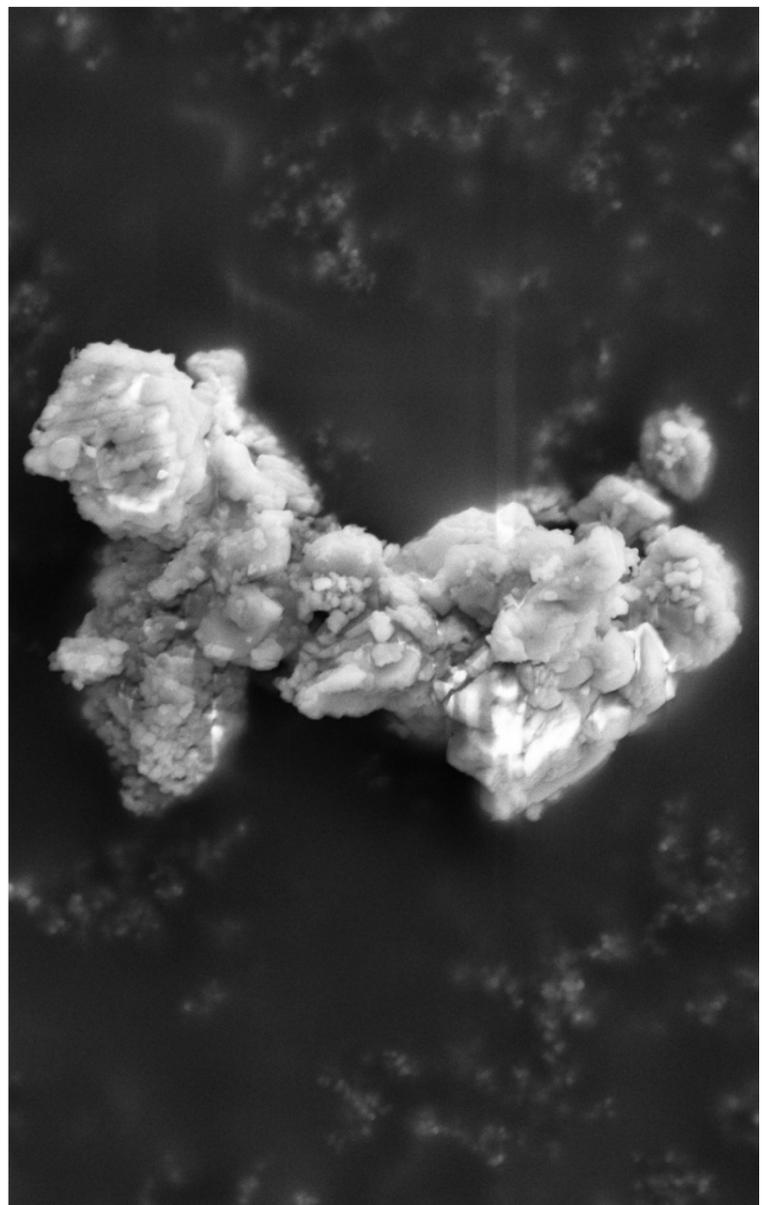
Capturing salt in resin, acrylic or glass may offer the ability to preserve it once for all, yet (and where resides the beauty of the material) it involves losing its unique communicative behavior, hence its value. Closing salt with oil derived products formulates a pointless contradiction; the one of justifying sustainable products with horrifying finishing, and the one that shuts a material from filling its full potential.

Salt owns a wonderful ratio between quality (aesthetic and physical), quantity (easily produced and processed in unlimited quantities) and sustainability (neither the harvesting, mining nor the chemical transformation generates substantial pollution or energy waste). But salt as sodium chloride owns such a complex body that it involves an engineered of a work to develop durable materials with it. Still, giving its wonderful and multiple properties, one can only imagine the variety of alternatives it could provide to human, while still being produced in the condition of its very nature, fitting our modern consumption pace: programmed obsolescence.

Salt, as water, is the only element I know owning this unique ability of total independence in its own reproduction and rebirth. Even after being mixed, salt can be washed from its impurity and being brought back to its whiteness. After being used and digested by the organism of our societies, salt is evacuated and goes back to the sea, where it is being purified through evaporation. The beauty resides in the evaporation process, when salt leaves every alien body behind, and reincarnates as a first born.

When marble is traditionally sculpted from blocks, salt is genuinely found pressed or even baked from powder. Nevertheless, they share more traits than one would expect: Apart from their attractive luminosity and brilliance, the list includes antibacterial properties, a fragile and brittle structure susceptible to scratches and extreme heat. Both proof noble features and the sensitive preciousness of a capricious medium.

However, our subconscious minds picture these immaculate minerals differently: crystallizing on the ocean surface for one, and crumbling from a mountain for the other. Preconceptions revealing respective and opposed specificities we attribute to each of them. Though when our hand describes the hardness, sharpness of marble, hardly carved in curves and soft edges; it also enjoys the softness and the finesse of salt, almost incapable of holding right angles. The physical opacity of marble dissipates the sunlight heat, and marble surface stays cold, for the reason there is nothing marble keeps. On the other hand, browsing the warm surface of a salt block (shaped in a lamp, a stove or a plancha) reminds the vibrant heat of beach sand before sunset, and oddly feels like the hard smoothness of an alabaster body. Naming marble a dead stone and salt a living one is an exaggerated statement, nevertheless, one answers your touch when the other ignores it



Marble dust- Micron photography- EcoMarble

THE WHITE SOCIETY

«Most of salt's social meanings reflect its deepest functional value as a preservative. Just as salt keeps the integrity of plants and meats intact, so salt was seen to keep the integrity of a body of people together»(1)
A Cheak

The value of Carrara marble and its relevance questions the challenge of cultural heritage facing an increasingly global society. When the choice of material comes, for great architectural works as well as daily design products, one must ask the following question: what does the material bring to it? Is there a point using a rare Italian stone for the sake of a Saoudian Mosque, a Philippine Cathedral or a Norwegian Opera? (2) This purposely provocative question do not only raise the sensitive subject of cultural identities but mainly environmental issues, which are closely intricate. Whether would it be used for daily designed products or great public works, Carrara marble manifests a pride and a nobility which belongs merely to the surface, when deprived of its original context.

How can we shift material showing off to showing examples? Or differently formulated, how can we redefinematerialcultureusingenvironmentalvaluesoveraestheticalones? Surfacesdonotonlyvehicle financial status but also social and cultural ones. Behind material and ornament, culture assembles a quantity of clockworks working simultaneously and defining lifestyle, habits, and gestures. Culture comes with a great influence on individuals since individuals themselves singularly influence culture. The evolution of culture in this reflection, might not march with the elimination of ornament, but with the construction of a new relation to surfaces. It redefines material value in relation to social and environmental matters rather than abstract symbolics.

The white society uses salt advantages and builds itself balancing aesthetics with cultural awareness. By the mean of associating materials with consumption trends and local habits, it intends to show their close interaction, leaving a free interpretation to user's definition of culture. The project aims using those cultures, by designing material alternatives, while raising questions, if not criticisms.

The design places itself in the very specific context of Middle-east regions. Such dry and desartic lands are dealing with the next biggest issue of the 21st century: soft water management, which is answered in most cases by desalinating sea water. Saudi Arabia, Qatar, Emirates, Koweit and wealthy countries of the region were among the first ones to massively use desalination process in order to solve the soft water problems in regards to their consumption. The Middle-East concentrates by itself 50% of the world's desalination capacity, and Saudi Arabia produces 20% of the total amount of desalinated water each year (3). We can project if it is not already the status quo, a lot of unused salt stocked in water softening centers. The warm and dry climate sets up a perfect environment for salt to be developed as a local material. Salt's use doesn't need to be justified for its purpose but is already justified by its availability. However, and even though this may not constitute the main focus of this project, salt comes with many properties finding their place in the kitchen, in the bathroom, in kindergarten, in hospitals, hotels & resorts, etc.

Such countries are also the first customers of Carrara marble slabs and blocks; up to 20% of the quarries are owned by Middle east investors (4), since the white stone became apparently popular as a surface material used mostly for architecture and interior finishings, it quickly brought social discontentment and

local manifestation in the region of the Apuan Alpes.

The white society proposes to revisit a collection of traditional furniture and interior objects belonging to the Oriental culture using salt rather than any other material for the environmental and cultural value it brings.



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