A Valuable Brownfield Site by the Sea Awaiting Regeneration: The Case of the Lipari Pumice Quarries

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Abstract. The history of pumice and obsidian extraction has ancient roots and identity for the island of Lipari, representing an activitỳ of great value, to be protected and promoted. The largest of the Aeolian islands has had a long industrial history based on the extraction of pumice stone, dating from the Neolithic, present in very pure quality thanks to the island's volcanism.

Pumice has always characterised the island, attracting applications for monopoly concessions from various companies in the late 1800s and early 1900s. In 1958, the company *Pumex S.p.A.* was founded, which in just a few years managed to incorporate and purchase almost all the pumice lots. In 2000, the Aeolian volcanic archipelago became a UNESCO World Cultural Heritage Site, representing an important model for the study of volcanology worldwide. *Pumex* was declared bankrupt and is still under the control of the bankruptcy court. Thus, in addition to the quarries, *Pumex*'s buildings have also been abandoned, risking the disappearance of all physical evidence of the pumice quarry and the industrial architecture functional to them that, long before tourism, made the island of Lipari prosperous. In 2021, the Sicilian Region had announced the acquisition of the area for the establishment of a geo-mineral park and the creation of a Museum of Pumice Stone Processing. But the area is still waiting. Attention must be kept alive and a regeneration project initiated so that the island's ancient heritage of pumice and obsidian mining is not dispersed but properly protected and enhanced.

Keywords: Seafront regeneration · Brownfield regeneration · Lipari pumice quarries · Disused industrial landscapes by the sea · Regeneration and Architecture

1 Introduction. Disused Industrial Landscapes by the Sea: The Special Case of the Lipari Pumice Quarries

The volcanic landscape that characterises all the Aeolian islands, in the case of Lipari, the largest of the seven, is also inextricably linked with its extraordinary mineral wealth of pumice and obsidian. Wealth that has been the reason for the anthropisation, as well as the mining exploitation of these volcanic territories, since antiquity, also representing something of strong identity for the same, of which the quarries represent the most obvious epilogue.

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Mining activity was interrupted several years ago and the disused pumice deposits are still awaiting their redefinition and a suitable regeneration project.

Yet this long wait seems like a great missed opportunity, as it now seems to have been accepted that "having lost their original function, disused industrial buildings and areas constitute a strategic factor in the process of reinterpreting parts of the city, responding to the demand for new spaces and functions above all through the recognition of their identity and cultural value as a lever of quality and competitiveness in support of possible development" [1].

The abandonment of mining activity, therefore, does not seem to have brought any benefit, unfortunately, for the island and for the landscape setting by the sea, albeit a splendid one, in which the former pumice quarries stand like precious gems set.

Usually, the presence of quarry sites has a more or less profound impact on the landscape and the context on which they insist, and the phenomenon of their decommissioning is almost always an ameliorative choice for the sites themselves. And this is the case whether the extractive sites are located in natural or urban contexts, although it is certainly in the latter that environmental, but also social, degradation, if left unchecked, becomes more evident.

Disused quarries, wherever they are located, always leave deep wounds and lacerations, even more so if they are situated on the banks of water, rivers, lakes or the sea, as in the case of Lipari, and can also represent a significant environmental and landscape problem, as they can become hotbeds of pollution or, in some cases, even real illegal dumps.

Faced with disused quarry sites, it is therefore clear that timely intervention and plans for their regeneration are desirable, naturally assessing the adoption of more appropriate measures on a case-by-case basis, but in any case, attempting to intervene as soon as possible to avoid further deterioration of the landscape. And so, depending on the case, action can be taken, for example, to reclaim these now-empty areas of the quarry sites, to restore their natural conditions, to regenerate and redevelop the areas themselves, to introduce different and new functions, perhaps by creating recreational activities, parks, meeting spaces, museum sites, etc.

The case of the disused quarries on Lipari, in this framework, appears particular and anomalous.

In fact, generally speaking, disused quarries are quarries that are no longer used for the extraction of materials, such as stone, sand or other materials, because the quarry itself has now exhausted its resources or it is no longer economically viable to continue its extraction or activity. It is, therefore, for one or both of these reasons that they are closed or abandoned.

In the case of Lipari, this was not the case at all. In fact, at the time when quarrying ceased, the quarries had by no means exhausted their resources, on the contrary; and moreover, production was not at all economically inconvenient, rather the opposite was true. Nor did the area appear degraded from a landscape point of view, despite the continuous excavations that caused the waste, i.e. the pumice dust itself, to flow into the sea. Indeed, during the long period of excavations, the sea was an even more vibrant blue than it appears today, as the very fine powder of pumice deposited on the white seabed made the white architectural and scenic beauty of the surroundings stand out,

shine and reverberate even more. Now on the mountains of pumice, due to the stop of excavations, vegetation has grown and the landscape is less 'unique', and therefore also the reflections of the vegetation tend to a sea that is still blue but 'greener', less celestial but above all also less peculiar than how it appeared before.

Yet these particular white mountains sloping down to the sea "are a heritage recognised by UNESCO, linked to mythology, that must not be erased. Curzio Malaparte, whom fascism sent into exile on Lipari, wrote about them… Erasing the memory would be offensive" [2] and it is on these that urgent work should be done to regenerate the entire area with an operation of restoration and architectural, landscape, cultural, social and anthropological regeneration. (Fig. 1).

All in keeping with what is now recognised, namely that whatever approach to the regeneration theme and whatever strategies are adopted, the common goal must be to restore identity to those areas whose content has been distorted by the cessation of activities.

2 A Precious Former Industrial Area by the Sea on Lipari Awaiting Regeneration

In order to better understand what this precious area on the sea with a great identity value represents, not only for Lipari, the largest of the Aeolian islands that had fascinated Dumas, Maupassant and Carducci among others, but at least for all the seven 'sisters', it is worthwhile to make a historical summary of what these same mountains have experienced.



Fig. 1. Views of the Pietra Liscia and Porticello area, with Panarea and Stromboli in the background, during a joint inspection with the bankruptcy trustee and representatives of the Messina *Ordine degli Architetti*, the *Fondazione Architetti del Mediterraneo* of Messina, the *Istituto Nazionale di Bioarchitettura* and the *Ministero della Cultura*. July 2021. Photo Clara Stella Vicari Aversa.

The pumice mountains, in fact, have an infinite number of stories to tell, and yet we often "continually speak of the centuries that preceded ours or of those that will follow

it, as if they were totally foreign to us," as Marguerite Yourcenar wrote in her 'Memoirs of Hadrian', adding: "I touch them, however, in my stone games: the walls I prop up are still warm with the contact of bodies that have disappeared; hands that do not yet exist caress the shafts of these columns…" [3].

The history of pumice and obsidian extraction has ancient roots and identity for the island of Lipari, representing an activity of great value, to be protected and promoted.

The former, a light porous material, was mainly used as a building material, the latter, a dark vitreous material, hard and sharp, was used to make weapons and tools. Obsidian and pumice, still present today on the north-eastern side of the island, are the result of the last eruptions of Mount Pilato, with pumice deposits covering 8.4 square kilometres, about 22% of the entire island of Lipari, along the eastern and northern coastline between the hamlets of Canneto and Acquacalda, which were formed by the first conspicuous pumice excavations around the end of the 16th century. A.D. But the use of pumice stone in the largest of the Aeolian islands certainly has more distant roots, with a long industrial history based on the extraction of the same, present in very pure quality thanks to the volcanism of the island, dating back as far as the Neolithic period, around 4000 B.C., with the first settlements on the islands of Lipari and Salina [4].

The extraction and trade of this volcanic stone was first formally recorded on 18 May 1276, when King Charles of Anjou is said to have authorised the Bishop of Lipari, who had been lord of the Aeolian Islands since the time of the Norman domination, to export and trade pumice stone in addition to sulphur and alum.

Estimates of quarrying in those early years of trade are around 100–200 tonnes per year, with pumice from Lipari expanding unrestrainedly in Europe, both for cosmetics and construction to the extent that it was used in the construction of the hemispherical dome of the Chapel of Santa Maria del Fiore in Florence. It even seems that pumice was already so famous that it was cited by Vitruvius as an interesting conglomerate lighter than water and even used in the construction of the dome of the Pantheon in Rome in 120 AD. The natural resource extracted on Lipari appears to have been in such high demand and so well known that in the centuries following the Middle Ages it even interested international scientists.

Déodat de Dolomieu described Lipari in 1781 as "the immense storehouse that supplies pumice to all of Europe… The whole island seems to have this truly extraordinary substance as a base" [5].

Initially, from 1200 to 1800, the quarrymen, individually or in family groups, organised themselves autonomously by selling the extract to the captains of the sailing ships that landed on the island, but the activity could not cover the immense demand that came from Italy and abroad, and so with the industrial revolution, extraction became increasingly dedicated to entrepreneurs and their companies.

Pumice mining was carried out in an industrial form from the 18th century onwards, also attracting several requests for monopoly concessions from various companies around 1880, when they settled on the island, first to purchase the product, then implanting the first mills in Canneto, Acquacalda, and Porticello for grinding to different sizes, and finally purchasing pumice land from private individuals.

Over the years, there were several companies and prominent figures such as Francesco La Cava who, instead of becoming a sea captain as in the family tradition,

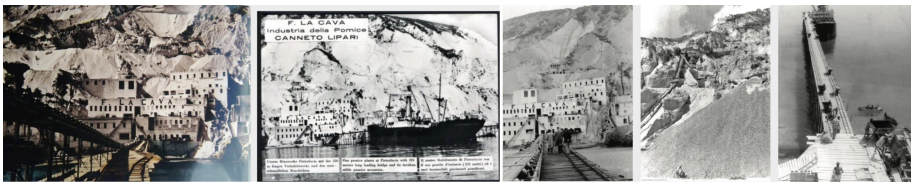

Fig. 2. Photos and postcards found by Clara Stella Vicari Aversa in the rich private archive of Antonietta Liotta Papocchia, niece and heir of Francesco La Cava.

found himself captaining a pumice industry, arriving almost by chance in the mining sector and achieving prestigious positions abroad. La Cava also realised that in order to survive, the pumice industry had to be competitive in the various markets of the world and that it was therefore necessary to modernise, reducing production costs and resorting to new technologies. Thus, the extraction of pumice stone and all subsequent production steps, outside and inside the factories, were gradually modernised and automated. Conveyor belts were thus installed on the wharves, considerably reducing the port labour force: an increase in production, with automated systems throughout the whole chain and reduced production costs, that would expand the sales markets, ensuring more work for the Aeolians. The results intuited by La Cava were not long in coming and the small cabotage ships of 100–200 tonnes were soon joined by ships of 10,000–20,000 tonnes, making it possible to conquer and reach new markets that were previously unthinkable, from Africa to Northern Europe. And since in the meantime the local industry was equipping itself with increasingly sophisticated wharves and machinery, ships of even larger tonnage landed on Lipari, enabling pumice from the Aeolian Islands to be introduced, as an alternative to pumice from Greece and other countries (it seems, moreover, that pumice from Lipari is the best in existence thanks to its high silica content, extraordinary porosity and lightness, combined with mechanical strength), even in the distant markets of the United States of America. The employment of harbour labourers also had a satisfying counterpart in both quantity of work and far less physical performance, enabling a time of great growth and demand for pumice for industry and the local economy. With the industrialisation of the processes, after the 1950s, the pumice workers themselves began to perform more human tasks (relieving them of the heaviest actions and above all reducing the risk of silicosis thanks to the introduction of cylindrical rotary kilns that no longer exposed workers to the inhalation of dust in its anhydrous state) but it did not change the production process which, in fact, in both the pre- and post-machine periods, is essentially divided into: excavation, screening, drying, milling, packing, boarding. There were, in fact, unfortunately not a few recognised cases of silicosis throughout Lipari. La Cava himself was involved, but he also managed to fight, winning his battle, so that the occupational disease of workers in all dust-based extractive industries would no longer be referred to by the term ‘liparosis’, as the scientific community was proposing, almost as if he wanted to brand the island of Lipari among so many other mining realities, but with the more generic term ‘silicosis’. [6]. (Fig. 2).

In an April 1961 report published in the daily newspaper ‘La Stampa’, journalist Francesco Rosso described the quarries as follows: “The entire northern side of the island of Lipari is an immense pumice quarry, part opencast and part furrowed by hundreds

of narrow tunnels. A thousand workers work there. On windy days, a compact white cloud of insidious dust envelops the mountainside. The workers have to leave their jobs: a day without wages in the narrow budget of a year's toil that is poorly repaid. In the summer months, when the sun blazes relentlessly, working up there is frightening. The rock releases an intolerable heat, the scorching dust suffocates, the thirst tortures and the less strong yield" [7].

Around 1950, the parcelling out of the quarries had led to the creation of more than forty quarries, putting the sector in crisis due to excessive competition between them, as more than twenty companies, ranging from individual ones to groups of large industrialists, were engaged in pumice pickaxing. In 1958, the company *Pumex S.p.A.* was founded, which from 1968 managed to gradually incorporate and acquire other pumice extraction activities, initially leaving only three competitors active: Francesco La Cava's company in Porticello, Italpomice in Acquacalda and the S. Cristoforo Cooperative in Canneto, which only dealt with the production sector and continued its activities until the second half of the 1980s, when, to the sound of acquisitions, *Pumex*'s monopoly on pumice on Lipari was, if not legally (in the meantime La Cava had fallen victim to silicosis), then de facto. (Fig. 3).

The testimony of all these 'cascading buildings, incorporated into the natural landscape' that insinuate themselves into the white pumice mountains and their relative tracks, the spaces between architecture and pre-existing structures, the jetties, is still spectacular today, being able to "re-read the abandoned industrial spaces of the former factories of Th. Ferlazzo and F. La Cava" [8].

"To the disappearing proto-industrial quarry landscape, the architectural artefacts of the period survive, which, completely detached from the productive context, seem like ghostly building agglomerations endowed with great charm in their relations with the landscape. Severely degraded, partially collapsed, with no boarding docks dismantled or destroyed by sea storms, they take on a character of alienation. Witnesses of a past activity, today they are completely unused. Proto-industrial establishments for the processing of pumice were established precisely where the conformation of the coast below the mountain presented a sufficiently wide inlet. They are essentially of two types: the first with horizontal development, the second with vertical growth. While San Gaetano, Ghiozzo and Papesca (among the oldest settlements) are part of the first type and consist of a sequence of stone buildings and pumice blocks set directly on the beach; those of Th. Ferlazzo and F. La Cava are formed by the vertical juxtaposition of buildings resting on the slope, suitable for containing larger and more advanced machinery for sifting and drying pumice They are configured as sequences of terraces overlooking the sea, crossed by descent systems, steep staircases sandwiched between the blocks of production complexes. In the lowest part from which the jetties departed, warehouses were located with numerous openings to ensure good ventilation and considerable heights to stow large quantities of material for trading" [9].

The pumice structures and establishments are also punctually reported in the *Atlante dei beni Etno-Antropologici eoliani*, edited by Sergio Todesco [10]. Pumice quarrying is also one of the cornerstones of the *PTP - Piano Territoriale Provinciale*, the Territorial Landscape Plan of the Aeolian Islands, drawn up by Prof. Vincenzo Cabianca, which has allowed the Aeolian Islands to concretely advance their candidature and obtain the

extraordinary recognition as a UNESCO *World Heritage site*, not only because of their dazzling beauty but also thanks to their specific nature, representing an important model for the study of volcanology worldwide. The UNESCO *World Heritage Committee*, in fact, at its 24th session in Cairns, Australia (27 November - 2 December 2000), inscribed the Aeolian Islands on the *World Heritage List*, natural heritage category, with the following motivation: "The Aeolian Islands provide an outstanding record of volcanic island-building and destruction and ongoing volcanic phenomena. Studied since at least the 18th century, the islands have illustrated two of the types of eruption (Vulcanian and Strombolian) to vulcanology and so have featured prominently in the education of all geoscientists for over 200 years. The site still continues to enrich the field of vulcanological studies" [11].

A condition for the island's inclusion in the World Heritage List was also the closure of the company *Pumex S.p.A.*, involving all the areas of pumice processing and production, from the quarries to the embarkation jetties, prohibiting any further extraction activities, and forbidding any kind of spillage of industrial waste into the sea. UNESCO itself, in the Management Plan, decrees, under penalty of exclusion from the *World Heritage List,* the "prohibition of the continuation of mining activities in the areas included in the *World Heritage List* […]. Ban on the opening of any new mines" and proposes the establishment of a Pumice Geomining Park.

All this while agreeing that in reality said 'residues' of the industrial processing at sea were nothing more than the same pumice reduced to a very fine powder, thus not polluting material or material extraneous to the habitat, but the same substance of the mountain and sea bed. *Pumex S.p.A.* would therefore have had to stop its excavation activities and could only collect what had already been excavated. The rules envisaged a gradual entry into operation, to avoid bringing to its knees an activity that has always been the archipelago's main resource, reconverting activities and not wiping out the economy of 100 families.

Despite the fact that the last extension for extraction activities had expired at the beginning of 2006, *Pumex* would have continued to excavate and extract pumice stone anyway, as demonstrated by photos and surveys by air, sea and land, which revealed the continuous transformation of the morphology of the land, when it should only have been processing and exporting the stock material. On 31 August 2007, the area was seized and thus the hundreds of people working for *Pumex S.p.A.* suddenly found themselves without employment. Indeed, "one should not underestimate the social changes associated with the abandonment of old industrial areas". Areas that "based their identity, but also trivially their subsistence (in terms of employment) on the presence of such productive activities" [12].

Therefore, a redevelopment project was hypothesised, thanks to the participation of a mixed public-private company, which would have seen the area revitalised by renovating the buildings in good condition in order to make them usable for tourism, transforming them into tourist facilities of international attraction, a project that could also have absorbed the former employees; but due to various bureaucratic obstacles, the project was not carried out and since then the area has been in a state of almost total degradation and abandonment.

No longer able to work, *Pumex S.p.A.* was declared bankrupt and is still under the control of the bankruptcy court. Thus, in addition to the quarries and processing equipment, the buildings of *Pumex S.p.A.* were also left abandoned, thus risking the disappearance of all physical evidence of the pumice quarry and the industrial architecture that functioned there. And so in effect the 'factory' is no more and the museum dedicated to it is still not there. And in the meantime, the dismantling of the industrial structures of the and quarry and the sale 'by weight' of the metal have begun, and even the material of the one that should have gone into the other has been sold off bit by bit by the bankruptcy receivership, to the detriment of its historical value.

There has, of course, been no lack of proposals for these valuable areas in recent years. Mention was made of a 2002 proposal for a reconversion plan for the Pumice quarries that saw the geo-mineral park as the heart of the project with the preservation of the historical memory of the industrial processing of pumice stone. However, despite the fact that the plan had been incorporated into the UNESCO Site Management Plan approved by your department and the proposal repeatedly taken up by the Lipari City Council and the active administration, it was never put into practice.

Thus, the idea of a museum in the pumice quarries began to make headway, an idea cultivated for years like a dream by the enthusiastic lovers of memories of the *Centro Studi Eoliani* of Lipari, with the desire that the literary, artistic and landscape heritage could give life to a widespread mining museum.

It seems to be almost unanimously recognised that this heritage, linked even to mythology, should not be erased but neither should it be dispersed. Yet "Pumice stone, which along with obsidian was for millennia the island's only wealth, sold throughout the Mediterranean and then throughout the world in blocks for building (even the Pantheon dome is largely made of pumice and volcanic slag: otherwise it would have weighed too much), in smaller stones (for foot care since ancient times) or in very fine powder form (for beauty products), has in fact been all but abandoned for years. Worse: it is on the verge of an insane removal. An almost total erasure of the past", as Gian Antonio Stella well wrote in the Culture pages of the 'Corriere della Sera' in 2021. The journalist intervened, forcefully relaunching the proposal to create a widespread mining museum on the island of Lipari to prevent the memory of that landscape, social and cultural heritage linked to the pumice stone quarries from being lost. "What do you do with old mills and rails and trolleys and wharves, if the quarrymen who worked there have been parked in the limbo of socially useful work for a decade and the liquidators of that little old world are only in a damned hurry to get rid of the ferrous material to sell by weight, as if it were industrial scrap from the Ruhr?… A crime: that would be the loss of all memory of pumice and obsidian, the 'sister' stones, one white and the other black, generated by eruptions" [2].

A responsible answer to the cultural and civil battle started for the former pumice quarries came from the *Regione Sicilia* which declared its interest in building a museum and geo-mining park in the former quarries of Lipari.

Associations such as *Museimpresa, Federculture,* the Italian *Touring Club*, *Sicindustria* and the UNESCO Commission for Italy immediately joined in.

"The territory is the lifeblood of our country," and "the *Touring Club Italiano* is ready… to do its part so that Lipari and its quarries can become part of our future, a

future nourished by collective memory," declared Franco Iseppi, president of the *Touring Club Italiano,* immediately, intervening in the debate raised by Stella [13].

The *Regione Sicilia's* proposal to build a museum and geo-mining park in the former quarries of Lipari also seemed to journalist Antonio Calabrò, president of *Museimpresa,* to be "a positive and appreciable choice… Now it is a matter of quickly and effectively translating that choice into reality, to save and enhance a heritage that concerns the environment, industrial tradition and work and can help to increase the environmental and cultural attractiveness of the Aeolian islands and the resourcefulness of its inhabitants" [14].

On 15 October 2021, the entire area of the former pumice quarries in contrada Porticello on the island of Lipari, including the buildings and sheds with the machinery and equipment still detectable, was subject to a specific ethno-anthropological constraint with the relevant decree signed by the general manager of the regional department of cultural heritage and adopted at the end of a complex preliminary procedure conducted with celerity by the Messina Cultural Heritage Superintendency, pursuant to the Cultural Heritage Code. At the same time, the Sicilian Regional Government announced that it had signed the decree and intended to acquire the area for the establishment of a geo-mineral park and the creation of a museum of pumice stone processing for the environmental recovery of the areas where the former production complex is located and to preserve and enhance the island's ancient economic and cultural heritage.

In April 2022, the Sicilian regional government announced the go-ahead for the proposed purchase of the former pumice quarry, the property complex on the island of Lipari. This was decided by the junta, at the proposal of President Nello Musumeci himself. And so, after placing the lien and initiating a difficult confrontation with the liquidator commissioner, the action to recover and redevelop the mining site to return the area to the enjoyment of the island community and tourists seemed to have begun, says the Region. The necessary financial coverage was also found, amounting to EUR 4.5 million, as estimated by the regional departments of Energy, Technical and Cultural Heritage, to allow the development plan for the environmental recovery of the areas and the redevelopment of the former production complex to be launched, including the creation of the Pumice Museum and the Geomining Park.

Only a few months later, however, in August 2022, the TAR - *Tribunale Amministrativo Regionale* (Regional Administrative Court) declared "the constraint on the former pumice quarries to be illegitimate". The TAR, in fact, upholding the appeal presented by *Pumex S.p.A.*'s bankruptcy receiver, Prof. Massimo Galletti, declared that the imposition of the constraint was illegitimate. There were various objections, including the fact that 'although the preamble to the measure distinguished between portions of the area of interest as industrial archaeology and mining areas of ethno-anthropological interest, the operative part of the measure referred only to the latter interest: this contradiction would not have made it clear what the public interest to be protected would have been… The preliminary inspection report, necessary for the evaluation of the property, did not contain the dating (necessary to exclude, as required by law, property less than 70 years old) and description (for the evaluation of the functional connection with the protected interest of the property) of the movable and immovable property to be bound. These elements were also lacking in the subsequent technical-scientific report, on the basis of

which a *unicum* of more than 586,000 square metres and volumes of more than 1,855,000 cubic metres was allegedly bound indiscriminately. In relation to the machinery of the most recently built plant, the same report, in the statement that it was machinery of the 1950s/60s, testified to their "age" of less than 70 years. The measure would not have distinguished the assets at all on the basis of their different age. … the *Soprintendenza*'s decision that had admitted, in 2011, the hotel accommodation use of all the *Pumex*-owned buildings in the Porticello area" [15].

The TAR's decision has of course complicated the process for the establishment of the geo-mineral park in the Porticello and Acquacalda pumice area and the pumice museum announced by Musumeci, who in the meantime has been replaced by Renato Schifani as President of the Sicilian Region from 13 October 2022. Since the cancellation of the constraint, there has been no more talk of plans for the former pumice quarries on Lipari. And so, "To the disappearing proto-industrial quarry landscape, the architectural artefacts of the period survive, which, completely detached from the productive context, seem to be ghostly building agglomerations endowed with great charm in their relationship with the landscape. Severely degraded, partially collapsed, with no boarding docks dismantled or destroyed by sea storms, they take on a character of alienation. Witnesses of a past activity, today they are completely unused" [9].



Fig. 3. Historical analysis of pumice working, from Milena Mollica's project thesis. Photos from the private archives of Antonino Costa and Claudio Merlino and Antonietta Liotta Papocchia. A great deal of material, much of it still unpublished, was found, thanks to the latter, by Clara Stella Vicari Aversa.

3 Ideas for a Possible Urban and Environmental Regeneration Project for the Lipari Pumice Quarry Areas

The future of the industrial archaeological heritage of the former pumice quarries on the island of Lipari still appears to be rather uncertain, and their destination as a Geo-mineral Park is still in a state of strong expectation. Yet "the experiences of regeneration and redevelopment of disused industrial areas" in various parts of the world "have not only achieved important results with respect to the restitution to the community of areas and spaces hitherto denied," but it is sufficient to analyze examples of them, in large and small disused areas, urban and suburban, to note how a "process of legitimation of cultural heritage as a collective good and as an inescapable resource for a sustainable project of economic and social growth" has started almost everywhere [16].

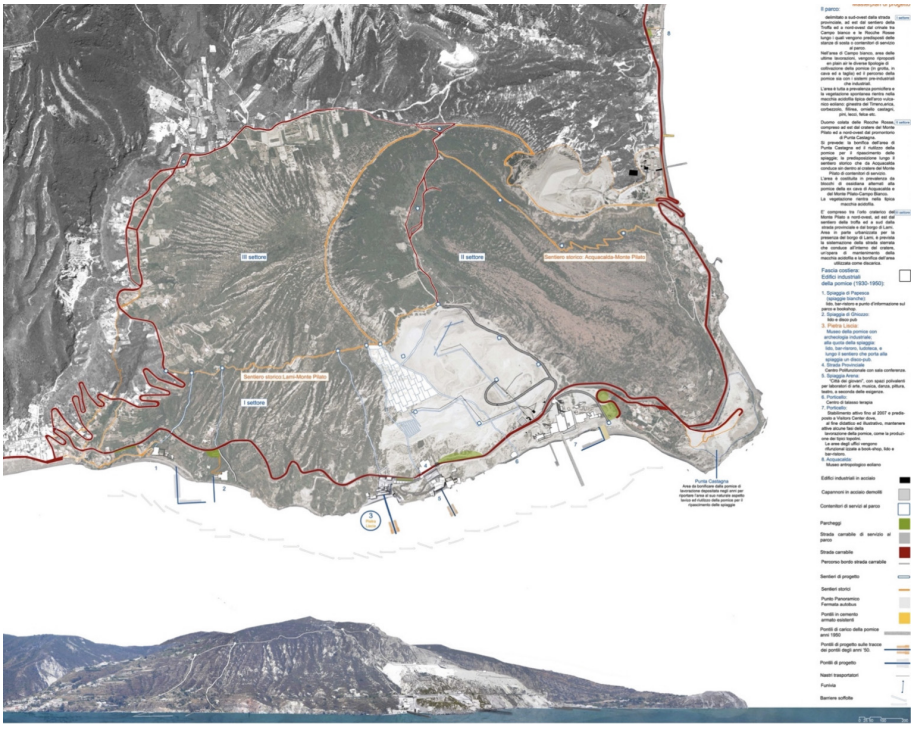

Fig. 4. The Pumice Geomining Park. From Milena Mollica's project

Meanwhile, time passes and the valuable pomiciferous area is still waiting for its regeneration, despite the fact that ideas and projects over the years have been produced and several of them even partially carried out. Here it is that taking cues from interesting projects by actualizing them, could be a way to restart and catch up to give further support and impetus to new proposals and projects that are as inserted and integrated into the context as possible. Among the various projects there is one in particular, which has also been exhibited at the Pumice Museum set up at the Terme di S. Calogero,

which was drawn up with extreme skill and passion by an architect from Lipari on the occasion of her thesis at the *Università degli Studi Mediterranea di Reggio Calabria*, Italy. This is a project of "Urban and Environmental Redevelopment of the areas of the Lipari Pumice Quarries," a design thesis by Milena Mollica, supervisor Prof. Franco Cardullo, co-rapporteurs: Prof. Arch. Clara Stella Vicari Aversa, for the study and design elaboration in relation to the particular context and landscape; Prof. Arch. Consuelo Nava, for sustainability and environmental aspects. (Figs. 4, 5, 6).

The basic idea takes up what UNESCO recommended at the entry of the Aeolian Islands in the *World Heritage List*, that is, a Pumice Geomining Park that integrates and harmonizes within it different needs: environmental and territorial, for a hydro-geological and ecological reorganization of the area; urban-architectural, to recover and revive the ruins of the pumice plants, inserting various activities related to the park, the museum and the sea, equipping the area with appropriate lighting, bicycle and pedestrian paths with related rest areas, bus stops and parking; economic, to generate employment for both former pumice workers and other professional figures in various disciplines beyond the tourism sector; socio-cultural and historical, to ensure the historical memory with the creation of the Regional Museum of Pumice related to industrial archaeology, as has already been done for archaeology with the Aeolian Regional Archaeological Museum "Luigi Bernabò Brea". An attempt was made to shape an idea, starting mainly from the territory and its stock, envisaging a park that covers about a quarter of the island in the northwestern part included between Canneto and Acquacalda and its edges are marked: along the coast by the pre-existing pumice buildings that can be accessed by several paths laid out along the provincial road that runs all along the island passing also through Canneto and Acquacalda; in the bosom of the mountain by an old path, now partly passable, that starts from Canneto, crosses the small district of Lami, follows the crater rim of Monte Pilato and then descends along the Rocche Rosse until it reaches Acquacalda.

Along the coastal strip, below the provincial road, it is imagined to recover and restore all the ruins of pumice processing, converting them back into activities related to the park, the sea, and the pumice museum; beach nourishment is planned (using material from Punta Castagna) and the provision 50 m from the beach of soft barriers to lessen the impacts of sea currents; the reclamation of the old loading docks buried underwater and their restoration, along with others, to serve the new functions for mooring boats.

White volumes of industrial archaeology are scattered along the 8.4 km of coastline and, starting from Canneto to Acquacalda dot various places: Spiaggia di Papesca, known as *Spiagge Bianche* because pumice dust was deposited on it until the late 1980s, where the former industrial buildings are planned to be used as a lido, seaside bar-restaurant and Park information points with book-shops; *Spiaggia di Ghiozzo*, where the white volumes, among which an old chimney stands out, host a lido equipped by day and disco-pub by night; *Pietra Liscia*, where the Th. Ferlazzo and F. La Cava is being reconverted into the Pumice Museum, with an equipped lido, first aid area, playroom, bar-restaurant and disco-pub around it, with accessibility both from land by a system of stairs that start at street level and lead to the various heights, and by a cable car powered by photovoltaic energy, and by sea, and both by land and sea there is provision for parking and mooring, placing a new pier on the stock of the previous loading dock; the *Spiaggia Arena*, where



Fig. 5. Pietra Liscia area. Status and Proposal. From Milena Mollica's degree project thesis.

a Youth City is envisioned, with a multipurpose center and spaces equipped for art, painting, music, dance, singing, literature, and theater workshops; *Porticello*, where in the former *Eolpomice* building a Thalassotherapy center accessible, as above, both by land and sea, in the *Pumex S.p.A.* building a Visitors center is envisaged (this is the plant that remained active until the 2007 seizure and where therefore to think about a re-proposition of the workings, for the obviously didactic and illustrative purpose also with bar-restaurant and book-shop); *Acquacalda*, where a Museum of Aeolian Anthropology is planned in the former mill where the only examples of flat ovens are still present, to tell the story of the Aeolian Islands from a human and socio-cultural point of view, both through written, audiovisual, photographic and material evidence, and through its territorial resources over the centuries, such as the sea, pumice, cultivation, tourism, and cinema.

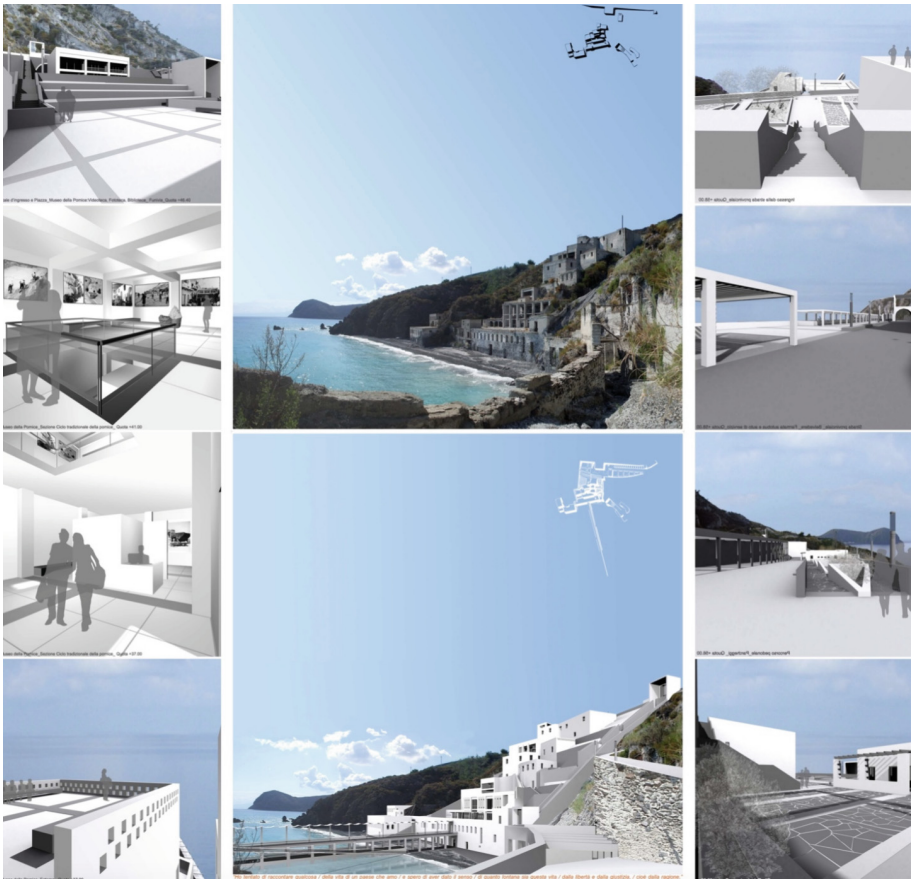

Fig. 6. Pietra Liscia area. Photo and Project views. From Milena Mollica's degree project thesis.

4 Conclusions. Pathways to Be Taken to Preserve and Enhance Industrial Heritage, Memory, History and Identity of the White Aeolian Shores

The cues and suggestions arising from this "journey" refer to many possible paths to be taken and followed. Moreover, even the very concept of "travel" in the landscape, of walking in places, refers to a "multitude the itineraries that come to weave, in a kind of spider's web, a geography of 'paths', the most varied… Following an infinity of traces, from the culinary to the sporting, from the cultural to the mystical, from the literary to the musical, etc." [17].

We need to treasure this and other projects, working to ensure that all this ancient economic-cultural and landscape heritage present in the largest of the Aeolian islands is not dispersed, but rather properly protected and enhanced. Embracing the definition of landscape as "an essential component of the people's living environment and the foundation of their identity" [18],) it seems impossible to still think of waiting and not

initiating all the necessarỳ activities to heal this great physical-temporal rift with an adequate regeneration project, while instilling the long-awaited concrete opportunity for redevelopment and development. It is a matter of finally initiating a "practice of reuse" and "transmission, through time, of artifacts and values," which, after all, has always been done, since "the custom of grafting and recycling, in the architectural and urban fields," has "never ceased to characterize our ancient world" [19]. Of course, in doing so, while embracing a brownfield approach and thus utilizing existing facilities, infrastructure and resources, there is a need to seek wherever possible to integrate state-of-the-art technologies, efficient processes and sustainable practices; a careful design that revitalizes and reactivates the area but at the same time is capable of preserving and enhancing its industrial heritage, memory, history and the very identity of the places.

The recovery of industrial heritage has increasingly become "one of the strategic levers for the cultural revitalization of cities and territories and for new urban regeneration programs, which make it possible to give adequate valorization to the assets of industrial civilization and return them to the public as a collective cultural heritage." It is no longer sufficient to "the albeit sacrosanct defense of historical memory and value systems related to the local community," but it is necessary to face new challenges and "the development of increasingly innovative and diversified strategies and policies for conservation, reuse and valorization" [20].

Making the most of all this, it is necessary to recover as soon as possible an extraordinary area that, despite years of neglect and neglect, remains strongly identifying the island and its great environmental and geological heritage that is constantly changing and belongs strongly to its history. (Fig. 7).

The procedures are not simple and the interventions appear complex. In the project, it is necessary to work systemically not only on innovative proposals for the reuse of the white buildings but also on access routes and the securing of slopes, as well as against inherent fragilities and hydrogeological instability.



Fig. 7. Photos from the sea of the white unicum of volumes, excavations and pumice mountains from Papesca - Pietra Liscia (left) to Porticello - Acquacalda (right). August 2023. Photo by Clara Stella Vicari Aversa.

The area as a whole is certainly in a rather precarious condition, but it remains a broad area that is definitely highly articulated and desirable to be approached with a multidisciplinary vision, having to address not only the physical configuration but also the interaction with ecosystems and the environmental [21]. A project must be designed that is also sustainable because it is aware of its omplexity, bringing together and consolidating the various social, economic, technological and environmental benefits [22].

Only if a synergistic collaboration between the region and the municipality can finally and effectively be established, perhaps even with the contribution of cultural actors in the area, can we expect to achieve the goal. “If conceived, planned and managed from an overall perspective on an urban and territorial scale, the transformation of these assets can trigger an overall regeneration that returns to old and new inhabitants an environment more suitable for individual development and collective growth, fostering social cohesion and competitive capacity on a regional, national and international level” [1].

It is necessary to keep the attention on the area alive and initiate a project as soon as possible, also on the basis of what has been excellently studied, investigated and planned by our passionate colleague from Lipari, to make sure that the ancient historical heritage of pumice and obsidian mining on the island, which is of significant value, is not dispersed, but rather is properly protected and enhanced in its being remembered.

“But how to remember and what to remember in a world that increasingly seems to be becoming similar to the Borgesian Library of Babel?” [23]. And indeed, these mountains, the result of even very hard work over many generations, seem to remind us almost of J. L. Borges’ “The Library of Babel,” a Library that “existe ab aeterno,” in which not only does the book of Truth appear to be present, but also every possible variant of it and even its opposite, with the relative possibility (or impossibility) of distinguishing them.

However, it is a matter of working on the discipline of memory to assimilate the past to understand how to transmit it and at the same time make it better and then, thanks to the project, take a step forward to deliver it in a new and optimal way to the present and the future. “He who follows others never goes before him,” wrote the great Borromini, “And I certainly would not have set myself to this profession with the aim of being only a copyist” [24]. Just as only as a great connoisseur of the past Borromini himself could afford the luxury of surpassing and modifying it, in the same way what is needed for the extraordinary former pumice quarries is a proper reappropriation of the past, of what has been for them, thinking at the same time, foreshadowing and working already for what they will be or can be, continuing to keep “the rudder on the starboard side” to the goal even if the sea is stormy. Sooner or later, if everything possible is done to make it happen, the quiet as well as the project, on these extraordinary and never satiated shores, will come.

Wonderful beloved banks overlooked by a blinding white cascade of pumice continually shaped by time and men; a cascade that, somewhat like the library of Babel, appears “unlimited and periodic. If an eternal traveler crossed it in any direction, he would find, after centuries, that the same volumes are repeated in the same disorder (which, repeated, would be an order). My loneliness rejoices in this elegant hope” [25].

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