SiLiBA: building the geological chert lithotheque of the University of Bari (Italy)

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Abstract:

Lithotheques collect and exhibit raw material used by human communities for the manufacturing of objects during the Prehistory and represent an important tool of their knowledge. These collections are essential in the procuring and provenance study of archaeological lithic industries.

This paper aims, firstly, to introduce SiLiBA, the lithotheque of the Earth and Geoenvironmental Sciences Department of the University of Bari Aldo Moro (Italy), as reference collection in the archaeological field studies, and secondly to propose an example of a lithotheque building guidelines. The collection consists of about 900 pieces of geological cherts, which are the result of an expanded collecting action of primary and secondary cherts across Italy (Apulia, Basilicata, Sicily), Croatia, Serbia and Switzerland, belonging to formations from the Cretaceous to the Quaternary Period. All the chert samples were described according to the non-destructive multiparametric protocol for chert investigation (NM-PCI), providing a modular dataset of binary, ordinal and continuous variables which integrates petrographic, micropaleontological, chemical and physical data. Such results were summarized in suitable reports, with also geographic coordinates, geological description and photographic documentation, in a digital database, which will be soon online. Cherts are grouped in 37 suitable boxes, following geographic hierarchical organisation and reporting informative labels. Some representative samples are exposed in the Earth Sciences Museum of the same University. Furthermore, the lithotheque is equipped by a dedicated laboratory which includes optical microscopes, a glossmeter and a spectrophotocolorimeter. The promotion in the last years was guaranteed by dissemination activities for educational and academic communities, including an interactive laboratory of experimental archaeology. Multimedia contents, history of collection, and even a sampling map were reported in the SiLiBA website.

Keywords: lithotheque; chert; database; outcrop; raw materials

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1. Introduction

Collections of lithic materials constitute a valuable heritage, since they assemble and exhibit raw materials used in Prehistory and represent a powerful tool of knowledge of human civilizations, in particular when a significant contribution is given by the scientific studies on their samples (Muntoni 2012).

In this sense, the Gargano and Tavoliere areas in the Apulia region, boast the presence of numerous chert sources, which testify their fundamental role for production and exchange of raw materials during the Neolithic period. Studies about the ancient systematic exploitation of the mining sites and the trade of raw materials during Neolithic phases were carried out in the last decades (Basili *et al.* 1995; Galiberti 2005; Di Lernia & Galiberti 1993: 23-46; Tarantini & Galiberti 2011). More recently, a revival of interest in this research fields occurred by several actions of systematic collection of chert samples and analytical investigations conducted by a research team composed of the researchers of the Department of Earth and Geoenvironmental Sciences of the University of Bari Aldo Moro and by the *Soprintendenza Archeologia, Belle Arti e Paesaggio per le Province di Barletta-Andria-Trani e Foggia*, the local authority for the archaeological heritage. The intense activities of chert sources mapping, cherts collecting and their scientific studies, especially in Apulia and in the Adriatic area, entailed the building of SiLiBA (Silica Lithotheque of the University of Bari), the chert lithotheque stored in the Department of Earth and Geoenvironmental Sciences of the University of Bari Aldo Moro.

The SiLiBA lithotheque consists of about 900 pieces of geological cherts, from outcrops and mines, collected in the Gargano Promontory since the late 80's of the last century by the archaeological team of Siena University (Galiberti 2011) and after, by SiLiBA team during the last years. Currently, the collection is composed by primary and secondary cherts sampled across Italy (Apulia, Basilicata) and in addition cherts collected during research projects carried out abroad and partnership with foreign research institutions in Croatia, Serbia and Switzerland. SiLiBA samples belong to formations from the Cretaceous to the Quaternary Period.

The goal of this paper is to present the SiLiBA lithotheque and to propose a suitable method for data collection, organization and use of geological cherts by means of a modular and multianalytical database, potentially expandable to archaeological chert artefacts.

In particular, the implementation of the SiLiBA lithotheque aims:

(i) to reorganise all the chert samples collected over the years and to create a database with all the produced data, such as photographs, geographic and geological information of sampling points and finally results of the non-invasive investigation protocol (Delluniversità *et al.* 2019), which includes petrographic, micropaleontological and geochemical characterisation;
(ii) to have a container in which to easily insert new samples from the investigated geographical areas;
(iii) to assess a valuable comparison tool for provenance studies of archaeological finds to the scholar community.

1.1. About European lithotheques: State of the art

The importance of lithic collections as a reference tool for the study of archaeological lithic industries is well known since they allow to contribute to the knowledge of a territory and a human community. For this reason, it is essential that such lithotheques do not remain closed in museums or laboratories and are shared, even if only virtually, in the scientific and educational community. These collections must be accompanied by geographical and geological references, descriptions, petrographic, mineralogical and chemical characterisations, as well as figures, table and source maps.

The “Galileo” research project, conducted in the last years by some authors of this paper with the involvement of French colleagues, aimed at identifying the chert sources between the Tyrrhenian and the Adriatic and comparing the methodological approaches for the study of cherts. On this occasion, the Italian lithotheques stored in the universities of Florence (Lovetro *et al.* 2021Martini *et al.* 2006; Martino *et al.* 2016; Romagnoli *et al.* 2016;), Siena (Romagnoli *et al.* 2016; Trenti *et al*. 2015), Ferrara (Bertola 2016), Rome Sapienza (Moscone 2019), Genoa (Negrino & Starnini 2010), were mapped even if a few of them have been systematically catalogued and even none in an open-source database. A European example is LIR-Lithotheque Ireland, which consists of about 600 samples of cherts and flints collected in Ireland since 2013 and today is housed in the UCD School of Archaeology of the University College Dublin and is complemented by an online database (Driscoll 2016; Driscoll *et al*. 2016).

In Spain, noteworthy cases are LegioLit, a comparative collection of knappable raw materials from 90 outcrops in the Cantabrian Mountains area, located in the Prehistory Laboratory at the University of León (Herrero-Alonso *et al*. 2018) and LithicUB, a project of the University of Barcelona which assembled geological and archaeological cherts from Spain, Portugal, France, Jordan and Israel (Sánchez *et al*. 2014). Both collections are equipped by an online database including sources mapping and macroscopic, petrographic, mineralogical and chemical data.

Other examples of Spanish lithotheques are LitUCA, a lithotheque exceeding 5000 samples of siliceous raw materials used in Prehistory in the Strait of Gibraltar, equipped by a complete and available catalogue, and stored in the University of Cádiz (Ramírez-Amador 2019) and LitoCAT, a lithotheque of siliceous rocks of Catalonia employed as raw materials in Prehistory in the north-eastern Iberian Peninsula and adjacent areas (Ortega & Terradas 2014).

Another lithic collection from the Iberian Peninsula is LusoLit, a lithotheque of about 300 samples of knappable raw materials from 100 chert sources mapped in the central and southern Portugal, now housed in the University of Algarve (Pereira *et al*. 2016).

In France, a lithotheque is stored in the Musée des Beaux-Arts in Angoulême: it collects siliceous materials from the Charente River basin and is supplied by an online database including characterisation data and images of samples (Féblot-Augustins *et al.* 2010; Rey-Solé *et al.* 2014).

Moreover, very notable is a French ongoing research project, interesting several institutions and researchers, which aims to create a network of lithotheque in three regions of France (Auvergne-Rhône-Alpes, Val de Loire and Nouvelle-Aquitaine) and to propose guidelines to align sampling procedures, investigation methods, collection disseminating and results sharing, such as the editing of catalogues and databases (Delvigne *et al*. 2018; Morala *et al*. 2019).

Another project concerning the lithotheques is that carried out by scientists of the Archaeological Research Centre of Soissons, in collaboration to other associated laboratories, which focalises on the Soissons reference collection and on its flint samples from the Paris basin (Lietar *et al*. 2014).

Other examples of lithic collections are in Czech Republic, Hungary and Romania. The first is kept in the Department of Archaeology and Museology of the Masaryk University (Brno) and it mainly includes lithic raw materials of Central Europe which was used in the past and is available for the academic and educational community (Přichystal 2013). The Hungarian lithotheque is stored in the Department of Archaeology of the Hungarian National Museum and boasts the presence of artefacts accumulated in the years from private and public collections and reference pieces of cherts (Biró & Dobosi 1991). The last, which belongs to

the Geology Department of the Babeş-Bolyai University of Cluj-Napoca, is composed by knappable materials collected in the Mureş Valley (Crandell 2009).

Since the collections are locally defined because they generally assemble materials from a limited geographical area (a region, a basin, at most a country), it is essential that lithotheques share known data and characterisation results in the scholar community and create relationships and dissemination actions to allow the circulation of very important information for the reconstruction of human history.

In this scenario, SiLiBA has the purpose not only to collect lithic samples coming mainly from Apulia without excluding neighbouring regions such as Basilicata and related countries such as Croatia in virtue of its similar geological setting and trans-Adriatic circulation of cherts and neolithization (Forenbaher 2019), but above all to share images, geographic and geological information and results of the characterisation analysis carried out with other researchers and scholars, as well as guidelines and rules to build a reference lithotheque.

2. Building SiLiBA

2.1. The SiLiBA samples

SiLiBA lithotheque (Figure 1) currently is stored in the Earth and Geoenvironmental Sciences Department of the University of Bari Aldo Moro and consists of 729 geological samples of cherts (Figure 2) coming mainly from Apulia (621) and Basilicata (39) in Italy and in Croatia (87) and Serbia (39), even if there is a smaller section from Switzerland (15). Of these, 395 are primary position geological cherts and the remaining 334 are secondary position geological cherts (Table 1).

Figure 1. Boxes containing samples of SiLiBA lithotheque in the Earth and Geoenvironmental Sciences Department of the University of Bari Aldo Moro.

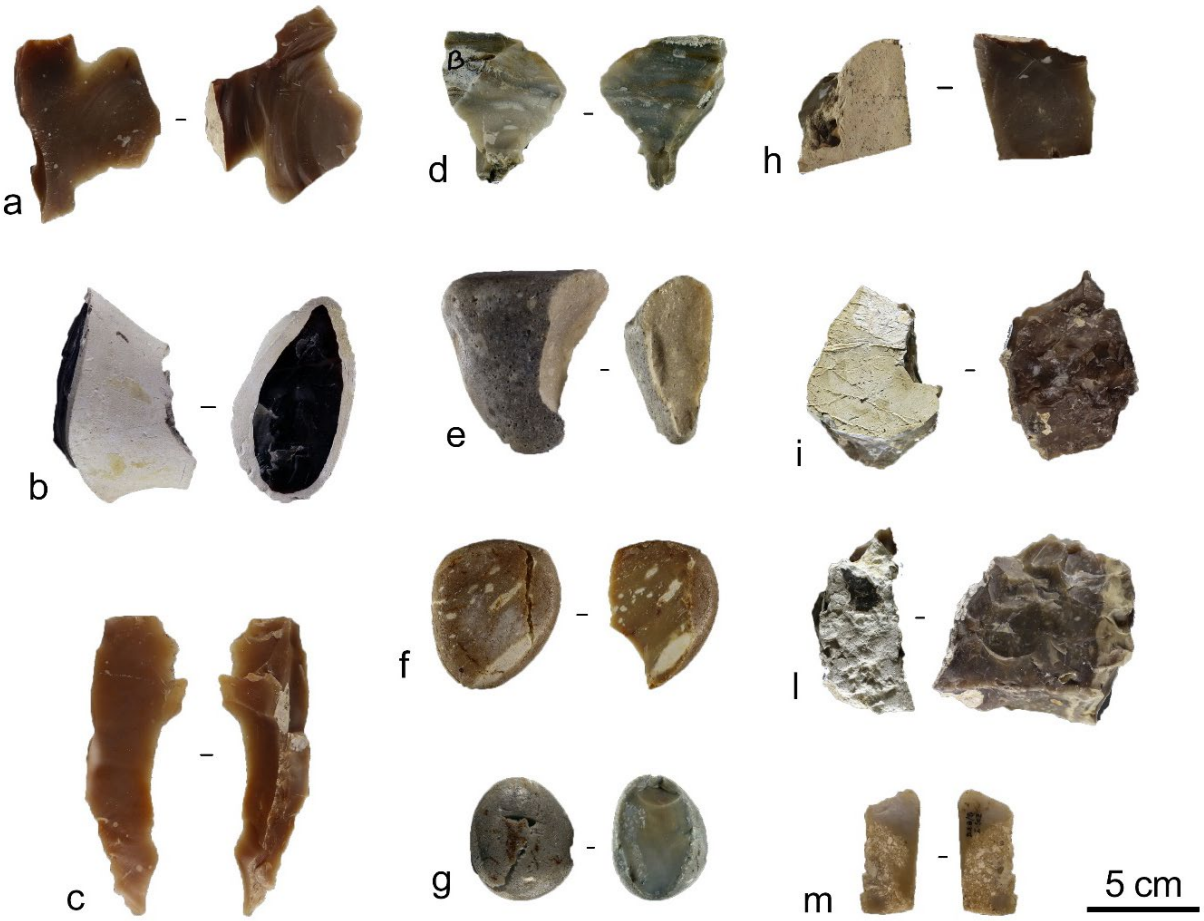

Figure 2. Apulian samples of the SiLiBA lithotheque: primary cherts coming from Carmine (a), Martinetti (b), Tagliacantoni (c), Cruci (d, l), Defensola A (h), Valle Sbernia-Guariglia (i) and Defensola B (h) mines and secondary cherts coming from Mattinata (e), Stazione Candelaro (f) and Siponto (g).

Table 1. An overview of geographic provenance and amount (in brackets) of SiLiBA samples.

Italy			**Croatia**	**Serbia**	**Switzerland**
Primary position		**Secondary position**	**Primary position**	**Primary position**	**Primary position**
Gargano area (Apulia)	Corato area (Apulia)	Gargano area (Apulia)	Split	Mionica	Zurich area
Defensola (3)	Lama di Pietra (16)	Siponto (16)	Prgomet-Labin, Zovići-Bracuta (11)	Struganik (1)	Lagern (5)
Defensola A (7)	Salento area (Apulia)	Stazione Candelaro (45)	Cape Čiovo (8)	Brežde (1)	Olten (4)
Defensola B (26)	Porto Selvaggio (14)	Mattinatella (63)	Labin-Plano, Majkovići-Provalosa (8)	Belgrado	Villa Konig (5)
Defensola C (6)	Località Tarrisi (7)	Mattinata (31)	Seget Donij (3)	Avala (1)	
Mastro Tonno (8)	Baia di Uluzzo (3)	Tavoliere area (Apulia)	Mt Kozjak, Kaštela-Starosevski Gaj (18)	Zlatibor	
Arciprete (4)	Parco Porto Selvaggio (1)	Masseria Candelaro-Monte Aquilone (30)	Korčula Island (Vela Luka)	Priboj na Limu (1)	
Valle Sbernia (2)	Matera area (Basilicata)	Masseria Acquasalsa (46)	Bradat Prid Bandon (6)	Nova Varoš	
SS 89 Km 92-180 (1)	Sentiero 406 (10)	Salsola river (22)	Stračinčica (4)	Rutoši, Priboj (1)	
SS 89 Km 86-050 (3)	Sentiero 201 (13)	Il Posticchio (25)		Majdanpek	
Km 31-Vieste (30)	Gravina di S. Stefano (16)	Posta Rivolta (15)		Boljetin (5)	
San Marco (10)		Cervaro river (6)		Niš	
Bodinizzo (2)		Porto Selvaggio "Spiaggetta" (7)		Rujnik (1)	
Bosco della Risega (10)		Ginosa (28)			
Carmine (21)					
Carmine B (1)					
Coppa di Rischio (7)					
Cruci (11)					
Finizia (2)					
Martinetti (11)					
Tagliacantoni (15)					
Valle Guariglia I (12)					
Valle Sbernia / Guariglia (6)					
Montelci (3)					
Vico del Gargano (2)					
SS litoranea Mattinata-Vieste (3)					
Monte Grande (5)					
Vieste-Intraseglio (9)					
Vieste-S. Stefano (2)					
Mattinatella (5)					
Baia S. Felice (1)					
Cariglia (2)					
Lido Azzurro (2)					

In the Apulia three main sampling areas were considered. The first was the Gargano promontory, where 232 primary position cherts from 32 mines and 155 secondary position cherts from 4 localities were collected. From the second, the Tavoliere plain, 179 secondary cherts were sampled in 8 different localities. In the third area of the Salento area, 25 primary cherts were collected from 4 localities. Finally, other 16 primary cherts came from Corato in the Murge Plateau.

In the Basilicata region, a group of 39 primary chert samples was included in the collection.

With regard to the Croatia cherts, the lithotheque contains 48 primary cherts from 5 sites in the Split area and 10 primary cherts from 2 localities in Korčula island. A more limited group of 15 primary cherts came from Zurich area and other 11 samples of primary cherts were collected in 7 localities of Serbia.

An interactive and always updated map of sampling points is available on the SiLiBA website (link), which we presented in paragraph 3.

2.2. Laboratory and investigation approach

The lithotheque is equipped with a laboratory (Figure 3) which includes optical microscopes, a glossmeter and a spectrophotocolorimeter. Most of them are portable devices and then can be moved to carry out investigations and measurements on lithic samples directly in their conservation sites (archaeological sites, museums, archaeology laboratories).

Preliminary research on the chert-bearing areas exploited by prehistoric communities was carried out, starting from archaeological evidence and documental analysis, together with the evaluation of geological setting, supported by cartographic examination.

Figure 3. The laboratory of SiLiBA lithotheque equipped with different kinds of microscopes and other devices.

The experimental approach adopted for the investigation of SiLiBA samples, and in general for lithic samples, is that defined by Delluniversità *et al.* (2019), which is a non-destructive multiparametric protocol for chert investigation (NM-PCI), providing a modular dataset of binary, ordinal and continuous variables which integrates petrographic, micropaleontological, chemical and physical data. The instrumental arrangement included: a Nikon-Japan SMZ800 stereomicroscope equipped with a LED light ring and an illuminating optic fiber system and 10-60X magnification, used for petrographic observation; a portable spectrophotometer, Konica Minolta CM-2600d, which acquires colorimetric data in the CIEL*a*b* colour system and reflectance spectra of sample in a wavelength range from 360 to 740 nm (diameter of aperture mask: 6 mm; illuminant: D65; angle of standard observer: 10°); a portable Thermo-NITON XL3t XRF spectrometer, equipped with an Ag collimated

source and an SDD detector (diameter of spot size: 3 mm; resolution of detector: > 160 eV), to measure the concentration of eight elements (Fe, K, Sr, Rb, Ni, Mn, As and Ba). The exploratory analysis of the transformed data matrix was performed by Cluster analysis, using PAM algorithm, and visualised by t-SNE in R software environment. The clustering allowed the identification of groups based on the proximity and sharing a series of common features.

Such data represented the compositional fingerprint of cherts which provided significant reference data for provenance studies.

2.3. The SiLiBA organisation

The strategy adopted for the general organization of the physical lithotheque and the data connected to it is shown in the flow chart in Figure 4. The documentation of geological and archaeological cherts was based on three macro-areas: the first, concerning the outcrops features, included the geographical position and the stratigraphy; the second described the surface features of the lithic samples, in particular colour, gloss and post depositional surface modifications (PDSM); the third referred to petrographic, micropaleontological, mineralogical and chemical features of samples. All these data were collected in the digital database, which is available for users. SiLiBA lithotheque is also a physical collection organised following geographical and geological criteria.

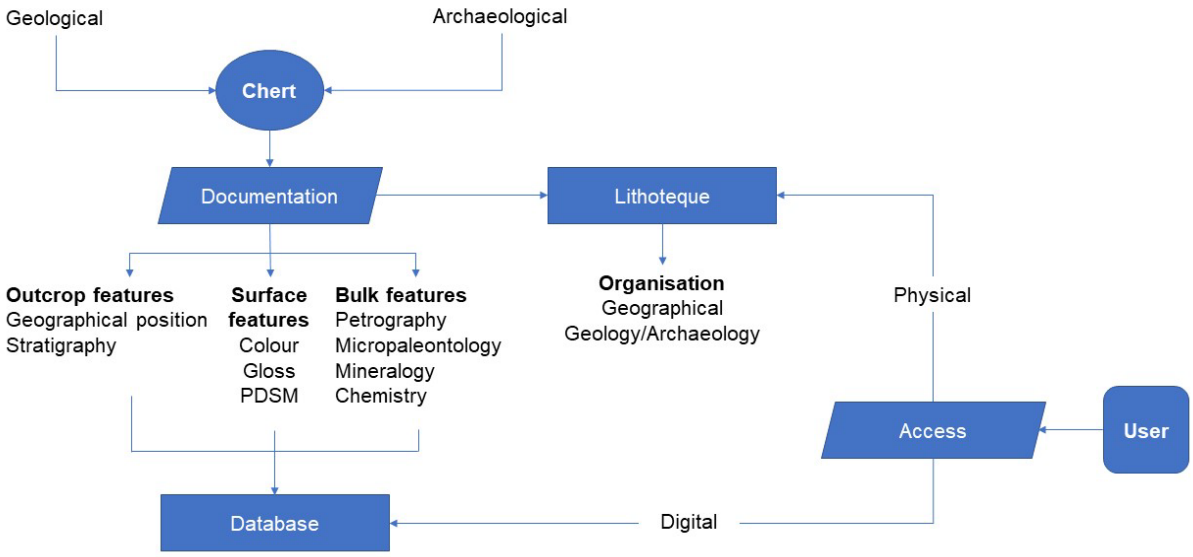

Figure 4. Flow-chart showing the strategy adopted for the general organization of the physical lithotheque.

Before starting to build SiLiBA lithotheque, all the silica samples were signed using a name including an abbreviation of the locality where they were collected and a progressive number. Besides, the results of macroscopic and mesoscopic observations and colorimetric and chemical data were also scattered in different tables.

Therefore, it was necessary to compile an inventory using Microsoft Excel spreadsheets in order to group all the samples on the basis of their geographical origin. The hierarchical organization of the lithotheque mostly followed geographic criteria, as shown in Figure 5.

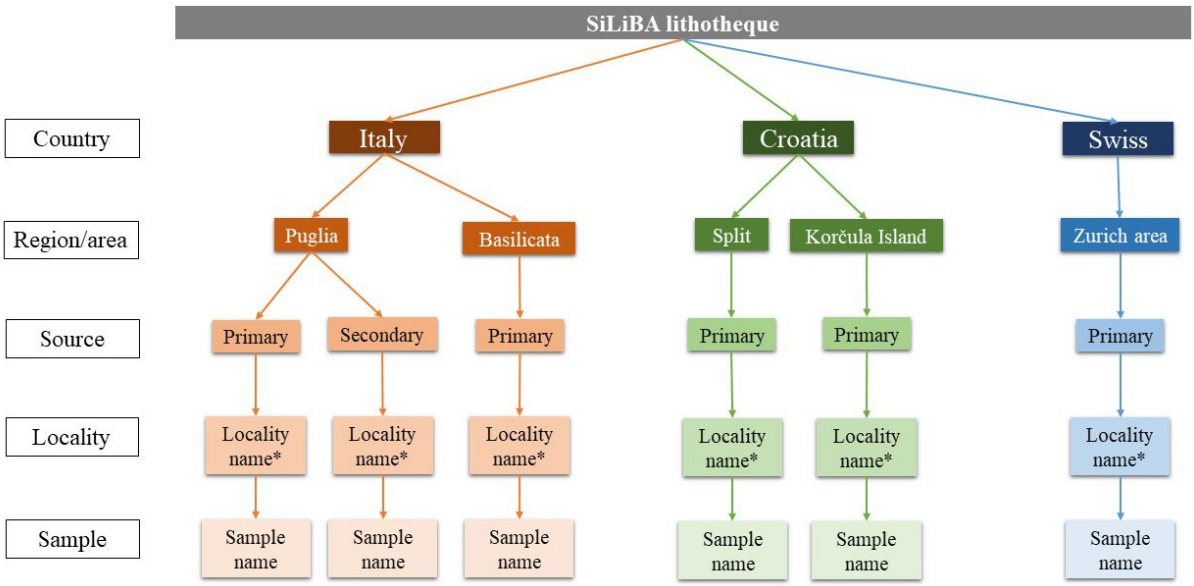

Figure 5. The hierarchical organization of the lithotheque.

Experimental results obtained during researches carried out in the last years (Delluniversità *et al*. 2019; 2020; Muntoni *et al*. 2021) were subsequently included in the list, in order to have a single table containing the list of samples divided by sampling location and the corresponding characterisation results. Macroscopic photographs of all samples were acquired.

Samples were placed inside 37 plastic boxes. On each box, a label (Figure 6a) contains some main information (box number, source, country, region, locality, sampling date, number of samples). In case of limited number of samples, more groups were stored in the same box and in this case a label like that shown in figure 6b was used. A list of samples was inserted inside each box.

BOX No.	16
Source	Primary
Country	Italy
Region/area	Corato, Puglia
Locality	Lama di Pietra
Sampling date	01/2018
No. of samples	19

a

BOX No.	12			
Source	Primary			
Country	Italy			
Region/area	Gargano/Puglia			
Locality	Montelci	SS Mattinata-Vieste	Vico del Gargano	Monte Grande
Sampling date	03/2017	03/2017	03/2017	03/2017
No. of samples	3	3	2	11

b

Figure 6. Examples of labels used to mark each SiLiBA box, reporting all the most significant information. Labels are slightly different if box contains samples from one locality (a) or more localities (b).

Thus, the lithotheque is well organized and can be explored and, as it can be continually enriched, new samples from the same location or samples from new localities can be easily added. Once the SiLiBA organization phase was completed, the digital database was created.

2.4. The SiLiBA database

SiLiBA database was created using Microsoft Access software. It is composed by 729 records and then by 729 description files (Figure 7), one for each sample. Reports display a first heading section including the unique identifier number of samples in the database, a macroscopic photo of sample, the sample name, the box number, the sampling date. The second section supplies geographic information (country, region, area, locality, latitude and longitude coordinate, chronology of mine) and geological setting, therefore (type of source, age of formation).

In the following sections, results of NM-PCI investigation method (Delluniversità *et al.* 2019) are reported. Specifically, the macroscopic description concerns both cortex, if present, and nucleus (inner part). In the first case the description is based on parameters as thickness, nature (siliceous or carbonate), induration (friable or hard), surface (harsh, rough or smooth) and boundary (sharp, clear or diffuse). The possible presence of subcortex is also reported. Concerning inner part of nodules, the items report information on its structure (homogeneous, shaded, mottled, spotted, laminated, banded and streaked) and fracture (conchoidal, subconchoidal, or uneven).

The next section reports the mesoscopic description, including an image of sample under the stereomicroscope. Translucence (translucent or opaque), sorting (well, moderately or poorly sorted) and micropaleontological content are specified. In addition, the colorimetric coordinates based on CIEL*a*b* system are reports as well as the reflectance spectra in the wavelength range from 360 to 740 nm.

The last section of the database sheets involves some element content (Fe, K, Sr, Rb, Ni, Mn, As, Ba), as results of the geochemical analysis. Deeper details regarding investigation strategy, experimental information and analytical data were reported in Delluniversità *et al.* (2019; 2020).

3. Dissemination activities

The collection boasts of a dedicated educational section and various activities of experimental archaeology. Some chert samples, representative of mining, manufacturing and eventually burial occurrence, are exposed in assigned showcases of the Earth Science Museum of the same University. The space is enriched by several educational panels showing important topics, such as exploring and mining activities in Apulia, importance of cherts in the Prehistory, their manufacturing techniques and analytical methods for their characterisation. Panels (Figure 8) are provided of a QR code referring to educational videos filmed by the SiLiBA team and available online.

In addition, the promotion of the lithotheque in the last years was guaranteed by dissemination activities, such as the museum route “Dalla roccia al manufatto” created in 2018, including also interactive laboratory of experimental archaeology (Figure 9).

In order to create a global connection between archaeologists and geologists, the collection promotion was improved by means of a dedicated website (link). It is articulated into submenus and includes sections containing archaeological information on procurement and manufacturing of cherts in the Prehistory, history of the lithotheque, publications and events and activities, including experimental archaeology laboratories and tutorials. Besides it includes an interactive map of localities where SiLiBA samples were collected.

Even if the input of some data is not yet complete, the site is online and explorable.

SiLiBA The silica lithotheque of the University of Bari (Italy)

ID	116
Sample	BRS 53_a
Source	Primary
Box no	4
Sampling date	2017

Geographic and geological data

Country	Italy	Region	Puglia
Area	Gargano	Locality	Bosco della Risega
Latitude (m N)	4,639,791.71	Longitude (m E)	587,051.65
Type	geologic	Mine chronology	Neolithic / Copper Age
Formation	Maiolica	Age	Early Cretaceous

Cortex

Thickness (mm)	3	Surface	rough
Nature	carbonate	Boundary	sharp
Induration	friable	Subcortex	

Nucleus

Structure	shaded, mottled
Fracture	concoidal

TEXTURE

Sorting	poor
Fraction	10-50%

GEOCHEMICAL CONTENT (mg/kg)

Fe	124,98	Ni	13,425
K	733,415	Mn	23,62
Sr	3,325	As	
Rb	0,88	Ba	470,625

GRAINS (micropaleontological content)

Bioclast (ND)	3	Lenticulina		Nummulite	
Radiolaria	3	Algae		Micritic boundary	
Sponge		Coral		FeOx	2
Spicula	1	Echinoid		Org	1
Foraminifera	1				

OPTICAL FEATURES

Gloss	4	
Translucence	translucent	
Colour (CIE*L*a*b system)	L	29,32
	a	1,31
	b	2,04

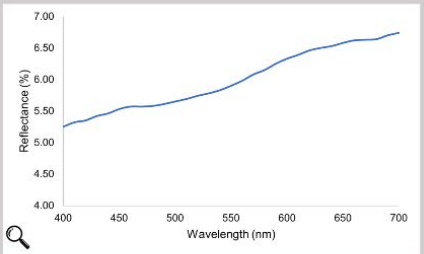

Figure 7. Example of database report containing images, plots, geographic, geological, petrographic, micropaleontological and chemical data.

Figure 8. Panels in the educational section in the Earth Science Museum of the University of Bari.


Figure 9. "*Dalla roccia al manufatto*" experience, belonging to experimental archaeology activities.

4. Conclusion

The SiLiBA lithotheque collects samples of geological cherts, both as primary and secondary position sources, mainly coming from Apulia and subordinately from the near Basilicata region, from the Balkan area, in particular the Split region and Croatian islands, and from Switzerland.

The building of SiLiBA allows the assembly of up to 1000 cherts sampled over the years, the assembling of the produced characterisation data and the database creation.

Thanks to its completeness in terms of scientific results (photos, geographic and geological information, petrographic and chemical characterisations, colour measurements) and to the large number of samples, the lithotheque and its database represent not only a precious data container, but an interactive and essential tool in the provenance studies of raw materials used for the manufacturing of chert artefacts, in particular in the archaeological sites of the Apulian territory. Furthermore, the SiLiBA lithotheque, as well as other European lithotheques, some of which presented in paragraph 1.1, could represent an example for the collection, exhibition, investigation and dissemination of chert samples.

One of the strengths of the lithotheque is its website, which is still under construction for some sections, but is online and explorable. It is and will be constantly updated with information on new acquisitions and with still missing sections and allows to share the collection anywhere in the world and with those, both geologists and archaeologists, who carry out research in the field of Prehistory lithic artefacts.

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Data accessibility statement

The data that support this paper are openly available in the SiLiBA lithotheque website at https://silibalithotheque.wordpress.com/.

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SiLiBA: la litoteca dell'Università di Bari

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Abstract:

Le litoteche sono collezioni che raccolgono, studiano ed espongono materie prime usate dall'uomo per la realizzazione di manufatti durante la Preistoria e rappresentano un potenziale e ineguagliabile strumento di conoscenza. Infatti, tale collezioni sono fondamentali per gli studi di provenienza dei materiali adoperati nell'industria litica archeologica ed è fondamentale che esse non rimangano all'interno dei musei o laboratori ma che i dati scientifici prodotti e le informazioni che le riguardano siano divulgate, anche solo virtualmente. In Italia e in Europa (Spagna, Francia, Portogallo, Irlanda, Repubblica Ceca, Romania, Ungheria) esistono circa una quindicina di litoteche che sono state organizzate in modo sistematico, in alcune delle quali i campioni di selce sono stati caratterizzati da un punto di vista petrografico, geochimico e fossilifero producendo così un'importante mole di dati confluiti in un database o in un catalogo o in un articolo scientifico.

Questo articolo ha lo scopo innanzitutto di presentare SiLiBA, la litoteca dell'Università degli Studi di Bari Aldo Moro, come punto di riferimento e di comparazione negli studi di settore archeologico, ed in secondo luogo, di proporre un esempio di progettazione e realizzazione di una litoteca.

Attualmente la collezione è costituita da 900 campioni di selci geologiche, frutto di una lunga e continua ricerca e raccolta di selci in posizione primaria e secondaria in Italia (nello specifico in Puglia e Basilicata), Croazia, Serbia e Svizzera, appartenenti a formazioni geologiche formatesi tra il Cretaceo e il Quaternario. Tutti i campioni sono stati caratterizzati adottando un protocollo d'indagine multianalitico (NM-PCI), che fornisce un dataset modulare di variabili binarie, ordinali e continue che integrano i dati petrografici, micropaleontologici, chimici e fisici. I risultati ottenuti sono stati riportati in report dettagliati inseriti all'interno di un database, già fruibile e funzionante e che sarà presto disponibile anche online. Tali report sono costituiti da una sezione iniziale contenente le informazioni generali di identificazione dei campioni nella collezione e una foto macroscopica degli stessi, da dati di tipo geografico e geologico e, a seguire, la descrizione dei parametri propri di questo metodo che comprendono descrizione macroscopica del cortice e del nucleo, descrizione mesoscopica della selce comprendente anche il contenuto micropaleontologico, dati colorimetrici e geochimici.

Nella costruzione fisica della litoteca, i campioni sono stati conservati in 37 contenitori idonei seguendo un'organizzazione gerarchica di tipo geografico e per ognuno di essi è stata riportata una etichetta con alcune informazioni essenziali. Alcuni campioni rappresentativi sono conservati in una sezione dedicata nel Museo di Science della Terra del Dipartimento di Scienze della Terra e Geoambientali dello stesso ateneo, la quale è stata recentemente rinnovata e che consiste nell'esposizione dei campioni didattici di selci geologiche, in una serie di teche dedicate alle tecniche

di scheggiatura con esempi di selci archeologiche ed infine in circa una decina di pannelli che raccontano l'uso delle selci nei siti neoliti della Puglia, dotati di QR code per la visione di video su YouTube.

Inoltre, la litoteca è dotata di un laboratorio dedicato che vanta la presenza di numerosi strumenti tra cui, microscopi ottici e stereomicroscopi, anche portatili, un glossmetro, uno spettrofotocolorimetro, macchine fotografiche, sistemi di illuminazione e diversi altri dispositivi fondamentali per l'acquisizione e la digitalizzazione dei dati.

La valorizzazione e la promozione della collezione di selci si è avvalsa negli ultimi anni di attività di divulgazione rivolte al pubblico, in particolare alla comunità accademica e scolastica, tra cui laboratori interattivi di archeologia sperimentale. Un sito web interamente dedicato alla litoteca è disponibile online e costantemente aggiornato. Attualmente esso è organizzato in diverse sezioni in cui si riportano informazioni riguardanti la storia della collezione, la sezione dedicata nel Museo di Scienze della Terra, l'elenco delle pubblicazioni, molte di esse scaricabili, e perfino una mappa interattiva dei punti in cui sono state campionate le selci.

Le prospettive future comprendono la creazione di un profilo social, come strumento fondamentale per raggiungere il maggior numero possibile di utenti e di pubblicare e condividere contenuti originali e interessanti che possano incuriosire il pubblico alla conoscenza delle collezioni geologiche e appassionarlo contestualmente al mondo dell'archeologia e a quello delle scienze della terra.

Keywords: litoteca, selci, database, siti di approvvigionamento, affioramenti, materie prime