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Continuity and catastrophes in the evolution of
settlement in Late Antique and Medieval Sardinia

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Special Issue

Between History, Archaeology and Cultural Heritage. Some results of the ASRT / CNR Bilateral Project 'History of Peace-building: peaceful relations between Est and West (11th - 15th Centuries)'

Luciano Gallinari - Ali Ahmed El-Sayed
- Heba Mahmoud Saad (eds.)

RiMe 3 n.s. (December 2018)

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Editorial

Luciano Gallinari

(CNR - Istituto di Storia dell'Europa Mediterranea)

This Issue of the Journal *RiMe* celebrates its (first) 10 years of existence. In fact, the first volume was published in December 2008. Since then a lot of things have changed in *RiMe*.

Looking at its various volumes in a diachronic manner, we note that, alongside several more typically historical topics, the Journal has hosted several *Special Issues* with a monographic nature concerning other Humanities, such as Literature, or Disciplines at the boundary between Human Sciences and Exact Sciences, such as Architecture, for example.

Not to mention several incursions into the wide and interesting world of Social Networks or, again, Gamification and Public History.

The Journal has always paid great attention to a reliable and accurate dissemination of the results of Research in the civil society and, of course, in the Schools of all types and levels.

All this also in order to raise in the contemporary society the level of the debate on History and other Humanities, in the face of an ever-increasing risk of "presentification", and to make as many readers as

Con il presente numero la rivista *RiMe* festeggia i suoi (primi) 10 anni di esistenza. Infatti il primo volume uscì nel dicembre del 2008. Da allora molte cose sono cambiate in *RiMe*.

Osservando diacronicamente i suoi diversi volumi, si nota che accanto a numerosi temi più tipicamente storici la Rivista ha ospitato diverse *Special Issues* con carattere monografico riguardanti altre Scienze umanistiche quali la Letteratura, o discipline al confine tra Scienze Umane e Scienze esatte quali l'Architettura per esempio.

Per non parlare poi di diverse incursioni effettuate nel vasto e interessante mondo dei *Social Networks* o, ancora, della *Gamification* e della *Public History*.

La Rivista ha prestato sempre una grande attenzione anche a un'attendibile e accurata disseminazione dei risultati delle ricerche nella società civile e, ovviamente, nelle Scuole di ogni ordine e grado.

Tutto ciò anche al fine di innalzare nella società contemporanea il livello del dibattito sulla Storia e le altre Scienze Umane, dinanzi a un

possible can reach every content of *RiMe*, now accessible totally free of charge.

Precisely in accordance with the aims pursued since the the creation of the Journal 10 years ago.

In order to celebrate this first important Journal's anniversary in an even more appropriate way, we decided to adopt the Content Management System (CMS) "OJS". This choice is due to two of our objectives: 1) to adapt *RiMe*'s contents to parameters now very common at international level with regard to scientific Journals, and 2) to further increase the indexing and visibility of the essays hosted in it.

Currently, the last three issues have been uploaded to the new CMS, those marked "n.s.", i.e. "New Series" published in the last year, starting from December 2017.

Progressively all the previous 18 Issues will be uploaded in the new CMS, thus reaching a total of 27 Booklets.

rischio sempre crescente di "presentificazione", e di far raggiungere al maggior numero possibile di lettori ogni contenuto di *RiMe*, ormai accessibile in maniera totalmente gratuita. Proprio in ottemperanza delle finalità perseguite dalla creazione di questa rivista ormai 10 anni fa.

Per festeggiare in maniera ancora più adeguata questa prima importante ricorrenza della rivista, abbiamo deciso di adottare il Content Management System (CMS) "OJS". Tale scelta è dovuta a due nostri obiettivi: 1) adeguare così i contenuti di *RiMe* a parametri ormai molto diffusi a livello internazionale in riviste di carattere scientifico e 2) incrementare ulteriormente l'indicizzazione e la visibilità dei saggi ospitati in essa.

Attualmente sono stati caricati nel nuovo CMS gli ultimi tre numeri, quelli caratterizzati dalla dicitura "n.s.", ossia "nuova serie" pubblicati nell'ultimo anno dal dicembre 2017.

Progressivamente saranno inseriti nel nuovo CMS tutti i precedenti 18 numeri, arrivando così a un totale di 27 fascicoli.

Ad Maiora

Cagliari, 31 Dicembre 2018

Introduction

Luciano Gallinari

(CNR - Istituto di Storia dell'Europa Mediterranea)

Ali Ahmed El-Sayed

(Damanhour University, Egypt)

Heba Mahmoud Saad

(Alexandria University, Egypt)

This issue of *RiMe*, with which the Journal celebrates its (first) 10 years of existence, is once again, a *Special Issue*. In this case, it is dedicated to the topic of relations between Italy and Egypt and, more generally, between the Western World and the Islamic one in a chronological span that goes from the High Middle Ages to the beginning of the Modern Age, a theme at the heart of the Bilateral Project ASRT (Egypt) / CNR (Italy) "*History of Peace-building: peaceful relations between East and West (11th - 15th Century)*", financed for the years 2016 - 2017, whose scientific managers were, for the Egyptian side, Prof. Ali Ahmed Mohamed El-Sayed, from the University of Damanhour, and Dr. Luciano Gallinari, from the CNR-Istituto di Storia dell'Europa Mediterranea, for the Italian one.

The same historical and historiographic themes were discussed by Egyptian and Italian researchers in the context of three other workshops, two of which were organized in Rome in February and December 2017 ("Historiographic reflections on the medieval relations between Muslims and Christians"), and the third and last one in Alexandria ("Egypt and Italy: Cultural Heritage for Sustainable Tourism and Peaceful Relations") always in December 2017.

The volume contains some articles by Italian and Egyptian researchers of the above mentioned Bilateral Project that fit in the wake of themes already examined at the International Conference *Peace Building between East and West (XI-XVI c.)*, held in Cairo on 27 October 2016.

Alongside an essay dedicated to the important theme of the profound change recorded in the settlement policies in the Late Ancient and Early Medieval Mediterranean, strongly affected by the rapid and large expansion of Islam, there is another text that examines the stimulating figure of the Priest John in relation to the Crusades, from the dual Christian and Muslim perspective.

The third essay is dedicated to a theme of great importance: the relationship between the Roman Curia and the Mamluk Sultanate at the time of Innocent

VIII (1484-1492). A pope who played an anything but a secondary role also in the setting up of Christopher Columbus' "discovery" enterprise, also aimed at breaking that sort of "encirclement" sensation on the part of the Islamic World that Christianity felt at the end of the Middle Ages.

This volume also includes six other scientific essays, three by Italian researchers and three by Egyptian researchers dedicated to the theme of Cultural Heritage and its management for cultural tourism purposes in Italy and Egypt. I will not talk about them because it will be done by Prof. Heba Mahmoud Saad in her pages of this Introduction, but I will just say that the idea of this booklet and other initiatives that will take place in the next two years of the aforementioned Bilateral Project (2019 - 2020) came to me during a stay in Alexandria, Egypt, in October 2016 after meeting the aforementioned Prof. Saad who very kindly accompanied me on a tour of that beautiful Egyptian city.

On that occasion, we talked for a long time about the rich cultural heritage of our two countries and the idea of increasing scientific collaboration between us was born. This volume is a first, small piece of this collaboration, which confirms how this Journal can be a forum for discussion and debate on the important issue of Dissemination of Tangible and Intangible Cultural Heritage, which is one of the main aims of *RiMe* since its creation.

Finally, the volume contains an interesting archaeological essay dedicated to the medieval *villa* of Santa Gilla (or Santa Igia, in other sources) probably located within the lagoon of the same name a few kilometers from the Roman and Byzantine city of *Karales* located below a part of the centre of the current city of Cagliari. The author of this essay presents an interesting and stimulating proposal for the identification of this *villa*, attested in the sources from 1070 and seat of the judges of Calari, who were from an institutional point of view the most direct heirs of the previous Arconti / Giudici di Sardegna mentioned in the Byzantine and papal sources of the 9th and 10th centuries A.D.

The volume is closed by some Book Reviews of recent publications on Medieval and Modern History.

Luciano Gallinari

* * *

It is an honor to participate in the introduction of the special issue of *RiMe* journal which is dedicated to publish part of the results of the Egyptian-Italian (ASRT/CNR) research project entitled "History of Peace-Building: peaceful relations between East and West (XIth – XVth Century)"

The project focuses on the significance of the relations between Western Europe and the Islamic East and the efforts which were made towards peace-building from the eleventh to the fifteenth century, although that period was considered as the most serious stage in the conflict between the East and West, Islam and Christianity in the Middle Ages.

During the two-years of cooperation many activities and events were organized between the Egyptian and Italian partners: In October 2016, an international conference was organized by the Egyptian partners and was hosted by the Supreme Council of Culture aiming to compare the results of our research. It was followed by a workshop held in the Bibliotheca Alexandrina, in collaboration with the Italian Principal Investigator; Dr. Luciano Gallinari.

In February 2017, Prof. Aly El-Sayed and Dr. Abdallah Al-Naggar, two members of the Egyptian research team, visited Rome and participated in a workshop hosted by Istituto Storico Italiano per l'Età Moderna e Contemporanea. Another workshop was also organized by the Italian team headed by Dr. Luciano Gallinari between 10-15 December. During that workshop which was held in Rome, the Egyptian participation was represented by Prof. Aly Al-Sayed, Dr. Abdallah Al-Naggar and Mr. Ahmed Sheir.

Considering the international interest in heritage and the common heritage shared by Egypt and Italy; a special workshop was devoted for that topic in 17 December, 2017. During the workshop, which was held in Alexandria and organized by Prof. Heba Saad together with Dr. Luciano Gallinari, Egyptian and Italian researchers presented papers, focusing on heritage as an aspect of peace-building and potential for sustainable development.

The results of the Bilateral Project were disseminated by various publications. The first is a multilingual (English-Arabic-Italian-Hungarian) book, entitled *Relations between East and West - Various Studies: Medieval and Contemporary Ages*, which contains all papers compiled by both research teams. This volume contains 11 papers in addition to a preface. The papers were prepared by 6 Egyptian researchers, 4 Italians, and 1 Hungarian. The current issue of *RiMe* is the second publication containing 3 papers on history (2 Italian researchers and 1 Egyptian), 6 papers on heritage (3 Italian researchers and 3 Egyptians) in addition to 1 focus and 3 book reviews.

Within the next few weeks, the third publication will be issued in the form of a book which presents histories of peaceful coexistence between various people, empires, cultures and religions from the Middle Ages to the end of the 20th century. The authors examined the contact points of different cultures from the Byzantine Empire, through the Trebizond Empire period and into the Seljuk Sultanate. The book also presents insights into the peaceful coexistence between

Egyptian Copts and Muslims in the period from 1882 to 1952. Researchers from Egypt, Italy, Germany, and Hungary participated in this work.

Ali Ahmed El-Sayed

Peaceful relation between East and West is an important topic that attracted the attention of both Egyptian and Italian researchers to work on. Thus; a formal research project was established between CNR and ASRT entitled "History of Peace-building: peaceful relations between East and West (11th-15th Century). The current issue of *RiMe* is dedicated to publish some results of that project.

Leaving aside the first part of the Issue, already presented by Luciano Gallinari, I will focus on the second part of it which is dedicated to heritage since the Egyptian and Italian partners of the project believe that this wide and yet diverse aspect insures the deep relations between Egypt and Italy. The Italian contribution in the creation of the modern Egyptian heritage is unquestionable and the Egyptian heritage presented in Italy is irreplaceable; thus, heritage can provide a common ground for planning for the future. It ensures sustainable development of tourism and can strengthen the future relations between the two countries. Due to that importance of heritage a special seminar was organized in Alexandria in December 2017 to discuss Egyptian-Italian heritage and how it can be another aspect of peace-building between the two countries.

Many papers were presented in the seminar and 6 of them were chosen to be published in the current issue of *RiMe*. Sandra Leonardi's paper is entitled "*The cultural places' valorization through new models of tourism*" and it focuses on the sustainable tourism as one of the principles of economic development. The paper sheds light on new forms of tourism aiming at enhancing, integrating environmental sustainability of the landscape, cultural heritage and environmental resources by identifying their potential value and making them attractive.

Sara Carallo's paper which is about "*Digital Cultural Heritage and Tourism: Valle dell' Amaseo Web Portal*" presented a cultural heritage project executed in Valle dell' Amaseo to encourage the local community participate in the development of the cultural heritage. The project focuses on the census of cultural and environmental heritage and on the creation of tourist travel routes aiming at promoting sustainable mobility and improving accessibility through the proposal of alternative routes.

An innovative approach of using cultural heritage was presented by Luisa Spagnoli - Lucia Grazia Varasano in their paper "*Unused railways for a planning idea- A Tangible and Intangible Cultural Heritage*". They proposed the idea of the

transformation of two railways of Basilicata Region – the Lagonegro-Spezzano Albanese and the Matera-Montalbano Jonico, – which have a historical, cultural and environmental important value. The paper suggests that the reusing of these abandoned railways can have effects on the territory crossed, on the places, on the historical settlements, activating a special type of “experiential” tourism and other innovative forms of it. Such an experience can also represent an extraordinary Intangible and Tangible Cultural Heritage experience.

Another idea of using the tangible and intangible heritage for the benefit of tourism is proposed by Heba Saad in her paper *“Thematic walking tours in Alexandria as a way to discover its heritage: Case study of Italian heritage in Alexandria”*. The paper sheds light on the role of the Italian community in the creation of both the tangible and intangible heritage of the cosmopolitan city; Alexandria. The paper presented thematic walking tours as a way to discover the vivid Italian heritage of Alexandria; proposing a wide range of themes to present that heritage and the different routes of such tours.

Heba Said and Sherine Hamid in their paper *“Community participation in heritage sites tourism planning: Case study Dahshur mobilization plan”* explained the essential role of community participation in the planning, development and conservation of heritage sites. They applied their study on one of the sites in Egypt; “Dahshur World Heritage Site” to investigate the local community participation. The study proved that the residents had a positive perception of the participation experience which empowered them to influence the decision making process, enhanced their quality of life, created job opportunities and improved their skills.

In her paper *“Italian Egyptologists through the Ages”* Reham El-Shiwy looked at heritage from a different prospective focusing on how part of the Egyptian heritage was discovered in the past by Italian archaeologists, explorers and missionaries. The paper sheds light on the efforts of famous Italians such as Ippolito Rosellini, Giovanni Battista Caviglia, Belzoni, Ernesto Schiaparelli, Silvio Curto and others; highlighting their findings in Egypt and discussing their participation in the field of Egyptology.

Heba Mahmoud Saad

Continuity and catastrophes in the evolution of settlement in Late Antique and Medieval Sardinia

Giovanni Serreli

(CNR - Istituto di Storia dell'Europa Mediterranea)

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Abstract

Recent research in the north African regions between the classical period and the Arab conquest highlight how the Roman and late antique settlement fabric survived almost unchanged the first Arab conquest of north Africa; such research is debunking catastrophist narratives on the first wave of Arabs in North Africa.

It would be constructive to compare the experiences of study on the evolution of settlement with those about Sardinia; they focused on the traumatic events of XIIIth and XIVth centuries, and on the institutional causes of rural depopulation, but also on the integration of these data acquired with the new contributions from geoarchaeology and paleoclimatology

Parole Chiave

Medioevo; Sardegna; Nord Africa; insediamento; villaggi; città.

Riassunto

Recenti ricerche sui territori nord africani fra l'età classica e la conquista araba mettono in evidenza come il tessuto insediativo ereditato dall'età romana e tardo antica sia sopravvissuto quasi inalterato alla prima conquista araba del nord Africa; tali ricerche sfatano luoghi comuni catastrofisti alla prima ondata araba nel nord Africa.

Sarebbe costruttivo poter confrontare le esperienze di studio sull'evoluzione dell'insediamento con quelli sulla Sardegna, che si sono concentrati sugli eventi traumatici del XIII e XIV secolo, e sulle cause istituzionali dello spopolamento rurale, ma anche sull'integrazione di questi dati acquisiti con i nuovi apporti della geoarcheologia e della paleoclimatologia.

Keywords

Middle Ages; Sardinia; North Africa; Settlement; Villages; Cities.

In a recent contribution, the archaeologist Corisande Fenwick (2013), on the basis of some recent archaeological research conducted on the sites of ancient cities and rural centers of North Africa, called into question the traditional and consolidated axiom according to which the Arab occupation of North Africa in the 7th century upset the urban and rural settlement inherited from previous eras. This same concept, relative to the cities, was then taken up and expanded by the same Author (Fenwick, 2018). The archaeologist, on the other hand, on the basis of literature on the excavations and taking into consideration the most recent archaeological research and studies on material remains, hypothesizes that the 7th century Arab conquest (Wickham, 2005) was not catastrophic to the rural and urban settlements but that, on the contrary, a certain continuity could be found between the settlements in Roman and Byzantine times and the one following the conquest.

This observation, stated here epigraphically, but more extensively presented in the contribution mentioned above, pushed me, in the occasion of *The Peace-Building Conference between East and West XI-XVI* (Cairo, October 27, 2016), to propose a comparison between the studies on the North African settlement realities, from late antiquity to the late Middle Ages, and those on the settlement in Sardinia in the same chronological period; a topic which I had also previously dealt with. It could, in fact, prove to be very interesting and stimulating to compare the moments of continuity, evolution and catastrophic upheavals in the framework of human settlement between two areas so geographically close in the Mediterranean and yet so distant from other points of view.

Therefore, in order to make this comparison easier, here I will propose a brief *overview* on the evolution of the settlement in Sardinia from late antiquity to the late Middle Ages and the most significant recent literature on the subject, in hopes, in the near future, to compare these studies and research to similar ones conducted on the various North African and, in particular, Egyptian realities.

In Sardinia, between late antiquity and the early Middle Ages, the settlements were articulated in urban centers, mainly located along the coasts - Karales, Nora, Sulci, Tharros, Cornus, Forum Traiani, Turrus, Olbia (Casula, 1989; Mastino, 2005, pp. 240-250, 266-269 and 295-301; Spanu - Zucca, 2011; Martorelli - Mureddu, 2013; Bonetto - Ghiotto, 2013; Biccone - Vecciu, 2013; D'Oriano - Pietra, 2013) - which were slowly entering a crisis with the collapse of the typical Mediterranean unity, and in a rural population mostly scattered throughout the territory, gathered into tiny demes near the productive activities and the communication routes of the *cursus publicus* (Fois - Spanu, 2013, pp.

533-534), through which a part of the products of agriculture, breeding and fishing flowed into the ports in order to enter the mercantile circuits of the Mediterranean.

In fact, since late antiquity the Sardinian rural territory had been characterized by the presence of a dense and articulated network of small settlements and rustic villas, found in the *latifundia* (large estates) and farms of the Sardinian countryside (Mastino - Zucca, 2016); ecclesiastical and imperial *latifundia* and farmsteads belonging to private citizens, which, it is thought, exchanged hands from *the Roman Caesaris patrimonium* to that of the Byzantine emperors (Gallinari, 2016), through Vandalic domination, without major changes (Fois - Spanu, 2013).

A part from the institutional upheavals, with the end of the Roman control over *the Sardiniae Province* and the occupation of the Vandals which was not very incisive, (Casula, 1994, volume I pp. 184-201, Lulliri - Urban, 1996, Liccardi, 2012), a certain reorganization of human settlement in Sardinia was probably caused by the so-called Little Ice Age which, starting from the 6th century, upset the climatic conditions in Mediterranean Europe, including Sardinia, for some centuries (Carrozza - Devillers - Marriner - Morhange, 2014; Ardu, 2017, pp. 545-546).

The most blatant effects of the drastic and, in reading contemporary sources, dramatic climate changes were endured by the coastal towns of antique origin, which were slowly abandoned, at first by the inhabitants who sought refuge in the inland areas, and later by the government and religious authorities (Ardu, 2017, pp. 539-562). Moreover, the coastal cities were also exposed to the dangers coming from the sea, especially after the end of the Roman Empire and, above all, after the foray of the Arabs into the Mediterranean (Pirenne, 1997; Gallinari, 2017).

The rural settlements, however, continued in their evolution, with small variations in the form of distribution throughout the territory, but often maintaining the same economy they had had in previous centuries, although no longer tied to the supplying of goods to coastal cities, but instead dedicated to self-consumption (Fois - Spanu, 2013, p. 538). These small rural settlements, especially those located in the immediate hinterland of the ancient cities, naturally drew new energy and welcomed the populations that had left the big coastal centers in search of less exposed areas.

The discussion, on the other hand, becomes more complex for the internal mountainous areas of the island, for which the absence of sources does not facilitate descriptive hypotheses, all throughout the entire Middle Ages, and the articulation and the forms of human settlement, at least during the so-called dark ages, are almost unknown (Serreli, 2015).

In these small towns, starting from the areas close to the coasts and gradually moving inward, Christianity spread (Turtas, 1999; Martorelli, 2012). Considering the almost complete lack of written sources, often the existence of late ancient villages is attested by the remains of early Christian places of worship or by the permanence of the cult or the ancient toponym.

With the appearance of the first sources, both epigraphic (Coroneo, 2000; Coroneo, 2011) and documentary (Blasco Ferrer, 2003), between the end of the 10th and throughout the 11th century, we can again shed light on the institutional and settlement structuring in Sardinia; thanks to these sporadic testimonies, we have the certainty that in the Sardinian territory, now detached from the Byzantine Empire, four State entities were formed (between the end of the 10th and the first half of the 11th century), known as 'Giudicati', and having the form of a Kingdom: Càlari, Torres, Arborèa and Gallura (Casula, 1994, volume II; Gallinari, 2010; Serreli, 2013).

These early documents, which became increasingly more numerous in the 12th and 13th centuries, among other things, tell us that, in the first Giudicati's age, the settlement was already firmly established. The sources precisely define the various nuclei: *ecclesiae*, *curtes*, *domus*, *domestias*, *donnicalias*, and *ville*. For each of the 'giudicali' States, these demi-nuclei appear well organized, perfectly integrated into the institutions and in perfect symbiosis with the resources of the territory in a self-sufficient regime; literature has now recorded the evidence of these medieval settlements (Livi, 2014), at least in the current state of our knowledge. This means that there was a certain continuity in organization and settlement up to the full medieval period, with small modifications or shifts in location, while those that had been the imperial estates (*latifundia*) belonging to Byzantium (by now too distant) had been passed on to the families who had inherited the power and now governed the land in a sovereign way.

Probably, the expedition and momentary invasion, between 1015 and 1016, of the contingent led by the famous Mujāhid ibn Abd Allāh al Āmiri, prince of Denia and lord of the Balearics, in some areas of Sardinia (not yet specified), caused devastation which at the moment cannot be better defined (Serreli, 2016). It is likely that this undertaking caused dramatic destruction in the small villages involved, probably also affecting the settlement dynamics of those places and causing abandonments of various duration. Unfortunately, however, the already lacking documentation on the expedition, does not give us any details on the territories involved, on the dynamics or on the impact of this conquest on settlement.

In the meantime, once these difficult and unspecified contingencies were overcome, in every 'giudicali' State the system of settlements already appears well defined in the second half of the 11th century, and equally well organized

in an articulation of *ecclesiae*, *curtes*, *domus*, *domestias*, *donnicalias* and *ville*, not yet completely defined by literature but certainly suitable and functional to the type of economy of self-sufficiency. The organization of these rural settlements has been defined as ‘*sistema domus*’ (De Santis, 2002), that is an articulated system of vast noble properties – of the Church or of the families of the richest and most influential figures in society and of the ruling families themselves in the four kingdoms of Càlari, Torres, Arborèa and Gallura, in which we find Sardinia divided at least from the 11th to the 13th centuries – founded on small and large farms with a servile base (Soddu, 2017), flanked by a series of settlements (*villas*) having a sort of legal personality and their own representatives in the State institutions. The inhabitants of these demi-nuclei produced what was strictly necessary for their diet, integrating products of the land and livestock with what could be obtained from the resources of the so-called *saltus* woods (wood, fruit, game). What was produced in excess was destined by the landowners – be they the Church, the wealthy influential people, the ruling House or State heritage – to the construction and maintenance of public buildings such as castles and, above all, churches, those splendid Romanesque buildings, some of which our towns still conserve and can be found scattered over the countryside. They were simply the parish churches of many rural populations that have disappeared today (Serreli, 2009 c, 113).

This complex system, in balance with the natural resources and the economy of the territories, was gradually rationalized, also thanks to a certain initiative of planning of the settlement or, at the least, the encouraging of population even in nearby uninhabited areas, which were sporadically managed by the sovereigns of each of the four medieval States, either through the foundation of *villenove* (new settlements), or through donations to Benedictine monasteries or, through religious foundations, to the main mercantile powers of the western Mediterranean (Serreli, 2009 b).

The opening of the Sardinian ‘*giudicali*’ kingdoms to the markets of Pisa and Genoa, between the 12th and 13th centuries (Casula, 1994, volume II pp. 619-664), however, caused a sort of trauma, or upheaval, in the now established settlement system developed in the institutional and economic bed of the ‘*giudicali*’ States and which was the reflection of a consolidated economic and, above all, social organization, probably inherited from previous centuries.

This subversion showed itself slowly. As the countryside repopulated, without substantial institutional changes, at least in the beginning, the Republics of Genoa and Pisa, together with the most influential families of these municipalities, put their hands on the productive centers and raw materials of the countryside of the ‘*Giudicati*’ (Serreli, 2009 a).

With the inclusion of the products from the Sardinian countryside in the great Mediterranean markets, every effort was made to increase production and therefore the profits of the merchants (Tangheroni, 1981); with this system, Pisa undermined the 'sistema *domus*' by breaking the delicate balance in which the various settlements were organized (*ecclesiae, curtes, domus, domestias donnicalias, ville*) each with its own role and its peculiarities within the extensive land system. As a result, the delicate socio-economic mechanisms between the population and the territory that had been operating for centuries in the settlements of the four 'giudicali' Kingdoms of Càlari, Torres, Arborèa and Gallura (Serreli, 2009c, pp. 113-114) were also overturned.

The effects of this trauma in the evolution of the settlement multiplied starting from the second half of the 13th century when, with the end of three of the ancient autochthonous 'giudicali' Kingdoms (Càlari in 1258, Torres in 1272 and Gallura in 1288) - the municipal Republic of Pisa directly controlled these territories and incorporated them into its foreign domains. Only the Kingdom of Arborèa remained, until 1409-1420 (Casula, 1994, vol. II), keeping alive the ancient civilization of the 'Giudicati'.

The increase in the production of agriculture and breeding and consequently, of the population in rural villages, led to the crisis and the break down of the social system in the villages of the four 'giudicali' Kingdoms and, therefore, of the servile emancipation (Simbula - Soddu, 2015). Furthermore, we must not forget the attractiveness of the new cities, born or developed in the 13th century, above all thanks to the increase of the mercantile activity and, in some cases such as Villa di Chiesa (the current Iglesias), due to the wishes of the Pisan lords (Tangheroni, 1985). The people who, attracted by the new opportunities for emancipation and enrichment, went to live in the new urban centers of Castel di Castro of Cagliari (Urban, 2000), Oristano (Mele, 1999), Sassari (Rovina - Biccone, 2013) or Villa di Chiesa, or in their appendices, abandoned and left depopulated the villages that were the most fragile and most distant from the directional, institutional or economic centers.

This new social mobility, activated by the opening of Mediterranean markets and new industrial activities, such as extraction and mining in the *former curadoria* of Cixerri, is well documented in the periodical tax censuses that the Municipal Republic of Pisa carried out in their Sardinian domains (Serreli, 2014, page 274 note 10).

From these tax censuses there also emerges another aspect of primary importance: Pisa and its functionaries considered all settlements subjected to tax levies in the same manner: the distinction between *ecclesiae, curtes, domus,*

domestias, *donnicalias* and *ville* no longer exists or at least is not perceivable from these sources; whereas it had been very clear in the previous documentation of the four 'giudicali' Kingdoms (11th-13th centuries). The deconstruction of the previous settlement system, evident in the Pisan documentation that defines the inhabited areas almost exclusively as *villas*, is now a done thing; there no longer exists that complex and articulated '*domus* system' in which the role of each settlement, small or large, was well defined in the context of an economy devoted to self-subsistence within the estate. This new and simpler settlement organization was functional to a more careful control of the productive potential of the territory and therefore of the levy of taxes, allowing for a wider circulation of resources and of men, leading to the formation of larger settlements at the expense of the weaker ones which were distant compared to the lines of commerce. With three of the four 'Giudicati' out of play by the second half of the 13th century, the rulers of Pisa had imposed new economic models and a new social structure in their territories, which led to more or less profound changes in settlement organization.

But, despite the changes described above, which led to the disappearance of some of the most fragile villages and the centralization of populations around centers of major economic and institutional importance, the settlement of the territories of Pisan Sardinia that the Crown of Aragon had started to conquer since 1323, was substantially similar to that inherited from the four 'giudicali' Kingdoms: just under six hundred villages scattered throughout the territory controlled by Pisa to which are added three hundred villages in the territories of the Kingdom of Arborèa and about one hundred villages in territories controlled by the Doria and Malaspina (Livi, 2014); villages that were no longer distinguished by function within the estate. In addition, the urban centers of Castel di Castro of Cagliari, Sassari, Villa di Chiesa, Alghero, Castelgenovese, Bosa and, of course, Oristano, the capital of the ancient Kingdom of Arborèa, had developed and had acquired a leading role (Sorgia, 1984).

This is the panorama of what the troops of Infante Alfonso faced in 1323. Indeed, the Catalans were broadly aware of this structure, having come into possession of some censuses of the Pisan holdings on the Island. And it was this same knowledge that allowed Aragonese King James II, through the Infante Alfonso, to delineate, even before beginning military operations, the organization to be assigned to the territories he was about to conquer, which was based on real cities, a State administrative system and rural areas, and feudal concession of the revenue of the various villages to those who, directly or indirectly, had participated in the conquest of the Pisan territories on the

island (Olla Repetto, 1984). These territories were transformed, on 19 June 1324, into the Kingdom of 'Sardinia and Corsica', a new State belonging the Crown of Aragon (Casula, 1990).

In fact, it was expected that the feuds would be assigned to those who, with men, means and money, had helped the Crown in the operations of war and in the realization of the Kingdom of 'Sardinia and Corsica'. Far from the values and the function of feudalism of the origins in the rest of Europe, these subdivisions were none other than the granting of the income of one or more villages with the related territory (*benefit*) to reward those who had contributed to the conquest. The *benefit*, together with the other classical elements of feudalism, made these concessions, a sort of partition of the territory among various lords who, in exchange, would guarantee the newly acquired Kingdom a certain stability and military defense (Serreli, 2001).

However, the planned feudalization of the territory proved to be rather difficult. There were considerable problems under the territorial aspect: in addition to sporadic cases of villages being enfeoffed twice to two different lords, the concessions of the individual *ville* were made without taking the territorial realities of belonging and the old districts of 'Giudicati' into account. If until then, even under Pisan control, the administrative circumscriptions of 'Giudicati' origin (reflecting the geomorphological and productive differences, as well as traditions, dating back to the Nuragic period) had survived, the Sardinian feuds of the Crown of Aragon did not take these realities into account and they were systematically dismembered.

That is to say, the territorial organization that for centuries had held together the villages in various diverse sub-regions of each single 'giudicali' Kingdom, in an economic and social balance was definitively dismembered. This caused devastating social consequences to the rural populations with the drastic, and in some ways violent, depopulation and abandonment of numerous villages in the newly conquered territories.

What was highlighted above could only trigger dramatic consequences also from an economic and settlement point of view (Oliva, 2010; Serreli, 2014). The high tax burden and the immutability of the tax contingents established for each village, unchanging even in spite of the economic crisis and demographic decline caused by the wave of the plague in 1348 and the state of instability and war on the Island between Arborans and Sardinian kingdom, caused the depopulation and, therefore, the disappearance of many small villages, where the last inhabitants preferred to move to the more populous ones in order to divide the tax burden with the other inhabitants (Murgia, 2000). In reality, it was also the war strategies of the contenders in the field, Arboreas and Aragonese - who in the second half of the 14th century were now openly

contending the total control of Sardinia – which, in many cases, changed the settlement structure in some areas of island, devastating some settlements or imposing the forced relocation of entire communities to other villages (Serreli, 2009 b, pp. 360-361) for their military strategies.

But, besides the institutional causes and, therefore, also the economic and social ones, brought by the Pisan influence first and from the Catalan occupation subsequently, with the birth of the Kingdom of ‘Sardinia and Corsica’ and the imposition of the feudal regime in the conquered rural territories, and in addition to the contingent causes of wars and epidemics (Tangheroni, 1971-72), recently we have also started to take into account the role played by the geoarchaeological and paleoclimatic factors as concauses contributing to rural depopulation and the abandonment of several villages (Serreli - Melis - French - Sulas, 2017). It is known that the last years of the 13th century were characterized by a very high rainfall, ascertained at least in the area of the Balearic Islands (Balbo - Puy - Frigola - Retamero - Cacho - Kirchner, 2018); but it is very probable that this extraordinary rainfall also affected the nearby Sardinia in the same period, contributing to creating negative conditions which, together with the effects of feudalization and the continuous state of belligerence and epidemics, caused the abandonment of the most fragile villages until the disappearance of more than half of the settlements in the territories belonging to the Kingdom of ‘Sardinia and Corsica’.

In conclusion, it can be said that the retrograde and anachronistic feudal regime imposed by the Catalans in a reality totally unprepared to absorb it, perhaps accentuated by climate changes, which negatively affected the agricultural based economy, caused much upheaval and drama to the rural populations and gave the fatal blow to the socio-economic system and the settlement organization intimately linked to it, which had survived almost unchanged since late antiquity, causing the abandonment of over half of the villages in the territories of the former ‘giudicali’ Kingdoms of Càlari, Torres and Gallura. In the Kingdom of Arborèa, which survived until the first decade of the 15th century, however, the ‘Giudicati’ organization resisted the first impact of feudalism, so much that the settlement network, made up of small close villages scattered throughout the territory, survived the crises of the 14th and 15th centuries and managed to reach the present day almost unchanged.

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