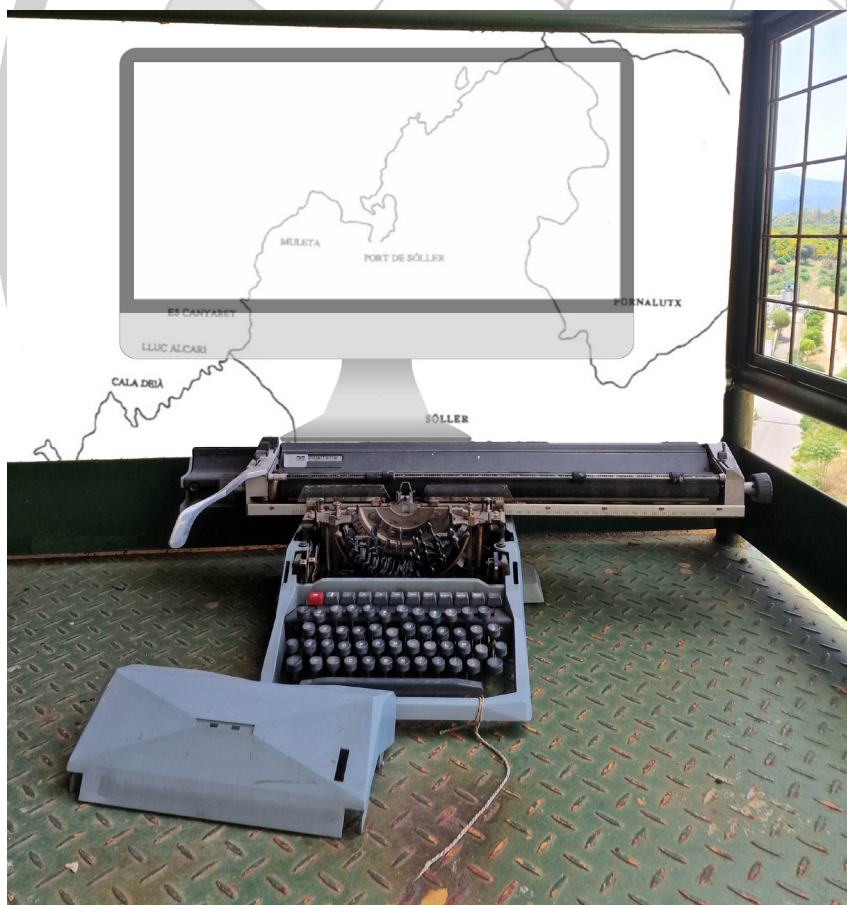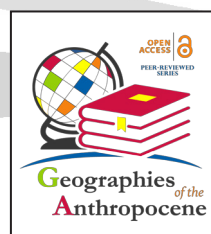# INFORMATION TECHNOLOGIES AND SOCIAL MEDIA:
# NEW SCIENTIFIC METHODS FOR THE ANTHROPOCENE

*Gaetano Sabato, Joan Rosselló (Editors)*

Preface by Javier Martín-Vide
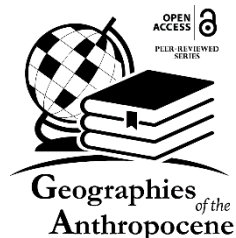
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Geographies *of the* Anthropocene

# Information Technologies and Social Media: New Scientific Methods for the Anthropocene

Gaetano Sabato, Joan Rosselló

*Editors*

*Information Technologies and Social Media: New Scientific Methods for the Anthropocene*
Gaetano Sabato, Joan Rosselló (Eds.)

is a collective volume of the Open Access and peer-reviewed series
"Geographies of the Anthropocene"
(Il Sileno Edizioni), ISSN 2611-3171.

www.ilsileno.it/geographiesoftheanthropocene

ISBN 979-12-80064-36-3

*Vol. 5, No. 1 (May 2022)*

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**Section IV**

***Multidisciplinary research***

# 4. New technologies and historical research of migrations. An example in the Sóller valley (Mallorca)

*Antoni Quetglas Cifre[1]*

## Abstract

In the past decades, historical research has been helped by the arrival of new technologies to the archives repositories around the world. Thanks to digitalization projects, a large number of data is nowadays available to researchers, especially sensible records, often difficult to see for preservation causes.

In this chapter, we would like to expose how the technology improved the research of migratory movements, taking as example the case of the valley of Sóller, located in the island of Mallorca, and a place with an important migratory flow towards America and France.

**Keywords:** Mallorca, migration, digitalization, local history, Sóller

## 1. Introduction

Local history research, especially since the 70's of the past century, has experienced a large increase, thanks to the interdisciplinary focus that has arrived to the historical sciences and the use of other sciences, such as sociology, anthropology, economy or geography. In that sense, a small place like a town, a hamlet or a city, which is a historical result from a past place and time, can be studied from a micro point of view, using a detailed research that must be multidisciplinary. Furthermore, local history allow us to study the past of small locations, offering a vision of the single and collective motivations, which have caused the historical evolution of such a place and can be really interesting for the general public (Casanova, 1999). There are different approaches to study local history, being two of them the most important ones: the Italian microhistory (with authors like Carlo Gizburg, Giovanni Levi and Carlo Cipolla) and the English model known as *History Workshops*.

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In this context, local history has become key to develop historical research in the territories that formed the ancient Crown of Aragón (Valencia, Aragon, Catalonia and the Balearic Islands). In this area, as in a large part of the Western Mediterranean, there was an important migratory movement towards America from the end of the 18th century until the end of the Second World War (1945). The colonial expansion, the industrialization and the world wars, as well as internal factors, specific to each area, defined the evolution of the migratory currents. The colonization favored the displacement of Europeans, in search of better economic conditions and facilities in obtaining land. As example, in Algeria there was a great availability of land, since natives have been deprived of the right to property, and European colons controlled bureaucracy. Industrial development was another key factor regarding migrations, in that case usually between European countries. The status of foreigner has a legal meaning that related to differences between workers' rights, thus explaining worst working and social conditions for those who were foreigners.

Since the end of the 19th century, some authors and historical schools have formulated theories in order to stablish laws or common trends explaining human displacements. Amongst such theories, maybe transnationalism or the study of societal networks can include analytical frameworks that allow reaching wider explanations. Even so, it should not be forgotten that there are multiple factors related to migration and all of them must be taken into account when studying such a complex process. Other key concepts such as *migratory chain, migratory network* and *societal network* give prominence to the migrants, showing them as people able to create survival strategies and to connect with other people living around them, thus allowing the creation of large societal networks, allowing them to maintain their societal and cultural trends while receiving the influence of local characteristics. Moreover, the concept of *migratory chain* is linked to the capacity to cope with the migratory process and the relationship network between families. It must be taken into account the idea of "societal area", which is larger than the origin area of someone but reaches, during the 19th century, a surface of around 10-20 kilometers away from the emitters centers.

Regarding individual decisions, it is difficult to know a main cause that could explain a migration. The societal context, as well as economic reasons and cultural and political ones as well, can influence a decision. To complicate the research, it is sometimes not something related to one person but has deep collective thoughts from a whole community. The existence of a societal network of relatives in the receiving country can help to decide. In

that sense, the so-called migration chains could become true networks attracting people, increasing then the number of departures towards new territories. Such networks became a key factor for selecting a place to move abroad. They even can determine the migratory process from origin to destination (García Abad, 2001). All of those relationships form one of the so-called complex social sphere (Jofre, 1997). Thus, these social spheres respond to a set of reactions and activities, which is what is called a cultural area, according to F. Boas. This is, in the words of Jordi Casassas, "'the historical, geographical and social space defined by lifestyles, value systems, behaviors, political convictions and common religious beliefs" (Casassas, 2006). From such idea, the study of a migratory process must be undertaken from both a microanalytical and macroanalytical point of view, that is to say, to present the problem at a local level but within a general and international level.

It was the Annals, a French school of historiography, the first to assume the practical importance of a quantitative and serial history, supported by computer-generated calculations. Besides the possibilities of performing all kinds of serial and quantitative calculations, new technologies have changed the ways to communicate between people, within the fields of academia and research, as well as the location of information, documentation or bibliographic references amongst other changes. In that sense, we have witnessed the expansion of these resources through the Internet in recent decades. It has gone from data that could be found on static webpages to multiple and varied possibilities for interaction, collaboration and research: social networks, virtual encyclopedias-like Wikipedia-, websites of official agencies or institutions–archives, libraries, etc.- and private blogs.

Historical research using online sources is currently a valuable option to study events from the past, even if potential and limitations of the available data should be accounted for (Angulo Morales, 2006). Population variability is studied from online official databases that allow comparison between far away countries for birthrate research (Grande and García González, 2019) or worldwide cancer related mortality (Ferlay *et al*., 2019). Moreover, research about migrations using traditional resources are complemented by new technology, such as online archives (Tjaden, 2021), allowing wider scale studies with large spatial scopes, like Europe for example (Zapata-Barrero and Yalaz, 2018).

## 2. Migration movements in Sóller

This chapter would like to present, within the framework of the local History trend, the available sources that can be find to study migratory processes. Such analysis will be developed in Sóller, a specific area of Mallorca, the largest island of the Balearics, where the migration process was a key factor to define the political, societal and economic evolution of the area between the 19$^{th}$ and 20$^{th}$ centuries.

Within the area, two municipalities can be identified, Sóller and Fornalutx. Both share a common geographical space, defined by its isolation from the rest of the island. The valley is located in the middle of the Tramuntana mountain range, where the highest mountains of the island are found surrounding both municipalities. On the coast side, a small bay allows a seaside exit from the zone. Until the 19$^{th}$ century, Sóller and Fornalutx were a single entity, but Fornalutx was granted independence in 1837 thus forming a new town. Historically, the valley had a land distribution based on the small property and an economy related to trading- with fabric and agricultural products as oranges and olive oil as the main trades- thanks to a small fabric industry. In that sense, there was not, as common in Spain, a nobility dominance. Instead, the economic and social power resided on traders, industrialists and landowners.

Migration from Sóller as a historical phenomenon started during the decade of 1830, when Joan Marquès Marquès –*Alic*- moved to Puerto Rico. He is likely the first migrant from the valley. This move stablished the basis to a migration process towards America, which lasted until the first half of the 20$^{th}$ century. Two main phases of the process can be identified, both related to different causes. On the one hand, a first phase is related to individual causes, as the number of migrants is small. A second phase started in 1860, when the relevant reasons caused a development of the migration flow. From the first years of the 20$^{th}$ century, the process became a phenomenon deeply imbibed in the local society, being an important element of the social and economic system of the valley. Factors related to migrants' emission and attraction (*push-pull model*) must be considered as well. International factors can work to attract migrants while internal causes can cause the expulsion of people on certain times[6]

By mid-19th century, the local economy was highly dependent of the orange trade and the cotton production, thus creating a vulnerable system when facing changes on the market economy. During the 1860s, an important crisis affected the economy, a fact that is related to the increase of the migratory flux. In that sense, the migration movement is linked with a

breakdown of the local economy axis but we shall not forget sociological aspects.

Figure 1 - *Family of migrants in Puerto Rico. Source: Sóller Municipal Archive.*

In this respect, the migration process was a part of a family plan as the migrants completed the family income, thus avoiding the deterioration of living standards. Such fact is clear during the first waves of migrants, when the familiar bonds dominated the migratory networks. Once the agricultural and manufacturing crisis are overcome, migration became a key part of the economic system of the valley as industry was funded by capital arriving from abroad. At the end of the 19th century, the main migratory trend changed towards Europe, mostly to France and francophone areas of Germany, Switzerland and Belgium. This trend existed until the 1930-1940 decade and they were cut off by the Spanish Civil War first and the Second World War afterwards.

## 3. New research options: Internet available resources

Regarding the migratory phenomenon affecting the valley of Sóller, the first research study appeared during the 19th century. It was the work of a local historian, priest Josep Rullan i Mir, who wrote *Historia de Sóller en sus relaciones con la general de Mallorca* (1875), which was considered as the most important one of the epoch, because it gave data about the town history and showed how the status of research in Mallorca was during the 19th century. Other works referring to migration appeared on the same

epoch, written by foreign travelers and researchers like Archduke Lluís Salvador d'Àustria (in his book *Die Balearen*).

After a long period without research, at the end of the 1960s local investigation revived due to the arrival of university scholars, who combined with local historians following the historiographical trends of the period. Nonetheless, it will be during the 1990s when a research focused on the migratory process will start. Different local historians like Dr. Plàcid Pérez Pastor (*Publicitat i emigració a un mitjà de comunicació local mallorquí: el setmanari "Sóller": 1925-1935*, Palma, Jornades d'Estudis Històrics Locals, XII, IEB, 1993), Dr. Antoni Vicens Castanyer (*Sollerics a França (1870-1940). Passions i Quimeres*, Palma, El Tall, 1993; *Jeroni Frontera, matemàtic. Un mallorquí a Paris durant el Segon Imperi*, Palma, El Tall, 1995), Catalina Mª Bernat Joy (*L'anhel de tornar a Sóller. Emigrants: canvi social i progrés econòmic, Sóller*, El Gall Editor, 1999) or Joan Miquel Castanyer Sastre (*Emigración y capital: circuitos de financiación de la industria de Sóller y su coyuntura en el periodo 1939-1945*, Palma, Trabajos de Geografía 38, Universitat de les Illes Balears, 1984) published papers or books about migration. Some other research was done in places were migrants arrived, with prominent works from Dra. Astrid Cubano Iguina (*Un puente entre Mallorca y Puerto Rico: la emigración de Sóller (1830-1930)*, Colombres (Asturias), Colección "cruzar el charco", Fundación Archivos Indianos, 1993) or Anita Gómez Arbona (*L'émigration majorquine vers la France de 1880-1940. Un cas: Soller*, Université Paris X Nanterre. U.F.R. d'études ibériques et latino-americaines, 1990).

In 2013, the author of this chapter defended his PhD thesis at the University of the Balearic Islands. Titled *Societat, cultura i política a l'època dels moviments migratoris cap Amèrica i Europa. El cas de la Vall de Sóller (1830-1936)*, its main objective was establishing the causes of the migratory process from Sóller and Fornalutx, the spatial distribution, the number of departures and, especially, the effects that such process caused in the remaining population, as it was a key factor of social and economic transformation.

Traditionally, to study a migration process, the sources were diverse: archives, historical press, oral sources and publications. Due to the arrival of informatics systems, historians have developed wider and accurate studies and analyses, encompassing different fields such as Economy, Demography, social structures and so on. Another key fact from the past decade has been the arrival of thousands of documents on the net, from public and private institutions. The improvement and underselling of scanning systems,

coupled with the modernization of internet related infrastructures (optical fiber, servers) has had as a result that institutions invest on digitalize their sources, increasing every year the number of public archives that are online, allowing access to all the documents or to data directories. In that sense, a researcher has access to information around the world with only a click with his mouse.

Regarding the research area and its migration process, there is a large amount of data available online. The starting point are the archives from public institutions where databases guide the historian towards available sources to study a particular issue. Some international examples are the *Repositories of Primary Sources* or the French *Arxives Nationales* and the project *Mémoire des Hommes*.

Within Spain, there is the portal *Movimentos Migratorios Iberoamericanos*, created by the *Subdirección General de los Archivos Estatales del Ministerio de Educación, Cultura y Deporte* of the Spanish government. Its main objective is to foster and facilitate access to documentary sources regarding Spanish migration to Latin America in the contemporary epoch. The portal offers an open and free access to digitized images and documents. It is a database created from the systematic discharge of data from different archives, such as the Archivo General de la Administración and Archivo General de Indias from Spain, the Archivo General de la Nación de México. It also includes data from the Archivo General de la Nación de Uruguay, the Archivo General de la Nación de la República Dominicana and the *Fundación Complejo Cultural Parque de España de Argentina*.

To study the migratory process from Sóller, a research must be done using the "place of birth" field. In that case, 15 results are available, everyone with an identifying file that includes data like age, sex, date of birth and occupation. Such data allows the researcher to create tables, graphs and other quantifying and comparative work.

Another Spanish portal is called *Portal de Archivos Españoles* (PARES) (Figure 2). A platform gathers all the data from statewide archives that are operated by the Ministry of Culture and Sports. It includes sources like Arxiu de la Corona d'Aragó, Archivo General de Simancas, Archivo General de Índias, etc. PARES allows an access to the inventory of resources but also to descriptive files and digitalized images from parts of the documentary data conserved on the different archives, data that is increasing yearly.

Figure 2 - *Screenshot of the PARES portal.*

Another online source from Spain, with statistical data at different levels, from national to local, is the *Instituto Nacional de Estadística* (INE), where the census of population for each Spanish municipality from 1852 to our days are available (Figure 3). A similar source regarding the Balearic Islands is the web of the *Institut Balear d'Estadística*, where data from the past decades is freely available.

A private project to be praised is the one from the *FamilySearch* organization, related to the *Genealogical Society of Utah*, which depends of the Mormon Church. The platform allows the access to worldwide genealogical data, the result of a great work of digitalization of archives from municipalities, provinces, counties and so on. As example, the migration files from the National Archive of Brazil are available.

INEbase / Demografía y población / Alteraciones de los municipios en los Censos de Población desde 1842

Nueva selección    Descargar como Excel    Ir    Metodología    Publicaciones    ?

**Alteraciones de los municipios en los Censos de Población desde 1842**

Provincia: 7 Balears (Illes)    Municipio: 07061 Sóller

| | Censo | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1842 | 1857 | 1860 | 1877 | 1887 | 1897 | 1900 | 1910 | 1920 | 1930 | 1940 | 1950 | 1960 | 1970 | 1981 | 1991 | 2001 | 2011 |
| Población de Hecho | .. | 8053 | 8355 | 7915 | 7988 | 8023 | 8026 | 8627 | 8752 | 8830 | 10586 | 9377 | 9473 | 10145 | 9693 | 10021 | .. | .. |
| Población de Derecho | 7212 | .. | .. | 8340 | 8594 | 8749 | 8890 | 9828 | 10347 | 9881 | 10557 | 9279 | 9444 | 9875 | 9563 | 10238 | 10961 | 13882 |
| Hogares | 1571 | 1862 | 1897 | 1965 | 2131 | 2165 | 2194 | 2527 | 2739 | 2783 | 2878 | 2962 | 2687 | 3572 | 3120 | 3674 | 4426 | 5245 |

Nueva selección

NOTAS:
Los símbolos se describen en la metodología
.. Falta de dato o inexistente.
En el **Censo de 2001**, la población que aparece es la población residente, equivalente a la de derecho.
La línea de **hogares** recoge conceptos parecidos pero no idénticos en cada Censo.

Figure 3 - *Screenshot of the INE web page with available data.*

At a regional level, the University of the Balearic Islands (UIB), who created the *Plataforma d'Arxius Històrics de les Illes Balears*, where all the databases of the municipal archives of the islands would soon be included.

Another source to study migrations from Sóller is the historical press. At the end of the 19th century, local publications appeared on weekly basis. The main one was the Semanario Sóller, still published today. Other newspapers were *En Xerrim*, *El Pueblo* and *La Voz de Sóller*.

Two online platforms give access to the press coverage. One is national, the *Biblioteca Virtual de la Prensa Histórica*, funded by the Subdirección General de Coordinación Bibliotecaria from the Ministry of Culture and Sport. It is an online library with a large repository of newspapers and journals from all Spain. By numbers and quality, it is the main source of digitized press from Spain. In that sense, it has become an important tool for historical, sociological and cultural researchers. Amongst the repository, local newspapers like *Sóller*, *El Pueblo* i *En Xerrim* can be found.

A regional platform is the one created by the University of the Balearic Islands, known as *Biblioteca Digital de les Illes Balears*. It includes all kind of publications, from scientific journals to PhD thesis, archives documents and a large library of local newspapers, with a complete collection of the Semanario Sóller weekly from 1885 and 1939 (Figure 4).

**Sóller. Setmanari d'informació local**

GRUP SERRA · Ajuntament de Sóller · UIB Universitat de les Illes Balears · Amb el suport del Departament de Cultura, Patrimoni i Esports Consell de Mallorca

Aquesta publicació va néixer de l'obstinació de Joan Marquès Arbona, qui ja havia treballat com a periodista en el Semanario de Sóller, publicació periòdic que es va publicar a Palma durant uns mesos de 1884. Joan Marquès va veure el potencial i la necessitat d'establir un periòdic a la Vall, conscient del creixement econòmic, social i cultural que vivia aquesta petita ciutat gràcies al comerç de la taronja, el capital emigrant i la industrialització dels teixits.

Alhora, Joan Marquès va muntar una imprenta i una llibreria per tenir més capacitat de negoci. Foren dos dels principals erudits locals, mossèn Josep Rullan i Mir i Joan B. Ensenyat Morell els qui més varen ajudar a tirar endavant la idea. Alhora Marquès va sol·licitar la col·laboració dels emigrants sollerics establerts a Europa i Amèrica, ja que considerava que un setmanari local podia tenir una gran acceptació.

L'onze de juliol de 1885 sortia el primer número del setmanari Sóller, subtitulat Periódico semanal de intereses materiales que ben prest canvià per Semanario independiente. Malgrat les reticències inicials, la publicació va tenir una gran acollida i va resultar una gran eina de difusió arran de les inundacions que es varen produir l'octubre d'aquell any a la Vall.

A partir de llavors la publicació va servir com a mitjà d'expressió de les diferents entitats del municipi. Els primers anys de vida el setmanari va tenir quatre planes i un tiratge, que es va mantenir estable a totes les èpoques, d'entre 1.500 i 2.500 exemplars. El desembre de 1889 es va suspendre l'edició del Sóller per millorar-ne la impressió, reprenent l'activitat el setembre de 1891.

L'any 1910, coincidint amb els 25 anys del setmanari, es canviar el format i amplià el nombre de pàgines. A l'Exposició Universal de Paris d'aquell mateix any es va adquirir una maquina més moderna per imprimir, la Pedalette, que funcionava mitjançant un motor elèctric i que es va destinar exclusivament a l'edició del Sóller fins el 1972.

Aquell mateix any 1910 va començar a publicar-se la secció "L'Agre de la Terra" que va ser tot un referent pels grans escriptors de l'època com Miquel dels Sants Oliver, José Mª Quadrado, mossèn Miquel Costa i Llobera, Guillem Colom Ferrà, Miquel Ferrà, etc.

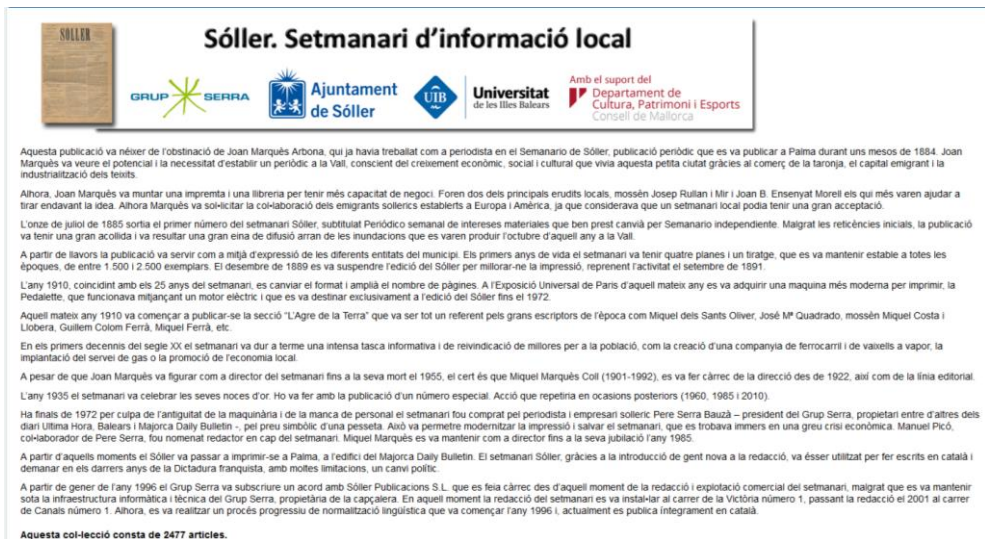En els primers decennis del segle XX el setmanari va dur a terme una intensa tasca informativa i de reivindicació de millores per a la població, com la creació d'una companyia de ferrocarril i de vaixells a vapor, la implantació del servei de gas o la promoció de l'economia local.

A pesar de que Joan Marquès va figurar com a director del setmanari fins a la seva mort el 1955, el cert és que Miquel Marquès Coll (1901-1992), es va fer càrrec de la direcció des de 1922, així com de la línia editorial.

L'any 1935 el setmanari va celebrar les seves noces d'or. Ho va fer amb la publicació d'un número especial. Acció que repetiria en ocasions posteriors (1960, 1985 i 2010).

Ha finals de 1972 per culpa de l'antiguitat de la maquinària i de la manca de personal el setmanari fou comprat pel periodista i empresari solleric Pere Serra Bauzà – president del Grup Serra, propietari entre d'altres dels diari Ultima Hora, Balears i Majorca Daily Bulletin –, pel preu simbòlic d'una pesseta. Això va permetre modernitzar la impressió i salvar el setmanari, que es trobava immers en una greu crisi econòmica. Manuel Picó, col·laborador de Pere Serra, fou nomenat redactor en cap del setmanari. Miquel Marquès es va mantenir com a director fins a la seva jubilació l'any 1985.

A partir d'aquells moments el Sóller va passar a imprimir-se a Palma, a l'edifici del Majorca Daily Bulletin. El setmanari Sóller, gràcies a la introducció de gent nova a la redacció, va ésser utilitzat per fer escrits en català i demanar en els darrers anys de la Dictadura franquista, amb moltes limitacions, un canvi polític.

A partir de gener de l'any 1996 el Grup Serra va subscriure un acord amb Sóller Publicacions S.L. que es feia càrrec des d'aquell moment de la redacció i explotació comercial del setmanari, malgrat que es va mantenir sota la infraestructura informàtica i tècnica del Grup Serra, propietària de la capçalera. En aquell moment la redacció del setmanari es va instal·lar al carrer de la Victòria número 1, passant la redacció el 2001 al carrer de Canals número 1. Alhora, es va realitzar un procés progressiu de normalització lingüística que va començar l'any 1996 i, actualment es publica íntegrament en català.

**Aquesta col·lecció consta de 2477 articles.**

Figure 4 - *Screenshot of the Sóller weekly newspaper.*

Another source to investigate migration processes are the bibliographical sources, published in the past or currently. Monographies, papers or unpublished research can be located online. As written before, there is a large corpus of local research about this subject, which can be completed with regional, national or international sources, thus allowing the comparison of processes, its causes and its effects. There is a large number of search engines and databases, such as *Dialnet*, from the La Rioja University, which includes hundreds of scientific papers. Another example is the *Biblioteca Digital Hispánica* of the Spanish National Library, where more than 2371 titles of references are included and allows searches using key words from various fields, like place of edition or date of edition.

Finally, oral sources are the weak link for historical research. There is much work to be done as the data is disperse and there is a lack of resources to gather it and to make it accessible to researchers.

## 4. Conclusions

To conclude, new technologies and digitalization processes as well as IT have helped historical research to reach a higher level of detail, allowing the completion of missing data, which could not be reached before due to a lack of connectivity and knowledge about available information. As an example, the study of a local migration process, from Sóller to Brazil between the

final years of the decade of the 40s and mid 50s has been presented. Initially, according to Local Registers between 1949 and 1970, only one man was living in Brazil, Joan Enseñat Julià, who worked as trader, and was the lone migrant living in that country.

Other archives from Mallorca, such as the Kingdom of Mallorca Archive, did not have documental data related to passports or travel abroad during the 40s and 50s. Thanks to the possibility of consulting, a database above mentioned allowed to identify as much as 71 Sóller inhabitants residing in the South American country. Even if this figure has a small importance on national terms, it is important on local terms, as it shows the movement of population related to the existence of a migration network based on neighboring knowledge.

It is clear that historians have at their disposal a large amount of sources that did not exist before or were only available on local basis or after a compulsory travel researching information. Even so, the discovery of new sources implies the need to analyze carefully the data to verify and contrast it. Moreover, some disadvantages exist. Firstly, the digitalization process can damage original documents and books. Another problem can be related to the obsolescence of digital archives, as there are no guarantees that a scanned document would be online forever. An important issue is the oral sources, as there is a large gap of availability of that kind of data. Finally, there is the need to form professionals to develop such activities, with an important economic cost that not always can be supported by developing countries were migrants were living.

To sum up, the Anthropocene-related improvement of technological applications has greatly helped the research from the historian's point of view. The wide variety of resources nowadays available allow undertaking researches that were not possible less than 50 years ago. Even so, there are issues related with those possibilities, issues to be studied and enhanced, in order to further pursue research venues and obtain better results in the future.

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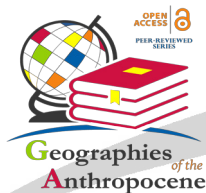https://ibdigital.uib.es/greenstone/library

The development of technology during the Anthropocene has affected science and the ways of "doing science". Nowadays, new technologies help scientists of several disciplines by facilitating knowledge and how to manage it, but also allow for collaborative science, the so-called "Social Science", where everyone can be a scientist and be involved in providing data and knowledge by using a computer or a smartphone without being a specialist. But is it really that simple? Actually, the daily and integrated use of different digital technologies and sharing platforms, such as social media, requires important reflections. Such reflections can lead to a rethinking of epistemologies and scientific paradigms, both in human geography and social sciences. This volume titled "Information Technologies and Social Media: New Scientific Methods for the Anthropocene" includes 10 chapters exploring some changes related to the way to do science with a multidisciplinary approach. From classroom experiences to the use of Citizen Science, from Artificial Intelligence use to how Social Media can help researchers, the book reflects on the ICT influence during the last few decades, exploring different cases, complementary perspectives and point of views.

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