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A Digital Cartoheritage for tourism and territorial enhancement around Rome. A case study.¹

Keywords: Antonio Nibby; William Gell; Campagna Romana; Tentamen Geograficum; touristic itineraries.

Summary: The paper would present the first results of the *Nibby project*, that aims to have several targets using Antonio Nibby and William Gell's works (XIX century) as source and tool of analysis. First of all, there was the digitalization of the opera to collect and preserve maps and books and manuscript notebooks. Then, there was the study and analysis of the documents to collect information about named places. The third phase would use that information to promote development actions targeted on Roman countryside, as economic factor and as cultural heritage.

Antonio Nibby and his works

In the course of the modern age, hardly any territory has been the subject of such an extensive topographic-descriptive literature as the “environs of Rome”. Over a considerably wide span of time, from the end of the sixteenth century to the early twentieth century, the *Campagna romana*, understood in its widest sense, has always been a popular destination – thanks above all to the seductive power of the vestiges of the *Urbs* – for large flows of visitors and travellers coming from various European countries, as well as a source of inspiration for nobles, diplomats, intellectuals, scientists, writers, painters, vedutists and engravers, attracted here by the magic of myth and the origins of the majestic classical civilization (Asor Rosa, Rossi, 2013).

Travel diaries, short stories, paintings, panoramic views and maps constitute precious documentary sources, through which it has been possible to evoke a landscape rich in historical and geographical contents, able to stimulate the imagination of the artists and intellectuals who travelled through it and, at the same time, to influence painting, architecture, fashion and knowledge among the most educated European classes.

As part of the *Grand Tour*'s educational journey to Italy, since the second half of the eighteenth century growing interest in the *Mirabilia Urbis Romae* sustained a flourishing antiques market and extensive publication of monographs and reports on the most important archaeological surveys and discoveries. Moreover, this also contributed significantly to a progressive widening of the traveller's gaze and the field of inquiry from the urban context (as the privileged place of stay of every traveller and vantage point to admire and touch ruins and classical relics) to the peri-urban and extra-urban ones, with an exponential increase in the execution of planned excavations which were poorly documented, difficult to locate, and frequently destructive (Masetti, 2017a).

In 1837, the topographer and archaeologist Antonio Nibby² published in Rome, at the Tipografia delle Belle Arti, the first edition of his *Analisi storico-topografico-antiquaria della Carta de'*

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¹ This paper is the joint work of the two authors. Paragraphs 1 is by Carla Masetti, paragraph 2 is by Arturo Gallia.

² For a detailed biography of Antonio Nibby see Peliti, 1966 and the more recent entry by Ruggeri, 2013. In particular, on Antonio Nibby as a topographer see Schettino, 2007a and 2007b; Barbanera, 2012; Valenti, 2012.

Dintorni di Roma, a massive three-volume geo-historical-archaeological work with a regional scope, destined to leave a deep mark among the studies of modern topography, to the point of being still very much consulted today.

Heir to a neoclassical, antiquarian and erudite culture, and at the same time a pioneer of modern archaeology, its author had already for some years been involved in the cultural debate of the time on methods of excavation and archaeological exploration. He had distinguished himself for his ability to combine, within his vast scientific production, an interest in archaeology and topographical studies with an equally flourishing dissemination activity, which had given its best results in the publishing of works such as travel guides or the so-called “Itinerari istruttivi” or “Viaggi antiquari” (Schettino, 2007b, p. 199; Catasta, 2013; Ruggeri, 2013).

Thus, the choice to use topographic maps, plans and *vedute* as tools for documentation and as accompaniment to descriptive texts had already been extensively experimented by the Roman professor since 1819, when he had illustrated the two volumes that made up his *Viaggio antiquario de' contorni di Roma* with a “mappa generale dei luoghi”, four double-page “carte particolari”, seven layouts of as many villas, and as many as thirty *vedute*. The high descriptive value that he attributed to images is also attested by the care with which in this work he selected and verified the quality of the iconographic material, availing himself of the collaboration of the most skilled and esteemed designers and engravers of the time (Nibby, 1819).

On the basis of the work's general purposes – stated by Nibby already in the title and presented in more detail in the *Discorso preliminare* that opens the first volume – the *Analisi* should in fact have been a brief text «a schiarimento», that is, aimed to shed light on the *Carta de' Dintorni di Roma* attached to it, following the example of the light booklet published in 1811 by Friedrich Carl Ludwig Sickler in support of his *Plan topographique de la Campagne de Rome* (Nibby, 1837, I, p. XI). The project, however, was soon abandoned by the author because of the large amount of materials and data that emerged from the initial site survey and from the archives, which had soon led Nibby to extend his research far beyond the classical era – the limit he had initially set – to include the medieval period; all these operations, which began in 1822, were in fact completed in 1837, after fifteen years of in-depth research (Masetti, Gallia, 2016).

The great value of the *Analisi* certainly derives from the careful philological insight with which the Roman archaeologist treated documentary evidence in reconstructing the history of archaeological heritage, integrating his own sound “historical” training with the findings obtained from a systematic site survey and an equally detailed identification of sites that were identifiable on the territory at the time.

However, the success of the *Analisi* is mostly due to the references to it found in much cartography, which is the result of Antonio Nibby's continuous and intense collaboration with geographer-antiquarian William Gell.³ After a preliminary site survey jointly carried out in 1822, they issued three versions of the book before publishing the fourth and last edition in 1837.⁴ Of these three versions, all engraved on copper by Filippo Trojani, the first and the second were co-authored and published in 1827 under the Latin title *Tentamen geographicum exhibens Latium Vetus et regiones conterminas* (1827). The third was published in 1834 with the contribution of the London Society of Dilettanti, under the English title of *Rome & its Environs, from a*

³ For further information on William Gell's life and works see Wroth, 1890; Catasta, 2013 and Riccio, 2013.

⁴ Published without date, it dates back to a time span between 1827 and 1837. It consists of 24 rectangular sheets to be arranged on six vertical rows, with the title in the top left corner *CARTA / DE' DINTORNI DI ROMA / SECONDO / LE OSSERVAZIONI / di / SIR WILLIAM GELLE / E DEL / PROFESSOR ANT.° NIBBY*, while in the upper right corner is placed an image that depicts a column celebrating the exploits of Vespasian, with the remains of an aqueduct, walls and arches, covered with thick vegetation, in the background.

Trigonometrical Survey. It was signed only by Gell and enclosed in his book *The Topography of Rome and its Vicinity* (Gell, 1834).

If one compares the different editions of the map, it is evident that the original version was significantly updated, revised and amended. It is clear, above all, that its authors wanted, together or separately, to produce a large-scale trigonometric survey of the territory that possessed a great level of objectivity and precision. They intended to do so in two ways: first, by adapting its contents to the then current antiquarian tendency to represent in an analytical fashion the antiquities rediscovered in the immediate vicinity of the *Urbe*; second, by ensuring the exact geometric correspondence and precise location of each element of the territory explored, through the complex operations of survey and triangulation that were at the base of it.

Therefore, being a “surveyed” map, it responds in an efficient way to the stimuli deriving from the burgeoning geodetic science applied to the survey of archaeological heritage, while also overcoming the limits of a cartography that until then was approximate and incomplete and, according to its authors, unsuitable to offer a correct interpretation of the “physical state of the soil” and unable to provide a comprehensive toponymic analysis of the territory under consideration (Nibby, 1837, I, p. 1).

In an attempt to trace the preparatory stages of the exhibition from which the 1827 engraving of *Tentamen* was taken, apart from the important insight offered by the descriptive texts that both Gell and Nibby enclosed in their editions (from 1834 and 1837, respectively), of great help are also some still unpublished documents such as the handwritten copy of the first edition, preserved in the Library of Archaeology and Art History of Rome (BIASA, Rome, XI.30.II.12, pp. 38-39), and the two drafts, which can be consulted at the National Library of Rome. Equally precious, especially in order to reconstruct with greater immediacy than official publications the stages of the territorial surveys and the actual roles of Nibby and Gell in the operation, are a series of handwritten notebooks belonging to the two archaeologists-topographers preserved at the British School of Rome.⁵ These documents appear as real first-hand notebooks from each of the excursions, and as such their pages, filled with notes, contain numerous transcriptions of epigraphies, sketches of *vedute* finished with watercolour, accompanied by orographic prospectuses, detailed plans, sections of archaeological sites (even very small ones inserted between the lines), and representations of sections of consular roads, as well as explanatory boxes about the main phases of triangulation operations (Masetti, 2017b).

The productive collaboration between the two archaeologists and the success of the *Carta* were certainly based on a balanced division of roles, respecting the individual specificities and responsibilities. In fact, Antonio Nibby, on the one hand, carried out surveys and investigations of the *Campagna romana*, especially in places that his colleague would have struggled to reach due to his poor physical condition, and committed himself to bearing “the burden” of historical and antiquarian research, devoting himself to the study of classical sources and rich archival documentation. William Gell, on the other hand, was able to combine his skills as an archaeologist and landscape architect with a superior technical background, which allowed him to

⁵ The three manuscripts by Antonio Nibby, currently preserved at the British School of Rome (hereinafter: BSR; Mss33 Nibby – Tomo I-III), were recently scanned by the Laboratorio geocartografico, in an agreement between the British School and the Dipartimento di Studi Umanistici. They date back to the period from 1822 (the year of the beginning of the explorations) to 1833 (four years before the first edition of his *Analisi*; the manuscripts by William Gell (BSR, Mss Gell) are seven, and only two of them (the first and the second) refer to the experience of the English topographer in the Roman countryside, in the period from 19 April 1826 to 1829. William Gell’s manuscripts, after a phase of restoration and subsequent scanning, are now also available in digital format. To keep track of the dispersion of Gell’s notebooks, see Woodward, Austin, 1925 and 1926-1927; Wallace-Hadrill, 2006.

make the best use of survey equipment that was highly innovative for that time (such as the “small” sextant of Matthew Berge or the *camera lucida*⁶); thus, he assumed the tasks of measuring the triangulation of the chosen sites, of constantly checking the distances and relative positions in order to obtain precise knowledge of all topographical details, and of editing their visual representation, while also following the complexities of printing, which was entrusted to the above-mentioned Roman engraver, Filippo Trojani.

The structure of the *Tentamen Geographicum exhibens Latium Vetus et regiones conterminas* remained unchanged, at least in its general layout, from the first edition (1827) through the fourth one (1837).

The long title, in Latin and in capital letters, appears with no ornaments in the top left-hand corner and provides all the information needed to contextualize the map in question: the commissioner and recipient of the work (*Munificentia Exc. viri Caroli Iohannis Comitis Blessington*), the purpose of the map as an “essay”, a “geographic exercise” (*tentamen geographicum*), the subject of the representation (*Latium Vetus et regiones conterminas Etruriae Sabinae Aequorum Volscorumque iuxta faciem hodiernam*), the surveying techniques used (*post plurimas trigonometricas observationes et locorum perscrutationes*) and their authorship (*a Wilhelmo Gell equite Britanno delineatum ab Antonio Nibby professore Archeologiae crebis adnotationibus illustratum nunc primum prodit*).

With a north-north-east orientation, the map includes an area that extends from *Suburbio*, immediately outside the *Urbe* wall belt, to *Latium Vetus* or *Latium antiquum*.

In the absence of elevations and altimetric curves, the *Tentamen* offers a conventional representation of the orography, using strong, shaded hatching. This choice, probably not much appreciated even by Nibby himself, is mainly attributable to Gell, who imposed it to Trojani on the grounds that, in order to faithfully represent mountainous relief on paper in two dimensions and emphasize the plasticity of the reliefs and hills of the environs of Rome, it was necessary to make greater use of *chiaroscuro* and of more marked shades to improve the rendering of the higher mountains.

Despite the inaccuracy of the carving and engraving of the matrix carried out by Trojani, which makes the map difficult to read in some parts, the wealth of detail of its contents highlights the main natural and artificial elements of the region, offering information about continental hydrography, the development of the Lazio coast, main and secondary road networks, as well as topographical details concerning the settlement system of the Roman territory, consisting of cities, municipalities, villages, villas, hamlets, groups of houses, fortifications, towers, tombs and ruins. At the centre of the representation is the City of Rome, with the perimeter of the Aurelian and Servian walls, its gates and, extending radially, the ancient consular roads.

The most relevant toponyms are recorded in carefully selected fonts: those referring to Classicism, such as the names of populations, appear in capital letters only, whereas the modern ones appear instead in normal typefaces.

The second edition, also realized in 1827 by Trojani on the same copper as the previous one, differs only for some small additions, such as the rendering of a small orographic area above Santa Severa, the inclusion of some toponyms and the indication of the year of realization – *MDCCCXXVII* – reported below the title which otherwise appears unchanged.

As already mentioned, the third and fourth editions of the *Tentamen geographicum* were published with different titles, in 1834 (*Rome & its environs...*) and 1837 (*Carta de' Dintorni di*

⁶ On the use of this instrument see Fiorentini, 2006. For topographical surveying techniques between the 18th and 19th centuries, see: Valerio, 2007.

Roma...) respectively and were destined to be more successful than the first two.



Figure 1: Schizzo di rilievo di campagna di A. Nibby (BSRome, MSS Nibby, II, c. 42).

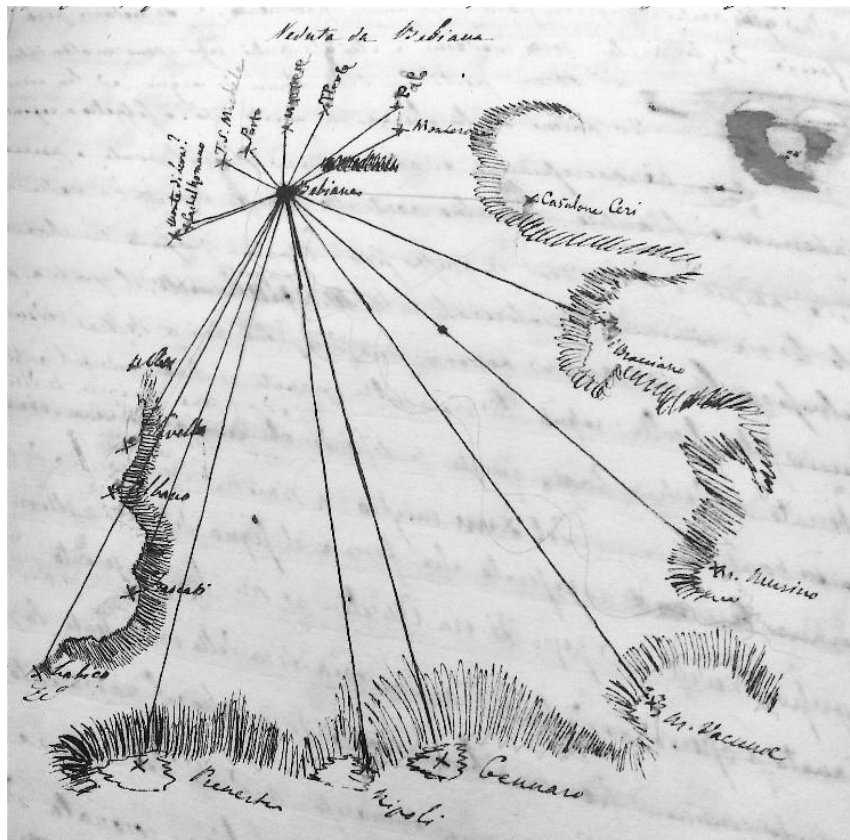


Figure 2: Schizzo di triangolazione ad opera di A. Nibby (BSRome, MSS Nibby, II, c.28).

The Nibby Project as Digital cartoheritage

Nibby and Gell’s works are relevant documents for the study of territory around the city of Rome. They are at same time *source* for the geo-historical analysis; a *guide* to collect and catalogue the cultural and environmental heritage; a tool to promote this territory as a slow tourism destination. Moreover, they are themselves a cultural heritage to be preserved and valorised also trough digital tools. To reach this goal and to promote Nibby and Gell’s works as digital cultural heritage and cartoheritage, it was developed the *Nibby Project*. The project co-ordinated by Carla Masetti was set up in the context of the research activities of the Laboratorio geocartografico “Giuseppe Caraci” and the educational activities of the second level master in *Digital earth e Smart governance. Strategie e strumenti GIS per la gestione dei beni territoriali e culturali* (Università Roma Tre, Dipartimento di Studi Umanistici). The idea behind this is to make the *Carta* and the text of the *Analisi* usable, in the first place, to the widest possible audience by means of online dissemination. The concept is thus, as in other digitalisation projects and geo-historical multimedia work⁷, to set up a geoportal within which work can be consulted and equip it with a series of further resources which can enable scholars as simple web users to go beyond straightforward reading in their use of it.

In addition to the storage, dissemination and promotion of historical-cartographic documents by transforming them into digital documents, the project aims to promote the actual, real-life places cited in the work by means of their ‘rediscovery’ in territorial and cultural heritage terms and, in the second place, proposing eco-tourist itineraries which consider them as such.

The work has been divided up into phases organised in a sequential or parallel way according to the type of action to be taken⁸ (fig. 3).

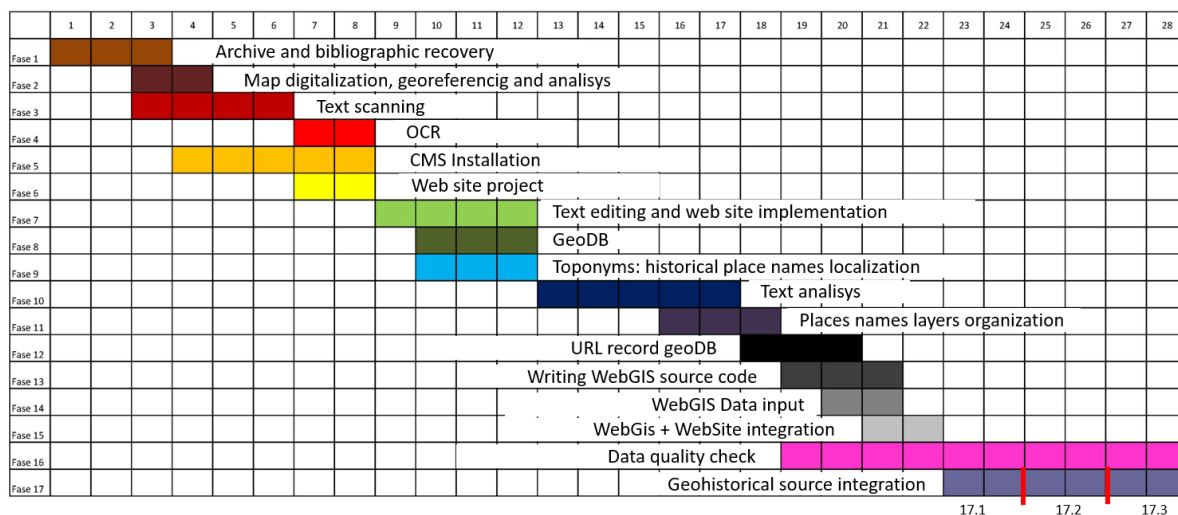


Figure 3: Monthly scan of the work phases (Author’s elaboration).

⁷ See, amongst others, *Repetti on-line* (<http://stats-1.archeogr.unisi.it/repetti/>) and the *Imago Tusciae* project (<http://www.imagotusciae.it/>).

⁸ A valuable part in various phases of the whole project was played by students on the university’s Literature and Historical Sciences degree courses in the context of accredited work experience and work study bursaries at the Laboratorio geocartografico “Giuseppe Caraci”. These included Giulia Oddi, Sara Giacani, Simona Onorii, Erica De Leonibus, Federico Tizi, Martina Tissino and Francesco Pupillo.

Once both the *Analisi* text and the various edition of the *Carta* had been digitalised, work focused on building and populating the database and then, on setting up the website in order to make the information collected and processed available and disseminate it from the starting point of the historical sources and the creation of a webGIS platform required for the consultation of spatial data directly online. A quantitative control process on the information entered into the geoDB and that on the website is currently under way and a search is simultaneously ongoing for other, mainly geo-historic, sources in order to supplement the already important information gathered in the location sheets.

Locating places

Locating the places referred to in the *Carta* and *Analisi* took place by cross-referencing diverse and complementary methodologies.

In the first place, all four editions of the *Carta* were geo-referenced in a GIS and the place names referred to located (fig. 4). Comparing the different versions with the index to the three volumes of the *Analisi* gave us an insight into the significant variations which occurred in place names. The most significant differences are to be found by comparing the first and fourth editions.

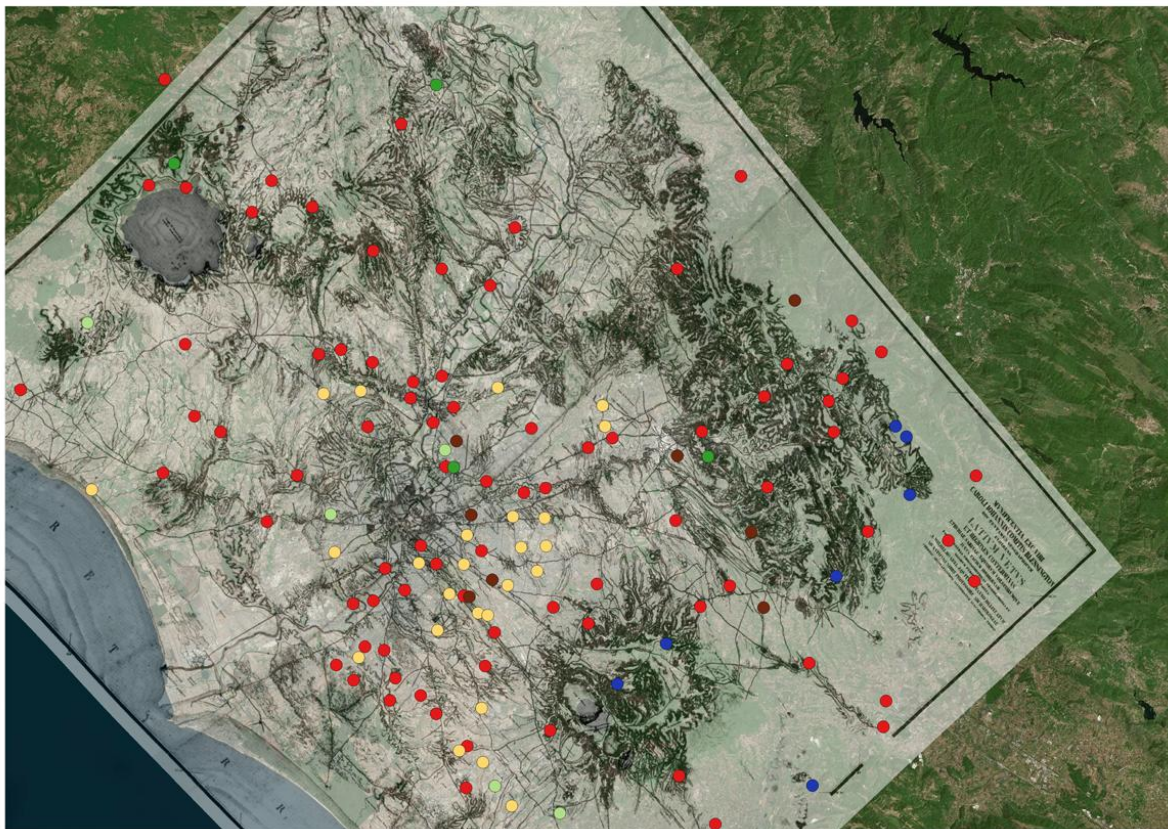


Figure 4: Geo-referenced *Carta* and location of the place names (Author's elaboration).

In both of these, however, many of the places surveyed in the *Analisi* were missing, requiring further place identification work involving a careful reading of the articles. This enabled us to position - manually and sequentially but highly effectively - all the places mentioned. Furthermore, to correctly locate some of these we carried out toponomastic checks involving reading other, contemporary or earlier, maps of the same areas which the author himself cited as

inspiration such as those by Litta, Chigi, Mattei, Cingolani and Sickler and also later maps such as the first version of the IGM's (Istituto Geografico Militare) 1:25,000 maps which were, as we know, of interest partly for their large volume of place names⁹.

An in-depth study of the articles enabled us, firstly, to locate the places cited in the *Analisi*. In the second place, a number of errors emerged from this in the researching and drawing up of the map and texts which were mainly of two types: locating certain points on the map and descriptions of places in some entries.

The former error type was frequently not reiterated in the descriptive sheets drawn up, as we know, several years after the map and it is thus plausible that these were corrected later on. Mistaken descriptions of place names, on the other hand, were presumably due to indirect information acquisition by the authors.

For example, there is a brief Villa Barberini entry in the *Analisi* describing it as a 17th century hunting lodge located between Palestrina, Lugnano and Zagarolo¹⁰. Nibby referred to the building as set in a triangle of elms and called the *Triangolo* for this reason. Furthermore, «this triangle of elms is nearly a mile long on each side and, if it were well maintained, would afford an extremely pleasant walk to its inhabitants»¹¹.

In a comparison of the more recent IGM 1:25.000 (F. 375 section II, 2005) with satellite images, this triangle of elms is not visible, partly as a result of the evident urban development process which has changed the landscape around it over recent decades and thus makes any reading of territorial transformations difficult. Similarly, these do not appear in contemporary or later historical maps depicting the same area either. What does appear, on the other hand, from both satellite images and photographs of the site, is the building's triangular layout. On the subject of the vegetation, other sources speak of tree lined avenues and not triangles. This layout is effectively shown in *Carta de' dintorni* too and thus in this case a discrepancy between cartographic and descriptive representations is clear with the two effectively having been completed several years apart. However, it is worth noting that the map's scale does not allow for a complete and thoroughgoing consideration of the issue and it was for this reason that we had to turn to other sources¹².

The website

The website dedicated to the work of William Gell and Antonio Nibby was designed to be used by a wider, not necessarily specialist, audience¹³.

Technically speaking the website was created using the Wordpress platform not solely because this is open source but also because data storage in a MySQL data base is native to it. In contents terms, an attempt was made to respect the philological organisation of Gell and Nibby's work.

A section of the portal focuses on the *Authors* on whom a synthetic biographical and bibliographical sheet was compiled in addition to a list of multi-media resources available online (fig. 5).

⁹ Cantile 2013, pp. 391-444.

¹⁰ Villa Barberini or Casino Barberini is not to be confused with the more famous Palazzo Barberini di Palestrina, now seat of the Museo Archeologico Nazionale.

¹¹ Nibby 1837, III, p. 706.

¹² Caputo 2011; Tomassi 1992; Barberini 2007.

¹³ At the moment of writing, the website is still not published on line, but just in local server.



Figure 5: Geo-portal sample screen.

A second section is devoted to *Works* (the maps and their analysis) analysed from the point of view of the conservation of the cartographic and bibliographical heritage. The maps and texts can be consulted directly on the site and are accompanied by map sheets with which their library and/or Italian public archive locations can be found.

A further section focuses on *Toponyms*, the place names described in the *Analisi* and shown on the maps. These have been organised and grouped together in accordance with the categories used by the authors and shown in the indexes to the three volumes. To cite just a few examples: *Rilievi*, *Rocche*, *Valli*, *Ville*, etc. In addition to type of category chosen, examining these was made possible also on the basis of alphabetical order and organisation by volume as well as in a straightforward research field.

In addition to onomastic toponym consultation, a spatial analysis was also made possible by means of a very straightforward webGis (*Luoghi*). Markers showing the places surveyed were located on a map base. The organisation structure chosen by the authors was maintained in this respect too: each colour corresponds to a type of place and different layer. Users can change the map base and activate or deactivate the layers they wish to view and consult. Clicking on the markers generates a caption showing toponyms and suggesting a link to the corresponding sheet.

The toponomastic sheets

The sheets for the «articles» described by Nibby were structured in such a way as to be simultaneously user friendly for a not solely academic and scientific audience and also correct from a methodological point of view.

Each sheet shows the various category titles (primary, secondary and alternative), bibliographical references to the extract cited (volume and original page number), a complete transcription of the item and, where necessary, the original text formatting. We thus chose to make the sheets available in text format - not in PDF or images - as if they were facsimiles, for a series of reasons. Searches can thus be made within the text without a heavier ad hoc platform having to be constructed. Secondly, inserting links between the various items will make the cross references between the sheets inserted by the authors in the original text immediately usable.

Lastly, in this way, thanks to the creation of a responsive layout, the text is automatically formatted adapting to the screen of the device on which the website is consulted (PC, tablet or smartphone) in a similar way to an e-book.

In addition to these advantages, reproducing the text in the sheets also involved solving a series of issues. Transcribing three volumes of around 1000 pages each was an intimidating prospect and we thus decided to use OCR text processing instead. This choice, however, made it important to assess which materials to use as ‘source’ for text acquisition carefully. On the basis of a rapid online search we identified the volumes scanned and made available on Internet Archive and Google Books. This latter has the great virtue - which, in this case, is a great defect - of privileging quantitative rather than qualitative objectives in volume scanning. A quick look at the scans showed that these files were unusable as a result of the large number of pages badly scanned or unreadable by OCR software.

For this reason, we chose to scan the whole work from the starting point not of the original but of the facsimile copy edited by Forni in 1973. This choice enabled us to retain the integrity and originality of the work and work on clean pages and highly readable characters easily identifiable by OCR software.

Research perspectives

As seen, the principal objective of the project was to make the *Carta* and the *Analisi* usable online by storing, disseminating and promoting the historical-cartographic document itself but a further aim was the ‘re-evaluation’ of the physical places cited two centuries ago by Nibby and Gell by means of the ‘rediscovery’ of these real places as territorial and cultural heritage, as the authors themselves expressed as one of their intentions. In the near future, in addition to completing the portal, we will also increase it with a series of resources and appendices designed to follow through on this second objective. The toponomastic sheets, for example, will be supplemented with data and information extrapolated from other contemporary sources such as Gell and Nibby’s own manuscripts, drafts, exercise books packed with notes and sketches or linked to tourist promotion in these locations¹⁴.

The webGIS, on the other hand, will be extended with eco-tourist itinerary proposals which, on one hand, retrace the information gathering and reconnaissance trips carried out by the authors and, on the other, enable places and heritage traditionally left out of the main tourist itineraries, a

¹⁴ Antonio Nibby’s manuscripts can also be consulted at Biblioteca dell’Istituto di Archeologia e Storia dell’Arte in Rome (*Lanciani* 63, ff. 1-27, 34-64) and Biblioteca Angelica (*ms.* 2324).

characteristic shared by many places around Rome which are still today frequently overshadowed by the city, to be promoted.

Both goals will involve the active participation of specialists from other disciplines in a multi-disciplinary approach.

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