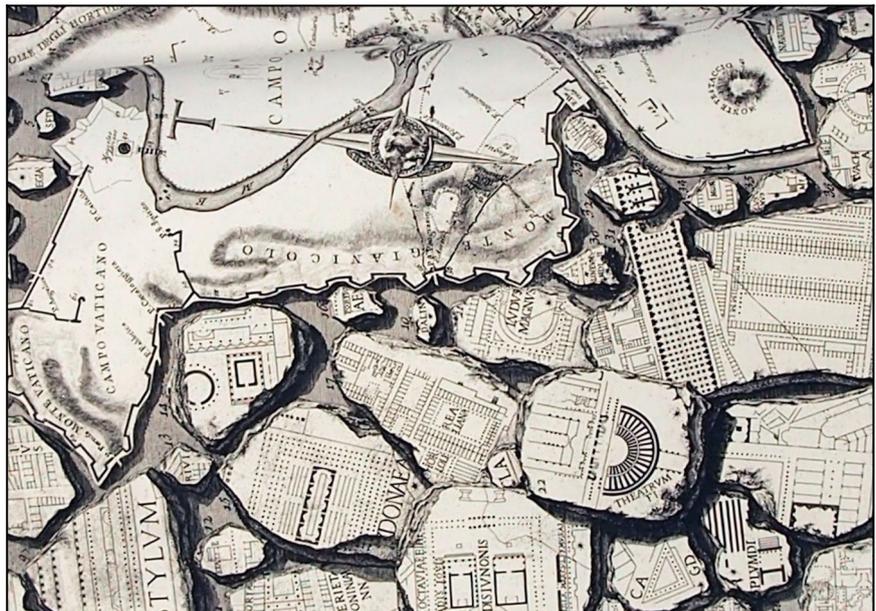




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PIRANESI'S OPERE AT THE GOTHENBURG MUSEUM OF ART



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ABSTRACT

The collection of the Gothenburg Museum of Art contains a set of 18 bindings described as being a near-complete edition of 18th century etcher Giovanni Battista Piranesi's work, as a whole titled the *Opere*. Previous documentation is sparse. The completeness and edition of the work is unknown and its treatment since the acquisition in 1928 undocumented. The study aims to provide a basis for discussing present risks and potential options for the future preservation of the Opere with regard to its present condition and its significance in the context of the museum collection, as well as to verify information regarding its content and age.

To this end binding characteristics were documented and a condition survey of the set conducted. Assessment criteria focusing on the structural stability of the volumes were adapted from established survey methodologies. The examination found the volumes at risk of further damage, primarily due to physical damage to the bindings which could likely be attributed to a history of use at the museum in combination with inherent structural weakness. The findings are discussed in relation to the history of the objects, the study of Piranesi's work, the museum collection, and current storage conditions. Major issues identified include lacking documentation, risk of further physical damage and material deterioration, and the previous removal of etchings for exhibition.

The discussion highlights factors complicating decision-making in addressing the issues, primarily stemming from the unclear function and management of bound objects within the collection of graphic art. At the time of its foundation the collection of graphic art was both actively exhibited and used for the study of art, but presently bound volumes are a marginalised object type with no clear place in the current use of the collection. The future of the Opere will depend on whether it's considered in isolation or with regard to the collection as a whole, and the prioritisation of the volumes' function as bound objects or of the value of the etchings as artworks to display.

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The planning of this work took place just as the Covid19 pandemic was sneaking up on the world, resulting in a last minute changes and delays which would turn into an extended break. During this strange time I've been fortunate enough to work, learn, and make new connections, finally allowing me the opportunity to return to this work. After all that has happened, it is strange to wrap it up.

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1. Introduction

This study examines a set of 18 bindings containing a collection of work primarily attributed to the 18th century etcher Giovanni Battista Piranesi. The set was acquired by the Gothenburg Museum of Art (GMA) in 1928 and has remained in its collection since. In previous descriptions the set has been titled as both as Piranesi's *Opere* and the *Opere Varie*. Here it will be referred to simply as the *Opere*. This is not the title of any original publication of Piranesi's but rather a title of collections of his work. The set at the GMA contains 20 individually titled volumes and has been described as a near-complete collection of Piranesi's etchings.

The subject was proposed to me by the paper conservator at the GMA, with the knowledge that these objects suffered from issues with their condition and unlike loose prints had not been covered by any recent improvements to the documentation and management of the collection. My primary approach was from the perspective of a conservator aiming to identify issues affecting the preservation of these objects. However, my approach and choice of focus were also informed by my background as a bookbinder. There are many aspects to a complete review of the *Opere* this work is only able to touch upon briefly, such as art historical, curatorial, and bibliographical perspectives.

The function of the study is twofold. It primarily serves to compile and improve upon the existing documentation regarding the *Opere*, in itself an aspect of its preservation. On a wider scale it presents an example of a case where the context rather than the material itself adds complexity to the decisions which have to be made to ensure its preservation. As will be discussed further within this work, the *Opere* may be described as a marginalised object when viewed against the full scope of the GMA collections. It belongs to a subset of the art collection which does not align with the primary focus of the museum and is no longer used for the purpose it was acquired. This particularly affects the bound material which is not commonly featured in exhibitions. Compared to two-dimensional work on paper it is less likely to be prioritised unless consciously targeted by projects outside of the normal activities at the museum. However, within this context the *Opere* stands out as a notable acquisition with a strong connection to the history of the museum. Its case may be used to highlight the value and challenges of preserving such objects.

1.1 Background

There is no published research related specifically to the GMA *Opere*. Provenance prior to its acquisition is unknown and its treatment since undocumented. The bindings have not been assigned object numbers or entries in the museum's current database system, neither as a group nor individual objects. The only existing record is the old index card system of the collection of graphic art where all 18 volumes are listed under the entry *Piranesi, Giovanni Battista /Opere./*, followed by a list of volume titles and publication dates. The publication dates are noted to be referring to the first editions of the individual publications and not the volumes of the *Opere* itself. A transcript of the titles and dates as they appear here may be found in Appendix I.

Although there is no database entry for the *Opere* itself, the system does contain entries for etchings originating from the bindings. These have at some point during the earlier history of the museum been cut out in order to exhibit them individually. As there is no record of past exhibitions for specific artworks it is not certain when this was done, nor is the extent to which the etchings have been displayed recorded. The museum has hosted several exhibitions focused on the work of Piranesi of which they may have been part. Known instances include exhibitions of his etchings in 1958, 1962,

1977, and 1978 (Hjelm 2012). The etchings may also have been part of permanent exhibitions at the museum. Some of these loose pages have been entered into the database system in conjunction with conservation treatment and preparation for display in current exhibitions. At present 29 etchings attributed to Piranesi have been photographed and assigned temporary object numbers in the public database, but more remain undocumented.

Despite the sparse documentation of the Opere itself, the history of the GMA and its collections may shed some light on its past use. The history of the museum has been chronicled in the GMA's own publication *Skiascope*. This provides information on the past use of the collection of graphic art as well as an understanding of the museum's perspective on its own history. A master thesis on the subject of the early history of the GMA art library written by Henrik Hannfors in 2011 provides further insight into the relationship between the graphic collection and the museum's art library. These descriptions of the early days of the museum are in large part based in the yearly accounts printed by the Museum of Gothenburg, which contain reflections and information on new acquisitions.

The GMA is a municipally owned art museum founded in 1864, initially as a department of the Museum of Gothenburg. The primary focus of its main collection is Nordic art, although it also includes artwork by prominent international artists. The museum's focus and acquisition policy has varied over the years, depending on current trends and management, but the establishment considerable collection of graphic art stands out from these long-term developments. Its prominence can primarily be attributed to the art historian Alex Romdahl – a central figure in the history of the museum. In 1906 he was appointed the curator of the art department at the Museum of Gothenburg. He subsequently became responsible for the management of the new Gothenburg museum of art, when in 1925 the collection was moved to the current independent museum building specifically constructed for this purpose (Nanfeldt 2011). As such Romdahl played a key role in establishing the early identity of the museum. In 1905 the collection catalogue chiefly represented contemporary Swedish art. By the end of Romdahl's reign its scope had expanded backward into Swedish art history and outward to include contemporary Nordic art as well as the work of European masters (Flensburg 2012).

It was Romdahl who first began actively cultivating the collection of graphic works, which had previously not been a priority. The regard he showed for the medium is notable as it generally has a lesser status within art collections, compared to more traditional ones such as paintings or sculpture (Hjelm 2012). The bulk of this collection was gathered through donations. Already in 1875 the Swedish artist Ergon Lundgren bequeathed a total of 2059 graphic prints to the art department which included a large number of etchings by Piranesi, representing him in the collection from its early beginnings (Hjelm 2012). In contrast, the 1928 acquisition of the Opere came at price of 4500 SEK which at its time was a fairly considerable expense. In the yearly account Romdahl describes it as a near-complete collection of Piranesi's etchings consisting of 18 volumes in original 18th century bindings. The etchings are noted to be brilliant specimen, although it is unclear if this refers to quality of the imprints or the general condition of the material. Romdahl proclaims that through this purchase the museum is taking a step towards a time when its collection of graphic works will, to some degree, measure up to the art collection in general (Romdahl 1929).

Until this ambition could be fully realised the collection was supplemented by poster prints and other facsimiles. Following the description of the Opere, Romdahl briefly mentions that the graphic library has been expanded and that its reproductions for time being complement the originals. This would later become the foundation of the museum art library, although at the beginning its distinction from the graphic collection was unclear. Tracing the museum library's early development through the

commentary in the yearbooks, Hannfors found unspecific references to library material as early as 1911. At this point there was no explicit mention of bound or written material. Hannfors concludes the use of the term likely refer collectively to the collection of graphic prints and facsimiles in their function as a library of art references. A clearer separation of acquisitions is found onwards from 1922 when the art department library received its own section in the yearbooks. The early acquisitions mentioned there consist primarily of the poster reproductions used supplement the original material, as in Romdahls account of 1928 (Hannfors 2011).

A driving force behind this interest in the graphic arts and the development of the reference library may be found in the academic role Romdahl held parallel to his work at the museum. Romdahl was a passionate proponent of art education and cultivating artistic taste among the public. In 1920 Romdahl was appointed as professor of art history at Göteborgs högskola, today the University of Gothenburg. He made public education a priority for the art department and held lectures, courses, and tours for art students and schoolchildren, as well as people of both middle and working class. Providing opportunities to study artwork was stated as a main reason for the expansion of the graphic collection, allowing for access to a broader range of material than the main art collection could (Hannfors 2011). Romdahl placed great importance on the personal study of artworks and was known to make use of the GMA collection in his classes. Students at the Gothenburg school of art could access the collections for study. When the new museum building was constructed it included library and study spaces for this purpose (Nanfeldt 2011). Furthermore, exhibition space was dedicated to showcasing the collection of drawings and graphic art to the public and efforts were actively made to promote interest in the material. Value was placed not only on the reproductive function of printed media but its unique qualities. In 1930 special display cradles were constructed which allowed the visitor to flip through prints mounted in wooden frames, in order to simulate browsing through a collection (Hjelm 2012).

Today the collection of graphic art is estimated to contain 50 000 individual objects, although the inconsistency of older records makes it hard to get a full overview of its contents. In the decades which have passed since Romdahl's time its status has waxed and waned, but it has never since seen the same level of active use or exhibition. It became a department of its own in the 1970s and the account its history describes it as going through periods of low priority with little to no staffing, only occasionally activated in conjunction with themed exhibits bringing it to light (Hjelm 2012). In 1960's the museum employed a dedicated paper conservator and the position has since remained, although this does not directly translate to a prioritisation graphic artwork as the position encompasses the care for all works on paper in the collections. At present there is no formal subdivision of responsibility for separate parts of the museum collection.

The modern museum library has been separated from the older collection of reproductions, today consisting mainly of exhibition catalogues and publications related to the artists represented in the GMA's collections. The library has no database of its own but new acquisitions are registered in the Swedish national library database LIBRIS. Older material remains registered on index cards. The library is maintained by one librarian, present one day a week, who handles registration of new titles and access requests. The museum has an in-house paper conservation studio and out of three full time conservators, one specialising in works on paper. One registrar works with the current database system used by the museum, MuseumPlus. It functions both as an internal database containing object data, conservation reports, and records of loans and exhibitions, as well as an external online interface in which published records are searchable to the public. In recent years the targeted 2009 Access project aiming to register and digitise the collection of drawings and modern graphic art was also able to cover some of the older prints. The work has since continued at a slower rate, most recently in conjunction with a temporary exhibition in 2020 highlighting the collection of older

graphic art.

1.2 Aim

The study aims to provide a comprehensive overview of the Opere including its history, material characteristics, and current condition in order to discuss risks to its preservation and its significance to the GMA. To this end it should provide the context necessary for understanding Opere's connection to the history of the GMA, the study of Piranesi's body of work, and the standards for collection management which provide the basis for the assessment method. The results are intended to function as a pre-study on which further research and decisions regarding the future of the Opere could be based.

1.3 Research questions

Is the existing object information accurate and may the dating and edition of the Opere be confirmed?

What is the current material condition of the Opere?

What is an appropriate method for surveying the condition of bound material, which is possible to carry out within the limited scope of the study?

What significance and potential use does the Opere have in the context of the GMA collection?

Which are the main issues which need to be addressed to ensure the future preservation of the Opere, with regard to both its significance and material condition?

1.4 Limitations

Although the study aims to cover the aspects necessary to discuss options for the Opere's preservation, the intention is not to propose a full conservation plan. Nor does it aim to provide quantified assessments of risk or significance, which on a full scale would require the direct involvement of the GMA and consideration of collection-wide factors outside the scope. Any methodology based in statistical analysis was ruled out as no survey of the small homogenous object group could hope to be a statistically significant representation of the wider collection.

The arrival of the Covid19 pandemic in the time between initial planning and implementation of the study imposed further limitations on the assessment, as the uncertain situation resulted in a reduction of time spent with the objects in-situ. The assessment and documentation of the Opere was carried out by one person during a total of five days. Within the time available detailed study of individual volumes or etchings was not feasible. As such the main intent of the methodological research was not to devise a full-scale collection survey but to narrow the focus to an achievable level. Ideally development would include time to test and revise the method, but as this was not an option it should be regarded as in the stage of a pre-study requiring further review to fully meet the standards of the field.

1.5 Theoretical framework

The study of the Opere makes use of commonly accepted methods of surveying and describing condition within the conservation field. The progression towards standardisation of work in museums and archives has led to the development of nationally implemented standards for collections care. Although Sweden has no official accreditation system in place the *Spectrum 5.0* standard for work procedures in museum collections, originally created by the UK Collections Trust, has been translated by the Swedish National Heritage Board. It is recommended as a guideline for practice in museums and related collections (Riksantikvarieämbetet 2017). The standard breaks down aspects of collections care into work procedures for which minimum requirements are defined, including collections reviews and audits. In this capacity relevant procedures were used as a reference point for good collection management. The focus during the development of the assessment was how standardised forms, score systems, and guidelines are used as tools. This practice is discussed more in depth in section 2.2. Related procedures which ideally should be part of a full collection review include assessments of risk and value. Although the implementation of such methodologies fall beyond the scope of this work, they provide context for the manner in which these concepts are discussed within the conservation field.

Risk assessments are procedures which aim to identify and quantify risks factors, in this case to the preservation of a collection. They complement condition surveys well as they aim to identify potential causes of damage, while condition assessments primarily grade deterioration based on its observed effects (Taylor 2005). The method of identifying and quantifying risk factors did not originate in the conservation field but has been adapted to fit this purpose. The prevalent methodologies are the *ABC method* developed by Stefan Michalski and *CPRAM* developed by Robert Waller (Brokerhof and Bülow 2016). Both use scenario-based approaches structured around the concept of the ten agents of deterioration to identify risk factors. For each category the effects of potential risk scenarios are quantified. The data is then analysed to create a projection of collection-wide risk. The agents are typically defined as dissociation, fire, water, light, pests, pollutants, physical forces, incorrect relative humidity, incorrect temperature, and vandalism. They are intended to cover the outside sources of damage that may most likely affect collections. Some causes such as fire, water, and vandalism are immediate and disastrous. Others are mainly caused by long-term exposure. Light, pollutants, high relative humidity and high temperatures accelerate the rate of chemical reactions and therefore affect the deterioration rate of materials (Michalski and Pedersoli 2016, Guild 2018). Inherent deterioration may sometimes be included to represent degradation caused by the properties of the object itself, which cannot be changed by controlling outside factors (Taylor 2012). Publicly accessible definitions of the agents and descriptions of their associated risks are available from established institutions such as the Canadian Conservation Institute, whose standards were referenced during this study.

In the discussion of art and cultural heritage objects, the concepts of value and significance should be understood as complex constructions not limited to monetary value. While the perception of value may be relative to the observer, standardised models have been developed to identify different aspects of value specifically in the context of collection management (Keene 1994). One such framework is *Reviewing Significance 3.0*. It is a publicly accessible model developed for value analysis of museum, archive and library collections, compatible with *Spectrum 5.0*. The model breaks down the concept of significance into the following categories: provenance/acquisition; rarity/uniqueness; sensory/visual quality/emotional impact; condition/completeness; historical/cultural meaning; and exploitability. An assessment grid is provided, structuring questions which should be answered in the evaluation of each aspects into different contextual levels. The levels are as follow: general; regional/local; national/international; community; and organisational (Reed 2018). To complete such

an evaluation is an undertaking which would require the direct involvement of the GMA, as it is designed for use at an organisational level. For the purposes of this study it merely serves to define different aspects of intangible value which are necessary to consider in the discussion of the Opere's preservation.

A background on the history and study of Piranesi and his work is presented through a brief review of literature on the subject presented in section 2.1, although fully covering this aspect constitutes its own area of art historical and bibliographic research.

1.6 Method

The main focus of the method development was to establish a format for the assessment of the Opere's condition. The method and criteria had to be developed as part of the study, as there was no established practice for grading the condition of bound material in use by the GMA. However, it was clear from the beginning that an in-depth examination of all 18 volumes would not be possible with time and resources at hand. This was addressed by limiting the scope of the survey to focus on the overall structural stability of the bindings. The aspect was selected as it is a clearly evident issue directly related to the question of the potential use of the volumes, whether this be for exhibition or active study. Following the format of a more general checklist of damage types common in book and paper materials would be of less use than a breakdown of one aspect, as little variation could be expected within the small and homogenous group of items. More context for the method selection is provided in section 2.2, in which literature providing a methodological basis is presented in combination with examples of studies to provide a general understanding of collection survey methods, particularly concerning books and paper materials.

The chosen focus lead to the key judgement criterion: whether the item is able to function as a bound object. Requirements for this had to be defined, serving both as a reference during examination and context for understanding the results. To be considered fully functional a volume should be able to lay open with adequate support of the boards. From either side it should be openable at least up to its midpoint to allow browsing of the full volume. The binding structure and cover material should tolerate the necessary handling during use. Pages should be well attached and pliable enough to turn, without weak points or damage at risk of worsening. Disfiguring factors such as yellowing, foxing, stains, and dirt should not majorly impede viewing of the contents.

Five categories were selected to guide the examination and to indicate the location of issues: attachment of boards; attachment of spine; stability of the text block; condition of covering material; and condition of page material. Each category was scored on a scale from 0 to 3, with 0 representing a pristine state and 3 a condition which directly prevents safe use. A fourth score was included to cover any acute damage outside of the above categories, such as active pest or mould damage, but fortunately was not used. An overall score was assigned to each volume based on its highest score in any of the individual categories. The intent was to visualise the limiting factors. On an item level the assessment score should indicate which aspects present a risk of further damage, while the compiled results should provide an overview of the spread of issues. The full assessment grid is presented alongside the survey results in section 3.2.

Without access to an established database a record had to be devised for use during the assessment. A simple record template was created in Excel. The format was chosen as it is accessible and information is fairly easy to extract if entered consistently. An individual record was created for each item and data was then compiled in an Excel file for overview. For the individual records the Spectrum 5.0 procedure for inventory was referenced. The minimum standard for core information

includes: object number; object title; the number of objects included in a group; current location; a brief free-text visual description; ownership or provenance; name of recorder and date of recording. Additionally, data that would be entered into the MuseumPlus database used by the museum includes: dimensions; date; edition; artist name; object type; geographical reference; material and technique; décor; and inscriptions.

To address the more detailed material aspects one volume was selected for a more thorough examination documenting binding characteristics, damage types, and identifiable characteristics. The volume selected was the first of the series as it displayed issues common to the full series, but not to an extent which hindered the examination. Additionally it contains unique marks and annotations relevant to the dating of the bindings. A written object description was compiled primarily based on this examination, supplemented with photographs of the volume, and observations made during the assessment of the full series. The full assessment served to confirm there were no major variations of structure or material.

In addition to the information gathered during the examination at the GMA, previous documentation of the Opere was provided by museum staff in the form of access to records from the museum's index card system, digital database, and library ledgers. Environmental factors such as current storage conditions, climate data, and maintenance routines were also discussed with staff and observed in conjunction with the survey of the volumes, which took place in the storage location.

2. State of the art

2.1 The study of Giovanni Battista Piranesi

Giovanni Battista Piranesi was an Italian printmaker born in 1720 in the region of Venice. In his studies he was primarily schooled as an architect, but relocated to Rome in 1745 where he apprenticed as an etcher. There he assisted in the production of *vedutes* – picturesque depictions of Rome which were popular souvenirs among travellers on the Grand Tour. Piranesi successfully began to produce plates and established a printmaking workshop of his own (Wilton-Ely 1978). He was a prolific creator who by the time of his death in 1778 he had produced over a thousand plates (Connors 1999).

Piranesi's most well-known work includes his popular series of vedutes, which played a part in shaping the outside perception of Rome as a historic and cultural centre; his dramatic renditions of fantastical prisons in the series *Le Carceri d'Invenzione*, in its own time a controversial diversion from his main body of work; and his *architectural fantasies*. Piranesi himself coined this term to describe a series of works which combined elements of classic Roman architecture with modern influences in striking compositions. Although these did not represent realistic constructions they still aimed to convey architectural statements and visions (Wilton-Ely 2002). In the introduction to a modern translation of Piranesi's essay *Observations on the Letter of Monsieur Mariette*, published in 1765 as an entry into the debate on the merits of Roman versus Greek architecture, the Piranesi scholar Wilton-Ely quotes him in translation:

"These speaking ruins have filled my spirit with images that accurate drawings, even such as those of the immortal Palladio, could never have succeeded in conveying. Therefore, having the idea of presenting to the world some of these images, but not hoping for an architect of these times who could effectively execute some of them—there seems to be no recourse than for me or some other modern architect to explain his ideas through his drawings." (Wilton-Ely 2002)

This quote may serve to illustrate Piranesi's body of work. Although his visually compelling etchings have come to earn him a place in art history, during his own lifetime Piranesi continued to primarily style himself as an architect. This is reflected in his publications, which rather than realised building projects were his primary medium of expression. But etchings were not his only output. Piranesi was an active participant in the contemporary debate on architecture and style, publishing essays and corresponding with other influential minds in Italy and abroad. He participated in the excavation and documentation of Roman ruins, bought and restored antiquities, designed buildings and interiors. A large portion of his publications consist of depictions of antique buildings and ruins, antiquities, architectural elements, and floor plans which serve both as works of reference and to communicate his architectural ideals (Wilton-Ely 2002). To this end he combined visual depictions with written text. In the original edition of one of his most well-known titles, the *Antichità Romane*, etchings were accompanied by printed text in an ambitious effort to document and convey his interpretation Roman antiquity (Robison 1970).

However, Piranesi was not the sole contributor to his publications. Collections such as the *Opere* do not only contain Piranesi's work, as publications issued from his workshop could include contributions by his children, etchings by other artists. Three of his children were trained as etchers: Laura, Francesco, and Pietro Piranesi. Most notable in the discussion of collected editions is

Francesco Piranesi, who inherited the workshop and to whom completion of unfinished plates and posthumous alterations of his father's publications are mainly attributed.

After Piranesi's death new imprints continued to be produced. Francesco issued a collection of including both reprints of his father's work as well as new publications in his own name. In 1783, following a sale of the remaining antiquities from his father's workshop, Francesco was appointed an agent of the Swedish king Gustav III making acquisitions for the crown – both providing a direct line of cultural influence and ultimately resulting in him playing a small part in Swedish political history. However, Francesco's political involvement in his own homeland would force him to leave Italy in 1799. Together with his brother Pietro he moved the workshop's plates to Paris and established a new publishing business there, issuing a new collection known as the first Paris edition. However, demand for Piranesi's work had fallen. Printing by the Piranesi family ceased in 1809 as the Paris business failed and the original plates were seized by the French state. This led to another collected edition being issued by the French publisher Firmin-Didot between 1835 and 1839, after which the plates were sold and returned to Rome (Caira Lumetti 1990, Holden 2012).



Figure 1: Frontispiece from the *Antichità Romane* at the GMA, dedicated to king Gustav III of Sweden.

Although printing of the plates would continue, these later imprints are generally regarded to be of descending quality and have been of less interest in the study of Piranesi's work. This is due to the printing process during which the original plate is gradually worn down, changing their appearance. As it is possible to rework etched plates, details may be touched up but the original image is increasingly distorted. The quality of materials and skill of the printer also factor into the final result.

The possibility of making alterations to etched plates would come to be of particular interest in the study of Piranesi's work, which grew into a field of its own as interest in his body of work resurged in the early 20th century. It should be mentioned that his work has since been examined in the context of the various fields it touched upon, such as history, art, architecture and design (Middleton 1982). Of main interest here is however the research surrounding the cataloguing and dating of his publications. The categorisation of Piranesi's etchings is not easily defined as his work was not static. He was known to make alterations between printings, leading to the existence of different versions of some works. Changes were also made posthumously, such as the alteration of the text in the frontispiece shown in Figure 1. This version seen in the *Opere* is the final state of the plate, altered by Francesco to reflect his new patronage. The contents of publications may also vary, being printed in varying versions and constellations both during and after Piranesi's lifetime. This particularly affects combination volumes and publications originally containing text, as the original etched plates may be stored for reprinting while typeset text has to be set anew for each edition. The images from such works often came to be reproduced on their own, already during Piranesi's lifetime.

The identification and dating of specific editions and imprints is further complicated by the lack of reliable primary sources. There is no comprehensive catalogue of the contents of publications from Piranesi's lifetime, and there was little written of him and his work in the time directly following his death. The closest to a contemporary biography is a manuscript by J.C Legrand, a brother-in-law to a friend of Piranesi's, which was written in France around the year 1800 but went unpublished until 1921. The literature has depended heavily on the monograph and catalogue published by Henry Focillon in 1918, as he was the one to discover and recount information found in the Legrand manuscript. The catalogues which served as a basis for this work was compiled by Piranesi's sons. However, these do not account for all variations and errors have been found both in their catalogue and occasionally in dating of the original plates (Middleton 1982). Instead modern researchers have sought to retro-engineer more comprehensive catalogues from the study of different examples of etchings and publications. Focillon's work informed Arthur Hind's 1922 account of Piranesi's life, expanding the catalogue which as Hind notes is lacking descriptions of the varying states of the plates. He sets out to fully catalogue the contents of the *Carceri* and the *Views of Rome* while providing a more summary chronological list of other titles. Building off of this classification of states, the study of visual differences in image and materials became common practice for further reference works. A such identifying the state of the imprints in a volume may help identify its age, as may material characteristics such as the quality of the imprints, paper quality, watermarks, and type of ink used (Hind 1922, Robison 1970).

In 1982, in light of the influx of new literature and exhibitions surrounding the 200 year mark of Piranesi's death, Robin Middleton published a comprehensive review of the evolution of Piranesi scholarship to date. Two notable biographical works has recently been published: *Piranesi* by Jonathan Scott in 1975 and *The Mind and Art of Giovanni Battista Piranesi* by John Wilton-Ely in 1978. In comparing the merits of the two Middleton finds both to be comprehensive accounts of the pre-existing information, but he laments a general lack of diversity in the literature due to most research being based on the same few secondary sources (Middleton 1982). Wilton-Ely's *Complete Etchings* published in 1994, the first publication to include visual reproductions of the complete catalogue, is now a standard reference work. Additionally, it contains a corrected version of Hind's catalogue and a list of combination volumes contributed by Andrew Robison (Connors 1999). Still, the evolution of the catalogues is still an ongoing process. Hind remarked that if he had access to a greater amount of volumes to study, he likely would have found additional variations to those in his catalogue; an observation which has since been proven true (Hind 1922). Andrew Robison, referred to by Middleton as a leading expert on the chronology and technique of Piranesi's work, has in his research traced Piranesi's development up until 1760 and identified more precise dates and differences in

states than featured in the early catalogues. In his study of watermarks Robison found variations of known marks that had to be traced rather than sketched in order to distinguish them, and even then his lists are not exhaustive (Robison 1970). A study of a volume of the Paris editions found marks that did not appear in Robison's lists (Syrette 2005). For each study expanding on the available reference material the field of study continues to evolve.

2.2 Condition survey practices

The practice of carrying out collection surveys is a well-established aspect of collection management, having developed alongside the field of modern conservation during the latter half of the 20th century. This includes methodologies for assessing the content, condition and needs of a collection in order to guide future preservation efforts. Studies of physical condition typically follow commonly accepted formats and standards of development, often used in combination with analytical test methods and assessments of intangible aspects such as risk and value (Reed-Scott 2000). The focus of this review is to present the literature which provided the foundation for the simplified survey format used in the assessment of the Opere. Additionally, three studies were selected as practical examples of the method's implementation in assessment of books and paper material.

In the early 1990's Suzanne Keene led a working party with the aim of establishing a standardised methodology for the development of sample-based collection surveys. The result was a general framework not tailored to a specific material or collection type, providing an overview of the process. Following this structure the development of a survey should begin by defining its parameters. Keene defines three broad categories of surveys: condition surveys focusing on the material aspect, curatorial assessments of value and importance, and surveys of collection management and environment. Although a comprehensive collection review needs to take all of these aspects into consideration it is recommended for an individual survey to focus only on the essential data needed to fulfil a specific purpose, as to not create unmanageable amounts of information (Keene 1994). As such the first step of development is to establish the context of the collection and motivation for undertaking the survey, in order to clearly define its purpose and the intended practical application of the results.

The next step is to identify which information is required to fulfil the intended goal. The framework provides examples of general objectives coupled with suggestions for which types of data to collect to fulfil them. Once the data selection is narrowed down, work may begin on designing the survey format. At this point it is recommended a pilot test is carried out before finalising a sampling procedure and proceeding with the final survey (Keene 1994). An example of how this process has been applied in practise can be found in the development of a national library preservation assessment strategy in the UK, citing Keene's methodology (Eden et al. 1998, 1999). Two separate tick-box survey forms were developed. One focused on intangible aspects, gather data on the following categories: access, use, accommodation, usability, value, and importance. Condition assessment was however separated into its own form. Put together, the data could be analysed to arrive at a priority rating to guide preservation efforts (Eden et al. 1999).

In this manner, condition assessment formats commonly used to evaluate items on an individual basis may also be used as a survey tool. Joel Taylor, who has authored a number of articles that addressed the reliability of survey methods, summarises the practice as follows: *"Collection condition surveys involve observational judgements, recorded on a numerical scale, about the state of a collection as a whole, used to support collection management decisions."* (Taylor 2012). An example

of what a conventional array for use within a museum collection may look like is provided by Keene in her book *Managing Conservation in Museums*:

"Condition grade 1 GOOD

Object in the context of its collection is in good conservation condition, or is stable.

Condition grade 2 FAIR

Fair condition, disfigured or damaged but stable, needs no immediate action.

Condition grade 3 POOR

Poor condition, and/or restricted use, and/or probably unstable, action desirable

Condition grade 4 UNACCEPTABLE

Completely unacceptable condition, and/or severely weakened, and/or highly unstable and actively deteriorating, and/or affecting other objects: immediate action should be taken." (Keene 2002)

Similar scales are commonly used and the format is easily recognised within the field, although the implementation may differ in focus and level of detail. General condition grades may be useful as shorthand to convey overall condition, but without further definition their interpretation is dependent on the context. What is deemed fair condition in one particular collection may be unacceptable in another, for example considering the difference in expected condition of items in an archaeological collection versus one of modern art (Keene 2002). For the numerical score alone to be meaningful, as when compiling statistics for a group of objects, further definition is needed.

To produce more specific results the assessment of an object may be broken up into aspects which are scored individually. Keene provides an example of a tick-box assessment form which lists common damage types, where their presence and severity may be graded separately. An overall score may be determined from this data, which can be weighed depending on which damage types are considered more acute to the particular collection (Keene 2002). For results to be accurate the categories should be clear, specific and exhaustive, but not overlapping (Taylor 1999). The grading of scores should reflect the level of variation present in the collection, in order to be useful. For example, concluding that every object in a collection is in need of cleaning, while it may be true, does not provide a useful ground for prioritisation (Taylor 2004).

Key factors in the assessment of book and paper collections may be demonstrated by the following examples. Two studies were selected as they closely follow the described standardised formats and demonstrate the consistency of the method: a statistical survey of preservation status in the Warsaw National Library undertaken in 2000, based on a method first established in the 1980's, and a survey at the National Archives of Finland which a decade later used a similar approach. The third is the survey of manuscripts in the monastery of Mount Sinai, representing a highly notable study employing different approach, in a situation which called for an item-by-item-based assessment.

The survey at the National Library in Warsaw was particularly concerned with assessing the correlation of visual and mechanical paper deterioration with the acidity of the material. It makes use of the Stanford method for statistical evaluation of library collections. A sample of 384 objects was generated by mapping shelves as numbered units from which a random selection was made. The condition assessment was divided into the following categories: paper condition (condition of leaf edges, extent of yellowing, tears, and a folding strength test); text block condition (tightness, leaf fastening, and sewing condition); and binding condition (durability and attachment to the text block, condition of joints, corners, spine and covers, and previous repairs). Each aspect had its own assessment criteria on a scale from 1 to 3. For example, yellowing was scored by three degrees of

extent: no yellowing, yellowing of edges, and overall yellowing. From these results an overall score for the item was determined, with paper condition weighing heaviest into the final score. The results of the condition survey were analysed together with data from analytical tests. The pH level of the paper, its fibre composition and wood pulp content were measured. From this sample data a projection of collection-wide condition was calculated (Sobucki and Drewniewska-Idziak 2003).

The survey at the National Archives of Finland similarly combined a sample-based condition survey with analytical testing, with the addition of a risk analysis. The condition assessment was in this case divided by damage type, using the following categories: biological, humidity, ink/media, dirt/stains, yellowing, physical, and binding damage. Visual damage in each category was rated on a scale from 0 (no damage) to 3 (severe damage). Analytical tests were carried out of folding strength, pH-level, lignin content, and fibre characterisation. The test results were also converted into a rating on a scale of 0 to 3, correlating factors such as low folding strength, high lignin content, and acidic pH with higher risk of degradation. The risk assessment evaluated storage spaces in a similar manner, using the same scale to grade risk in the following categories: safety, water damage, cleanliness, materials, quality of shelves, climate, temperature, and relative humidity. The data generated was intended to be used to track changes in condition and provide statistics of individual preservation aspects, as well as to analyse correlation between the different assessments (Kecskeméti 2011).

The notable outlier is the Mt. Sinai project, being a large-scale highly detailed item-by-item assessment. Due to the unique and varied nature of the manuscript collection being surveyed, the goal was to create as comprehensive documentation as possible rather than produce a narrow selection of data. To accomplish this using standardised records, detailed survey sheets were developed using a combination of checkbox options, text fields, and drawn structural diagrams. These were used to both record binding characteristics and condition. Damage of each binding component was quantified using a system of percentile scores rather than a numerical scale. The result is a detailed breakdown of each individual binding. For example, the grading of board attachment encompassed separate evaluations of the sewing, endbands, lining, and cover material, from which an average score was calculated. The level of detail in the documentation required an assessment manual of over 80 pages which developed as the project progressed. A database system had to be developed specifically to manage the unique record type and quantity of data (Pickwood 2004). This raised issues of standardisation of terms, formats of binding descriptions, and cross-compatibility between specialised databases. There is still a lack of commonly implemented standards for binding descriptions and clearly defined terminology, further complicated by language differences and regional variations in classification of materials and techniques. This makes it difficult to ensure results are consistently interpreted and poses a major hurdle when analysing information from different sources (Campagnolo 2017).

Ensuring the consistency and reliability of the results is a core challenge in the development of an assessment method. The majority of the methodologies discussed use sample-based approaches, which generate statistically representative data from a randomised selection of objects. For these to be successful the sample must be selected properly. The simplest form of selection can be done by generating a completely randomised sample from a catalogue, but this may not be representative. A more accurate spread can be achieved by first mapping shelf units, then producing a random selection of shelves to generate a sample from (Reed-Scott, 2000). For a statistically valid sample-based approach, a common recommendation is a randomised selection of 400 objects being calculated to reach a 95% statistical accuracy, with an up to 10% deviation in results. A smaller sample results in a greater margin of error (Reed-Scott 2000). Another potential source of error is the analysis and interpretation of results. Commenting on the use of checklists and damage categories, Taylor notes that drawing specific conclusions based on generalised and at times overlapping

categories may over-represent risk factors which effects show up in several categories compared to those with less wide impact (Taylor 2004). In a similar vein, Taylor also comments on use of the agents of deterioration. In risk analysis these are commonly discussed as separate parameters while in reality their actions are often synergetic. If this is not taken into consideration the analysis of the results may under-represent the cumulative risk (Taylor 2012).

Regardless of sample-size and methodology, reliability is dependent on the judgments made during assessment. Despite the frequent use of analytical tests, all studies consulted were still based in some form of visual condition assessment. Taylor has authored a series of articles critically examining the accuracy of commonly used condition assessment forms and guidelines through practical tests, calculating the deviance over repeated assessments of the same objects with and without a written guide. The results yielded by these experiments were not within an acceptable margin of error for use in statistical analysis, and he found assessment guides alone did not reliably improve consistency. Significant deviance was found both in scores assigned by different assessors examining the same object as well as in repeated judgments made by the same individual (Taylor 1999, 2011). However, it was concluded that improvements in reliability could be achieved using repeated training sessions and making revisions of guidelines based on feedback from the surveyors (Taylor 2014). Formats with highly controlled data input do not circumvent this issue, as too rigid systems may prove counter-intuitive in practice. When assessing objects with a variety of damages and material characteristics these may not easily fall into standardised categories, it is up to the assessor to bridge that gap resulting in inconsistent interpretations of the instructions (Taylor 2004).

Although visual condition assessments in this respect are inherently subjective, they cannot be effectively substituted using purely analytical testing. In the article *Effective preservation decision strategies* the decision-making process behind conservation assessments is examined using models from the field of psychology, comparing the primary features and function of analytical and heuristic thought processes. Issue structuring, data collection, and analysis are core features in the analytical process. In the heuristic process decisions are instead made based on cue selection and intuitive prioritisation. A visual condition assessment which requires the surveyor to make judgements based on knowledge, experience and perception of various aspects of the material for the material is at its core a heuristic process (Henderson and Waller 2016). Replicating this process through analysis of quantifiable data is a complicated and demanding task which does not necessarily result in greater accuracy. If the correlation between a measurable factor and material condition can be proven, testing may provide useful data for identifying risk factors that may be indicative of probable damage of degradation, but for individual items the test data alone is not representative of its condition. Furthermore, proving correlation is not a simple task and much work remains if the goal is to cover all aspects of damage and degradation. For paper certain connections between material characteristics and chemical degradation have been investigated and are used in condition surveys, as exemplified by the previously mentioned survey projects, but major gaps in knowledge remain. Notably there is no equivalent review of damage caused by physical forces, despite it being among the most common damage types found in library and archive collections. Filling such gaps will take time as research is made difficult as the slow progress of degradation processes in combination with the margin of error in test methods, making long study periods necessary to detect any significant change (Duran-Casablancas et al. 2019).

In conclusion it should be said that although even though well established methods have a been shown to have an inherent degree of unreliability if held up to a scientific standard, they are primarily work tools for managing collections. As such the data produced, outside of a scientific context, only needs to be as precise as the end goal requires it to be. The potential of error is of course important to note in order to mitigate discrepancies, and as a reminder that results may easily

be misrepresentative if viewed uncritically or taken out of context. Solid groundwork with clear aims, conscious decision-making, and method evaluation are key to striking the right balance in creating a framework that produces the desired results without impeding the process.

3. Findings

3.1 Examination of Antichità Romane I-II

The following description is primarily based on an examination of the first volume in the series, containing the first and second parts of Giovanni Battista Piranesi's *Antichità Romane*. As part of the examination the volume was photographed. An overview is provided in figures 2-6.

The contents consist entirely of etchings in black ink on laid paper. All printed annotations and numeration is part of the plates. The volume does not include any typeset text. The first part consists of 43 numbered plates. The plates are numbered by volume and plate number, using Roman numerals. For pages featuring several smaller plates, these share the same plate number but are counted as separate figures. Following the last plate there are two unnumbered prints signed by Francesco Piranesi, dated 1787. The second part contains 63 numbered plates, with plate III being an index of the second and third volume of the work.

The foreleaves contain several marks and annotations: pasted in are a library sticker from the GMA and binder's ticket which reads: "Bound by J. Bohn No. 31 Firth Str. Soho, LONDON." A pencil note in English reads: "20 vol. in 18 (1054 plates in all) all fine uniform early Roman impressions". It is followed by a note of the title in matching writing, reading: "Piranesi, Giovanni Battista [Opere.] I. Le antichità romane 1 – 2. 1756".

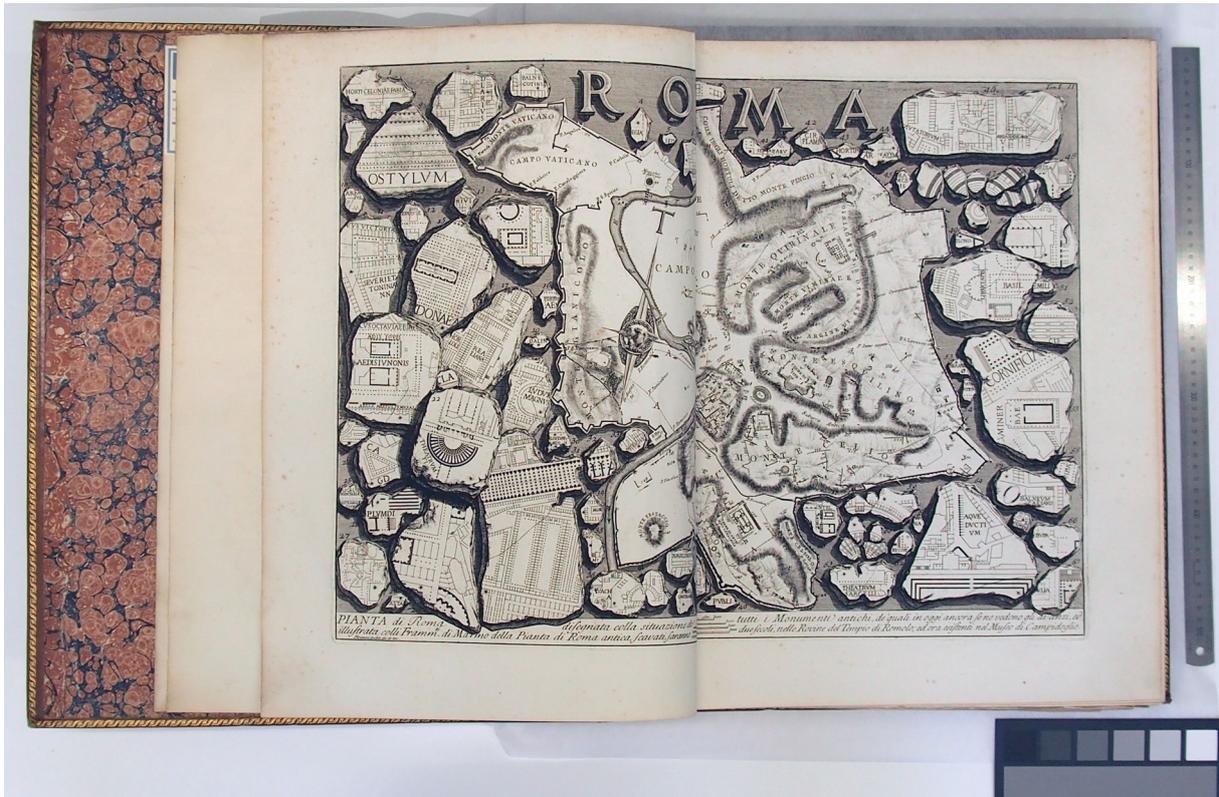


Figure 2: Open binding showing plate ii, the first present plate in vol. I.

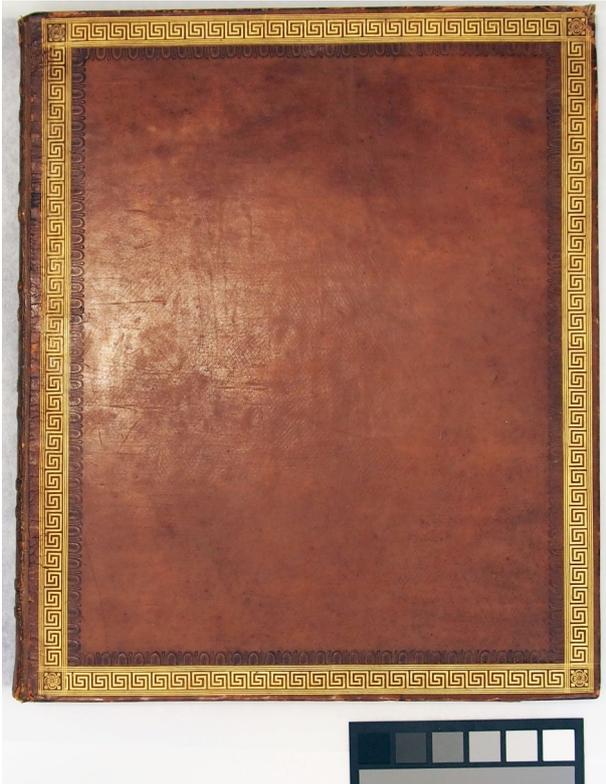


Figure 3: Front cover of vol. I.

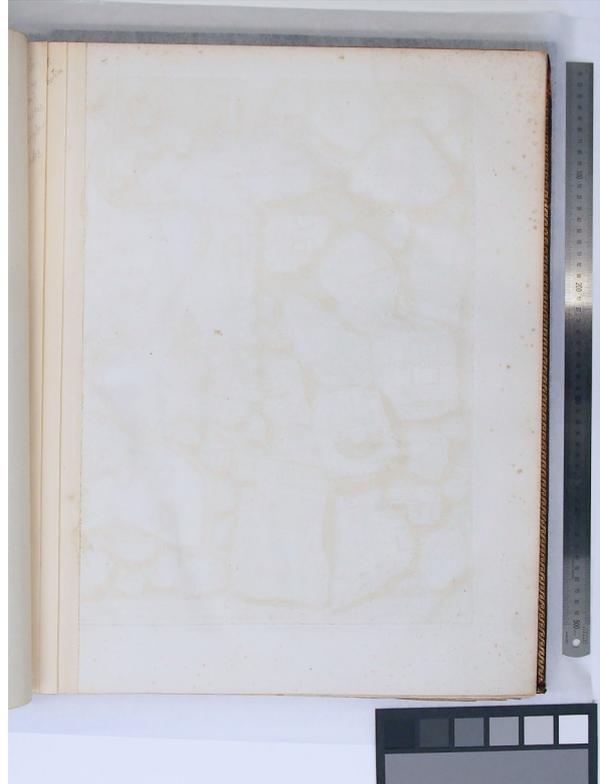


Figure 4: Beginning of text block with verso of plate ii.



Figure 5: Spine of vol. I.



Figure 6: Foot edge of vol. I.

The binding measures 55,5 by 47,7 cm at its widest points. Thickness varies between 6 cm at the spine and 5,5 cm at the fore edge. The binding is a rigid tight back, its spine is slightly rounded and completely inflexible. The boards are attached by a tight joint, flush against the spine with no step in between. It may be opened to an 180 degree angle, likely more if allowed to rest unsupported. The board material is a laminated fibre board, as can be seen in edges exposed by wear. The text block is sewn on recessed supports of cord.

The cover is fully clad in light-brown leather with a smooth grain. Decorative endbands are hand-sewn on double cores in red, white, and green thread. Twelve false raised bands placed in pairs separate the spine into seven compartments. For each binding in the set "*PIRANESI*", the individual title, and volume number are gold-tooled onto separate fields. The spine is further decorated using gold- and blind-tooled stamps, gold tooled lines, and blind tooled patterns on and in between the raised bands. The boards are decorated with a central panel consisting gold tooled patterned border, a blind-tooled inner border, and finely diced leather grain at the centre. The board edges and turn-ins are gold-tooled using rolled patterns.

The text block is composed of etchings mounted onto guards, which make up the back structure of the binding. The size of the etchings vary between single pages of varying width, single-fold pages, and larger fold-outs. The larger etchings are attached to the guard by the fold. Empty guards compensate for the added thickness of the folded pages to create an even block. The paper quality of the prints is largely consistent to the eye: a laid paper with clearly visible chainlines. The grain is fine and the base colour is an ivory white, with the exception is one page which appears slightly thinner and more yellow in tone. The paper used for the fore-leaves and the binding is considerably more rigid and has a darker yellow tint. A paste-down of marbled paper in a shell pattern in red, blue, and white covers the inside board and is pasted down against the fore-leaf. The edges are trimmed and all sides are trough-marbled in a shell pattern in red, blue, and white. Where the edge of the board has been exposed it is evident the text block was marbled with the boards attached.

Although not in critical condition, the binding is worn. The rigid spine structure remains solid but there is considerable wear to the board joints. The front joint has been replaced using a strip of brown leather, inserted underneath the original cover material which has been pasted down on top. The grain of the newer leather is worn and flaking and the original material on top is beginning to split and detach. On the inside of the cover the joint has been reinforced with a strip of brown book-cloth pasted down on top of the endpaper. These repairs, as well as the state of the original back board joint, can be seen in figures 7-9. The front board material is abraded but without major damages. The back board is heavily scratched, with one indent where cover material has been lost entirely as can be seen in figure 10. There is considerable wear to the cover material in exposed areas; at the corners, along the damaged joint, and head and foot of the spine the leather is cracked and flaking. The flaking is heaviest at the unrepaired back joint, where the leather is blackened and hardened. The exposed grain in damaged areas is dry and crumbling.

The sewing of the text block could not be examined due to the inflexible spine but all gatherings appear well attached. The condition of the pages is overall good. The ink appears to be stable, but there are instances smudging and staining particularly where dark areas have lain against each other. The paper is not notably brittle or prone to tearing, except for where weakened by damages or folds. The paper damage found appears to mainly be caused by wear or poor handling, not degradation of the paper itself. The most common problems were worn folds, large creases and improperly folded prints, and small tears in the page margins. One page corner has been lost. Some undulation of the print surface is frequently seen. All-over distortion of pages was found where the binding is less tight, in early portions and adjacent to where there are folded prints.

All pages displays some degree of uniform yellowing, consistently darker around the edges of all pages, as well as where the page is adhered to the guard. Comparing the paper of the initial pages to those in the middle of the binding found the tint noticeably darker where the paper has been more exposed. A stark difference in tone can be seen in a single paper where pages of different width have lain against each other, leaving the edge of the larger page more exposed. Foxing is present throughout the whole volume, with a variation in severity following the same pattern as the yellowing. There is further discolouration caused by ingrained dirt along the edges and corners. The staining rubs off with contact and risks further smudging. The top edge is blackened with ingrained dirt, as are the turn-ins of the cover. There is loose dust and dirt gathered at the inside hinge and initial pages. There are some liquid stains along page edges that can be attributed to the edge marbling.



Figure 7: Front hinge with replaced leather joint



Figure 8: Original back joint



Figure 9: Cloth reinforcement of the inside joint



Figure 10: Damage to back board

Three plates were found to be removed by cutting through the guard by which they were attached. Pencil notes on the remaining stubs indicate which etchings have been removed. The first part was missing its two initial plates: the frontispiece dedicated to King Gustav III of Sweden seen in Figure 1 and the title page featuring a portrait of Piranesi etched by his son Francesco after artwork by Joseph Cades. These could both be found among the loose Piranesi prints stored in the same cabinet as the bindings. There is no reason to doubt these are the prints original to the volume: paper and print quality are consistent, their motifs match the notes and the plate numbering, and the cut stubs line up with those left on the print. From the second part plate *lxviii* has been removed. It was not present in the cabinet but was found among the ones registered in the museum database, explaining its absence from storage as it had been prepared for exhibition.

3.2 Summary of survey results

Assessment took an average of 20 minutes per binding, which included taking measurements and confirming the contents of the volume. Due to the previously established limitations the assessment focused on the stability of the binding structure with the intent of providing an overview of their condition. It should not be seen as reflective of the condition of individual etchings contained within the volumes. The assessment was structured according to the categories presented in Table 1. The full spread of scores of individual volumes may be found in Appendix II.

No major variations were found in structure, material, or appearance of the bindings. All volumes are of similar board size but the text blocks vary in thickness. The paper quality and appearance of the prints were found to be largely uniform, with the exception of volume 15. *Raccolta di alcuni disegni del Barberi da Cento detto il Guercino* which has impressions in both black and sepia ink on paper of varying quality. Each volume has the author, title and publishing date noted in pencil on the fore-leaf, with the first and third volume containing additional notes.

Table 1: Assessment grid

<i>Category</i>	<i>Examination points</i>	<i>Main considerations</i>
Attachment of boards	The hinge where the board is joined to the spine, inside and outside.	Is the structure capable of supporting the board during use? Is there wear/damage to the joint? Has material been repaired/replaced?
Attachment of spine	The outer structure of the spine.	Is the spine fully attached to the structure of the binding? Are there damages which may worsen due to spine movement? Has material been repaired/replaced?
Stability of text block	The sewing structure, page attachment, and edges of the text block.	What is the condition of the sewing? Are the edges even or have signatures shifted? Are there loose pages/signatures? Do the pages lie flat and evenly supported? Are the deformations severe enough to affect the structure of the binding?
Condition of covering material	The outside surface of both boards and spine.	Is the surface sensitive or stable? Are there mainly cosmetic damages (e.g. scratches, stains) or issues which could worsen during use (e.g. crackling, flaking, crumbling)? Has wear/deterioration affected the strength of the material?
Condition of page material	The first five pages.	Is the material pliable or brittle? Has wear/deterioration affected the strength of the material? Is there disfigurement (e.g. foxing/discolouration/staining) affecting readability? Are there damages/weak points (e.g. folds/ creases/tears/losses) present?

Each category was scored on the following scale:

0. The object is stable and fully functional with no significant wear.
1. There is light wear/minor damage but the structure remains stable and functional.
2. There is damage/heavy wear/structural weakness that limit function.
3. Failure is imminent/has occurred. The volume cannot function without risk of further damage.

Table 2: Assessment scores by category

	<i>Score 0</i>	<i>Score 1</i>	<i>Score 2</i>	<i>Score 3</i>
Overall score	0	0	7	11
Board attachment	0	0	7	11
Spine attachment	0	6	12	0
Text block stability	0	14	4	0
Cover material condition	0	2	15	1
Page material condition	0	7	11	0

The table shows the distribution of scores in each assessment category. Overall score is determined by the highest score in any of the individual categories.

In all of the eighteen bindings board attachment was found to be heavily worn or failing, with the majority scoring a 3 for very loose or failed joints. In several instances boards were completely detached despite having been reinforced or repaired. In contrast, the rigid spine structure was consistently very solid. Higher scores in this category were mainly due to damage or loss of material at the head or foot of the spine, with the overall structure remaining intact.

The sewing could not be examined in any of the bindings due to the rigidity of the spines but there were no indications of failure, although instances unevenness observed in the edges implies some slip of individual signatures has occurred. The few higher scores were mainly warranted by removed pages resulting in a slanted and destabilised structure.

Wear to the cover material was mainly centred around the expected areas of joints, board edges, corners, spine edges, and back board. In more protected areas the general condition of the leather was good, but as can be seen in figure 11 the more exposed spines were all to varying degrees blackened, crackled, and worn.

The condition of the page material mainly followed the same pattern observed in the first volume: paper discolouration, foxing, and dirt being present but centred around more exposed areas in the first few pages and quickly decreasing further into the text block. Increased yellowing could also be seen depending on the tightness of the text block. Where pages of different size followed each other the edges of the larger page would a darker tint, and a general increase could be found in parts with many folded prints. A more detailed examination would be needed to capture the full variation, as the spread and severity of these issues varied. The sizes of the pages were also a major factor in physical damages, with the volumes being composed mainly of single page prints having less weak points than ones containing oversized fold-outs more prone to crease, misfold, and tear.

Table 3: Presence of repairs

Board attachment	Spine	Text block	Cover material	Page material
18	2	0	5	0

The table shows the number of volumes with repairs present in each category.

The poor board attachment is also reflected in the distribution of repairs. All volumes have undergone repairs to or both joints although the material, execution, and effectiveness vary. The range includes full back leather replacements, new leather joints inserted under the original material, and patches of thin leather applied on top. In some instances these could not be separated from the categories of spine and cover material repairs as they served a dual function by extending to fill in losses in these areas. Board attachment was frequently further reinforced by strips of cloth pasted along the inside joint, as may be seen in Figure 9. Two different cloth had been used for this purpose: a brown cloth which retained some strength and a thin, faded, and very brittle red one.

There were no signs of repairs to the underlying back structure or sewing. None of the paper damages found were mended, although it should be noted only the initial pages were examined and the damages were mainly minor tears, crases, and misfolded pages.



Figure 11: The Piranesi cabinet housing 17 of the 18 bindings.

4. Discussion

4.1 Dating

Due to the complexity of dating Piranesi's work the contents of individual volumes could not be thoroughly examined within the scope of this study. It was only confirmed that the contents of the bindings corresponded to the titles in the museum records. The total plate count as listed in the description of the *Opere* was not confirmed but all volume titles were accounted for. Although some conclusions regarding the dating of the *Opere* may be drawn from the available information, it is important to note that these do not necessarily apply to individual etchings or volumes. It is possible for collected sets to be compiled from different imprints or for volumes to have had their contents altered by addition, removal or replacement of pages. This is a possibility as these volumes, although bound as a matching set, are not attributed to a known binder associated with either the Roman or Paris workshops. A pattern holes observed in the margin of the loose title page of the first volume may be indicative of a previous binding, although this could simply be a temporary publisher's stitching. It would be of interest to investigate if these appear consistently throughout the volumes as a potential means of determining if they are indeed from the same source.

The dates in the card index record may be disregarded, as they are stated to be the original publication dates which clearly do not match editions of the *Opere*. The validity of the annotation stating that the contents are "*all fine uniform early Roman impressions*" only makes sense if intended as a reference to the posthumous collected imprints of Piranesi's work and not the full span of his original publications. For the first two volumes of *Antichità Romane* collected in the first binding, the original edition of volume one may be immediately ruled out as there is a lack of typeset text which after the first edition was replaced by with extensive annotation of the plates. The etched plate numbers which appear throughout the volume were also added in this second state. The index of the second part bears the Strade Felice address to where Piranesi's business moved in 1761. The frontispiece with the dedication to King Gustav III is the final state of that plate, posthumously reworked by Francesco Piranesi following his appointment as an agent in 1783. The title page bearing the portrait of Piranesi appears from the 1784 edition onwards (Hind 1922). At the end of the first part there are two additional unnumbered plates signed by Francesco and dated 1787. As such the contents consistently correspond to later imprints of the work.

The only other annotation commenting on the dating was found in the third binding, containing *Raccolta de tempj antichj*, published by Francesco Piranesi after the death of his father. Here a pencil annotation matching that in *Antichità Romane* states an early copy is indicated by plates 1, 7, and 9 being missing from the plate order. This claim is referenced to "Samuel p. 212". This source is likely Arthur Samuel's *Piranesi*, an early English-language monograph published in 1910. It contains a limited catalogue of publications along with some observations on differences between editions. The page number 212 did not match up to the edition of this publication which was referenced in this study. However, on page 206 Samuel writes regarding the second part of *Tempj Antichj* that "*In many copies plates i., vii. to ix., and xxix. are wanting, presumably due to these not having been issued in the earlier copies*" (Samuel 1910). The information matches and the use of the word copy is reminiscent of the annotation. If this is indeed the source used for these annotations, the basis for dating the full set is weak due to the limitations of the early cataloguing efforts. The work of Samuel in particular predates the better regarded catalogues of Focillon and Hind. In his review of the literature Middleton dismisses the publication as parochial (Middleton 1982). These English annotations are due to the language more likely attributed to the *Opere*'s time in England than any

study carried out by the museum, but appears to have been carried over to later descriptions of the set.

The binder's ticket present in the first volume provides some further basis for attributing the Opere to Francesco's time, thanks to documentation and research of the book-trade in the United Kingdom. John Bohn is known to have practised as a bookbinder and bookseller at the Firth Street address between 1795 and 1820. Starting out as a binder, he became active as a bookseller approximately 1810. From 1817 onwards this is how he is primarily referred to in directories. From around 1820 until his death in 1843 Bohn's business was instead located at Henrietta Street, the previous address specifically noted to be void. This timeline is based on contemporary bookseller directories and catalogues published by Bohn himself. Prior to this Bohn lived in Germany, moving to England around 1790 (Jefcoate 2020). This provides a fairly narrow timespan in which the Opere could have been bound at the Firth Street address: approximately 1795 to 1820. The time-window does overlap with the period during which Francesco Piranesi was issuing publications, ending with the bankruptcy of the Paris business in 1809. Printing of the following Firmin-Didot edition didn't begin until 1835, well after Bohn had relocated his business. If the volumes are indeed an originally a set, it is likely either a later posthumous Roman imprint or an earlier Paris edition.

This lines up with the cursory material observations. Hind notes that all work up until the Firmin-Didot edition are printed on similar qualities of laid paper and that from that point on woven paper is used (Hind 1922). However, more thorough study would be necessary to decisively say anything concerning the individual publications or etchings. This would require a comprehensive review of the full contents, the state of individual impressions, paper quality, and watermarks. Some minor variation in paper quality was observed in the Opere, but this in itself is not enough to draw any conclusions from as variations may be expected even within a sets sold bound by the original publishers. It has been observed that volumes contain various different watermarks, indicating different sources as stockpiled paper from different mills and time of fabrication may have been used concurrently. Surplus of pages from previous imprints may also have been used at later dates (Syrette 2005).

Further research is also required to address the century unaccounted for between the approximate time of binding and the acquisition by the GMA. The acquisition ledgers of the museum library were searched without result. It can be speculated that the volumes remained in England for some time based on the English annotation likely referring to Samuel's 1910 publication, but without records that is only speculation. A possible avenue is searching Bohn's published catalogues for any listings matching the descriptions of the Opere, although it is possible he was only commissioned to bind the set and was not its seller.

4.2 Condition and risk

Regarding the physical state of the Opere it is clear the question is not if it could benefit from conservation treatment, but rather the extent to which interventions would be appropriate. The assessment found the condition of 11 out of 18 bindings to not be stable enough for use, according to the defined criteria. The remaining 7 the structure was weakened and at risk of further damage. This was mainly due to failed or failing board attachment, which in the assessment accounted for nearly all instances of score 3 (unable to function without immediate risk of damage). Coupled with the large size of the volumes, the lack of support provided by the boards makes safe handling and storage difficult.

As such board reattachment could be considered as part of a potential treatment plan. The method selection would depend on whether there is interest in actively using the bindings or the intention is simply to secure loose parts to adequately enclose the text block. Restoring full functionality to the binding structure would require significant intervention. The consistent failure of the original joint as well as the subsequent repairs and reinforcements indicate the core issue is a weakness in the structure itself. This is not surprising as the very rigid tight back puts most of the strain on the joint when opened. The relatively thin covering material and cords lack the strength necessary to support the large size of the boards and weight of the text block. The only of the past repairs which have held up well are heavy-duty options such as complete back leather or joint replacement, using a more durable material than the original. This suggest less invasive techniques will not provide the required support. As the bindings are contemporary to the contents, majorly altering the appearance or structure of the bindings would not be desirable. The past interventions may also need to be removed and so it should be taken into consideration if there is interest in preserving them as part of the objects' history. If they are deemed undesirable, a new board reattachment could be an opportunity to restore more of the original appearance. However, due to the invasiveness of some repairs and brittleness of the original spine leather they may not be possible to remove without risk of leaving visible traces or doing further damage.

Should this issue be remedied all but one volume would instead receive an overall score of 2. To further lower the overall assessment scores it would be necessary to address a wider range of issues in all of the examined categories. Some of the issues are inherent to the material, such as the sensitive fold-outs, the progression of yellowing and foxing, and the aforementioned structural weakness. As such the Opere would still require careful handling and proper reading supports after a potential treatment. Others issues are primarily cosmetic and could be remedied through less invasive methods. The volumes would benefit from a general cleaning of surface dirt which may case further staining and smudging. Other points of consideration are fastening loose endbands, the consolidation of flaking and crumbling patches of leather, and the fraying edges of boards. The state of the text block could be improved by correcting improperly folded prints, stabilising weak folds and mending tears. However, heavily creased pages may be hard to remedy effectively as the attachment to the binding limit the options for flattening treatments.

The risk of further material degradation should not be disregarded. The varying degrees of discolouration and foxing point toward a potential for further disfigurement. The pattern of stronger yellowing and foxing around the edge of pages and in places the binding is looser may be linked to higher exposure to the surrounding environment, as access of oxygen or presence of pollutants in the air is known to accelerate the chemical degradation of paper (Guild 2018). If improperly exposed the condition in currently less affected areas may be expected to decline over time. As such the risk is particularly high in the case of the loose pages and in sections from which these have been removed, for which the environmental exposure has drastically increased. Migration of acidity from adjacent material is another escalating factor which may account for the higher extent of all-over yellowing and foxing of the initial pages, which are in contact with the paper of lesser quality used for the fore-leaves. This may also be the cause of the similar effect where the pages are in contact with the guards, which close to the spine should be less accessible to airborne factors. Furthermore, the bindings have been kept in a city environment since at least 1928 and absorption of air pollution may have further escalated the process of deterioration in both page and cover material. These risk factors being present within materials of the binding itself increases the need for preventing further degradation by limiting the factors which are controllable, such as temperature and relative humidity.

The current storage conditions are far from ideal in that regard. The collection of graphic art is primarily housed in one of the rooms within the GMA museum building which have been converted to serve as workspace, and so climate is adapted to human preference rather than ideal storage conditions for books and paper material. Measures are however taken to protect the material from acutely damaging conditions. Environmental data is recorded by one sensor placed centrally in the room. Data is collected regularly and an alarm alerts staff to sudden fluctuations. Data from 2019 showed a max recorded value of 49,98% and min 36,63% RH and max 25,43 C and 19,23 C. There is a clear seasonal shift with a spike in temperature in the late summer and a lower baseline maintained by heating during the winter. The RH curve follows a similar pattern but is flatter as the museum uses dehumidifiers to compensate for the seasonal shift in climate. Light levels are not measured, but are not currently a major risk factor specifically to the Opere in its closed storage. The presence of airborne pollutants or volatile organic compounds has not been measured. Although these conditions are not critically poor, avoiding rapid fluctuations and extremes which would risk immediate damage, they are in the upper range commonly recommended for the preservation of paper-based objects (Guild 2018). Options for improvement are limited as the museum building is not well suited to maintaining a controlled environment.

The room is furnished with wooden shelves and cabinets in which most of the bound material is stored on openly. The Piranesi collection is stored in an enclosed wooden cabinet as pictured in figure 11, bar one volume which due to lack of space was placed on the open shelving. Loose prints originating both from the Opere and other acquisitions are stored on shelves in a lower compartment of the same cabinet. The majority of the bindings lay stacked directly on top of each other, with the rest standing upright to the side without supports. Loose prints are stored laying on shelves in the lower compartment of the cabinet. There is no shelf lining nor any protective enclosures neither for the bindings nor the loose prints. The space is also ill-suited for handling the large bindings. Although there are desk-spaces built between the cabinets, these are ill-fitted for handling volumes the size of the Opere. For the stacked volumes a single binding cannot be accessed without moving the surrounding ones, without adequate space to place these aside. The cabinets are placed on a narrow elevated platform and reach a better-suited tables they must be carried down the stair to the bottom floor. Due to the infrequent use of the Opere this may not be the most acute issue, but that raises other concerns. The room itself is cleaned by general maintenance staff but there is no established routine for cleaning the bound material or their infrequently accessed storage spaces, which at the moment of examination were covered by a layer of dust. The GMA is actively working with pest management but presence of silverfish is currently known throughout the building, which due to the age of the construction is difficult to secure even with the best of efforts. As the storage space is directly connected to the main exhibition halls it especially difficult to control. The current lack of a cleaning routine for the cabinet storage space and the infrequent use of any of the shelved material makes it less likely for problems to be caught in time should they arise.

In an ideal scenario with regard to its material preservation the Opere should be moved to a designated storage environment adapted to modern standards of climate control, appropriate shelving material, and adequate space for handling and storage. In reality the necessary resources and space may not be readily available, especially if the full scope of the collection is considered, but mitigating the most immediate risk factors is not necessarily a complicated or demanding task. Small-scale improvements could provide some protection while the objects remain in their current location. The simplest measure would be storing the bindings laying flat in individual conservation-grade boxes to minimise the strain put on the damaged structures. Enclosures would serve to facilitate handling of the material, provide protection from dirt, pollutants, and serve as a buffer for environmental fluctuations. The loose prints may be mounted for storage and similarly enclosed to allow them to remain together with the bindings. However, changes would have to be made to the

already crowded shelving as the cabinet alone could not fit all volumes if stored in this manner. Furthermore, boxing up the objects does not eliminate the need for maintaining the surrounding space, not solely of the Piranesi cabinet but including the open shelves. Unless such measures are part of a long term plan and improvements are made to the overall maintenance of the collection there is a risk that efforts end at minor improvements, which do not adequately address the long-term risks but may provide a false sense of security. Such a plan would have to address the maintenance of the storage space and material housed there as a whole. The issues discussed here are not limited to the Opere, although it may be considered one of the most notable object of its type within the collection. Considering its future without regard to rest of the older bound material within the graphic collection, as well as reproductions falling between the categories of the museum and modern library collection, may be a missed opportunity to address a wider issue. This does not only risk neglect of the material itself, but leaving it unaddressed undermines any efforts made to improve the conditions for material sharing the same space.

Regardless, the lack of records is a prominent risk which should be remedied before any changes to storage are made or conservation treatment requiring documentation is undertaken. The old index card system is not up to modern standards and navigation of the graphic collection is in general dependent on staff knowledge. The cabinet the Opere stored in is labelled “*Piranesi*” on a plaque but there is no inventory of its contents nor do the unregistered objects have any documented placement information, putting them at high risk of dissociation. Although the Opere is rarely moved and at little risk of being misplaced, the concept of disassociation does not just encompass the loss of the item itself but loss of information contributing to its history and significance. The bound material falls into one of the major risk categories: *Object valued for uses not common to bulk of collection* (Waller & Cato 2019). To reach an acceptable minimum standard of documentation the volumes of the Opere should be assigned object numbers, database records, and be clearly integrated into the existing collection management. Ideally a process and vocabulary for documenting bound material should be defined to ensure consistent documentation, as the material is an outlier in the museum collections for which the database system is not ideal. This should also address the separated prints which present a particularly high risk of dissociation. Their documentation status is in itself better as a number of them have been photographed and assigned temporary object numbers in the MuseumPlus database, but they are now stored and exhibited separately from the bindings. Unless their connection is recorded the separation is at risk of becoming permanent, especially as the graphic collection contains other etchings by Piranesi which do not originate from the Opere.

4.3 Use and significance

The primary value and potential areas of interest of the Opere at the GMA is a key question which needs to be answered in order to determine what is an appropriate treatment with regard to their preservation. However, in discussing original state and artist intent it should be remembered that this collected edition wasn't produced by the artist himself, nor is it solely a posthumous retrospective on the art of Piranesi. It is rather a collection of publications composed of etchings issued from his workshop to which Piranesi was the major contributor. The set includes titles published by Francesco Piranesi, and etchings by artists not from the family. Some volumes in the series were originally conceived as complete publications while others collect series of works which were carried out over a longer period of time and sold both individually and in different constellations. Plates have been reworked some were majorly altered over the years of publishing, publications have had etchings added, and typeset text has been removed. As such there is no simple reference point for an authentic original state or artist intent.

Although a marginalised object type within the collections, the Opere has consistently been brought up as a notable object. The manner in which the acquisition is described expresses a significant regard for the artistic and historic value of Piranesi's work, and it serves well to represent the original high ambitions for the collection of graphic art. At this time of the volumes were part of a living collection. Under the management of Romdahl the museum's holdings of graphic prints were being actively expanded, the so-called reference library was being used for art studies, and efforts were made to present graphic works to the wider public within the museum exhibitions. The extent to which the Opere specifically played part in realising these ambitions can only be speculated upon, but this background in combination with the damage the binding have sustained suggest they were actively used and studied rather than passively admired. Although it cannot be said for certain that all damages and repairs occurred at the GMA, the varying materials used and their subsequent failure suggesting multiple instances of repair and continued use over a longer period of time. The condition of the etchings is also likely to have deteriorated. It is not known what condition they were bought in but it would be a stretch to as Romdahl did claim they are all brilliant specimen, considering the very visible issues found with both the etchings and bindings during the examination.

As the only known use of the Opere in recent time has been the exhibition of loose prints this may be their main interest to the GMA today. Although Piranesi in his time published much of his work as printed volumes with the intent of documenting antiquity and conveying ideals of architecture and design it cannot be denied his images are appreciated for their artistic value, particularly within the context of an art museum. The influence and appreciation of Piranesi as an artist certainly has earned the Opere a place in a collection centred on European graphic art. This interest is clearly illustrated by the varying condition of the volumes: whole sections are taken out of ones containing Piranesi's visually more striking series such as the Carceri, while ones containing depictions of more documentary nature appear fully intact. There has presumably been interest in showcasing the connection to Sweden through Francesco Piranesi's position as an art agent for King Gustav III, as the frontispiece carrying the dedication had been removed for display. But although it is known Francesco himself sent some publications to the crown, there is no reason to suspect any material tie to the volumes held by the GMA due to the known provenance from England. Still this connection and line of influence may add relevance of the work to the GMA's general collection profile of Nordic art.

If the Opere is to be regarded primarily a museum object the practical ramifications of its display should be considered, particularly in regard to etchings removed for this reason. From an accessibility standpoint it is significantly easier to display these etchings separate from the bindings. If the loose pages were to be permanently reattached this, of course, complicates exhibition. The museum has established practices for displaying two-dimensional works on paper, but there is no ready-made solution currently available for exhibiting bound material. Even under the best conditions the viewing experience will differ significantly compared to artwork mounted on a wall. Whether this is a positive or a negative is debatable. During Romdahls time, when the Opere was first acquired, the experience of browsing through graphic works was something valued enough to be simulated in the public exhibition. If value is placed not solely on the etchings but the context of their historical presentation, displaying it separate from the binding could be considered a lesser experience. However, placing the full binding in a display case provides less than ideal circumstances for viewing details of the artwork, particularly in the case of large folded pages. It does not allow for more than one etching from a volume to be shown at a time, preventing works intended to be seen as a connected series from being shown together. Considered in this light, the bindings present an obstacle rather than a tool for their viewing within a static exhibition.

From a preservation standpoint, displaying singular prints would lessen exposure of the full contents and circumvent the issues of safely displaying the bindings. These are unsuited for long-term display as the potential damaging effect of the bindings remaining in an open position for an extended period of time needs to be considered. In the eventuality of long-term exhibition frequent rotation and monitoring would be necessary for the objects at display. But although there are some benefits to having single prints accessible for display, the current situation of removed etchings cannot be said to aid the preservation of the volumes. Apart from the risk of permanent separation, it may also affect the treatment of the bindings. The removed pages are prominent works which are among those most likely to be selected for display. As a result several of these have received records and conservation treatment, while the full volumes are unattended. Returning these pages to the bindings would be in the interest of preserving the works as complete objects, stabilise their structure, and eliminate the risk of separation. A middle-ground approach may be perusing a reversible method of reattachment coupled with raised standards of documentation in which the connection between an etching on display and the volume is preserved, while still allowing for the temporary display of the now loose pages.

If the Opere is not well-suited for exhibition, what other purpose may it serve at an art museum? Although the educational use of the graphic collection has long ceased and it is unlikely the bindings will ever serve their former purpose, an argument can be made for allowing access to the objects to be requested for study and research purposes. It would be in line with the initial reason for acquisition and the intent behind the publications serving to convey Piranesi's architectural statements and provide historical documentation. It would also be relevant to the study of Piranesi himself, as the cataloguing and material study of his work is in large part based on the comparison of different examples of his publications. Contributing to the available variety may be considered worthwhile. If it is desirable to pursue this the Opere could in addition to museum records be registered in the Swedish library database LIBRIS, as the holdings of the art library are. This would increase its visibility and searchability in the same place as works held by other institutions are. A search of the database turns up a scattering of of publications by Piranesi at different institutions across the country, but only two have a comparable number of volumes in the same collection. Most notably the Swedish royal library, which also holds the records of Francesco Piranesi's involvement with King Gustav III. However, increasing the visibility of an item increases the risk of further damage from wear and poor handling. Although access requests may not be expected as a regular occurrence, mitigating the risk when it does occur would require establishing a routine for handling access requests. This should include documentation, evaluation of condition, and guidelines for use. For a fundamental basis there are recommendations available from established institutions which would not need any high level of cost or expertise to implement. The greater challenge may be establishing procedures and ensuring that these instructions are known and followed, that there are proper spaces for study, and the necessary equipment is available. This may be particularly problematic for the GMA as it falls outside the normal use of its collections but requires resources beyond what the museum library has available.

Digitisation may be discussed as a tool for providing access without the associated risk to the original material. However, this is not a simple solution as there are considerable challenges associated, especially to an institution without ongoing digitisation projects of bound material. Investments in time, tools, and expertise are required in order to ensure quality imaging and metadata. This is not a one-time expense as further resources will continuously need to be allocated towards sustainable management of the digital files and data, maintaining server space and a more appropriate viewing interface than the museum database provides. The resources required should be considered in relation to the potential benefits. If the intent is simply to make images of the artwork accessible, Piranesi is a notable enough artist that readily available reproductions of his etchings exist both

digital and print. This is not to say that there are no benefits to providing digital access to more than one version of a publication, especially as there is interest in comparing different states and editions of Piranesi's work, but the quality of the imaging as well as metadata required to ensure searchability and compatibility with other systems needs to be up to par with the purpose of the project. What value would a digitisation project strive to add, beyond creating a record of these particular objects? For example, the *Digital Piranesi* project from Irvin Department of Rare Books and Special Collections at the University of South Carolina aims to provide an ambitious digital experience by combining high resolution scans with transcripts, historical information, and detailed cross-linked metadata. Furthermore digitisation does not eliminate the address the physical state of the material. The condition of the etchings and bindings would need to be addressed in preparation to ensure good results, and increased visibility may increase the chances of attracting interest in accessing the physical material rather than reduce future use.

There is no simple conclusion to be reached regarding the status of the Opere. Piranesi's work is itself of a dual nature as is the history of this particular set, as objects with a history of use now part of a collection primarily for exhibition. What can be said that if they are not in one way or another are made relevant to the museum's present-day interests, the likelihood of improving their current circumstances is low. Still, the same duality which presents a risk for the Opere to slip between cracks of collection management also makes it an interesting example of a work which bridges the gap between art objects and library materials. This could be used to advantage, extending the perspective to the values of the graphic collection and related material as a whole. Particularly for the bound material which current purpose is similarly uncertain, and reproductions which may not be regarded as artistically or historically significant in themselves. Although the collection was initially conceived as a graphic reference library and despite the separation of originals from more modern reproductions on a collection level, their use was linked with reproductions filling perceived gaps in the collection's content. Viewed as a record of this time, does the remaining older library material still carry significance to the museum? Is there a value in maintaining the collection as an entity in the museum environment? Should the historically and artistically valuable works be singled out and fully integrated in the museum collection, potentially separated from the physical context if moved to more suitable storage, then what becomes of the remainder?

If a larger inventory of bound material should be carried out, the assessment method of this work could be adapted for wider use. The survey format was tailored to answer the specific question of structural stability and usability of bound material, while remaining brief enough to employ on an item-by-item basis. Although the scope was primarily adjusted to fit within the limitation of this particular study, it would be unlikely to have a scenario with a significantly larger amount of assessors, and even if all of the older bound material was to be surveyed the scale would still not be large enough to implement sample-based survey methods for statistical analysis. However, the assessment is still unrefined and would require further evaluation. The main points to address to ensure consistency would be improved guidelines and separation of categories, standardisation of terms, and data management. In the event of a collection review it would also be of interest to integrate assessments of value and risk, to provide the necessary context for evaluating the data collected.

Ideally, a discussion of the treatment of a notable object such as the Opere could present an opportunity to highlight wider questions in regard to the use and preservation of the collection as a whole. The importance placed on the Opere in the history of the collection of graphic art, the artistic and historic values of the work it contains, and the possibility of further research all present opportunities to raise interest and find ways to increase its relevance in the present day.

5. Summary

The collection of graphic art is a marginalised subset of the wider GMA collections, which is displayed to a lesser extent in permanent exhibitions and has mainly been brought to attention in specific instances of targeted efforts. The bound material within the collection is yet more marginalised as it doesn't fit into the normal operations of the museum and as such has not received the same attention as two-dimensional artwork. Out of this material, Piranesi's *Opere* stands out as an acquisition given specific mention both at the time of its acquisition and in the later chronicles of the history of the GMA. It was acquired in 1928 by Alex Romdahl, who through his management of the collections in the time period during which the GMA was established as an independent museum greatly influenced its early development. The *Opere* has been used as an example of his ambitious expansion of the graphic art collection. At this point in time the collection graphic art was both exhibited and used as a "graphic reference library" for art education, which took place at the museum. Wear to the bindings of the *Opere* indicating heavy use suggest they were actively part of this. However, the collection is no longer used for this purpose and the only component of the *Opere* which in present time have displayed, received conservation treatment, and database entries are individual etchings which have been removed from the volumes for the purpose of exhibition.

As documentation of the *Opere* is sparse the study strived to confirm if the information regarding its contents and dating provided in older descriptions was accurate. This is a complex task as identification of specific editions of Piranesi's work is made difficult by the lack of dependable catalogues from his time and the varying the constellations of the publications issued both during his lifetime and in later posthumous collections. As such the specific edition and completeness of individual volumes of the *Opere* could not be confirmed without more thorough study. Viewed as a set its material characteristics and contents indicate it to be an early posthumous edition, of the like which were issued by Piranesi's son Francesco Piranesi during the late 18th and early 19th century. Earlier editions may be ruled out through alterations of etchings and the inclusion of publications issued by Francesco after Piranesi's death in 1778. However, further investigation would be necessary needed to confirm if the *Opere* was originally sold as a complete edition or rebound from various sources into a matching set. The dating of the bindings could be narrowed down to between the years 1795 and 1820, based on the documented activity of the binder, narrowing the possible range of time of printing.

The survey of the physical condition of bindings found them to be structurally unstable, impeding their potential use as bound objects. The most prevalent issue was the board attachment, which was found to be failed or failing at the hinges in every volume. Hinge repairs and reinforcements were common, varying in execution and effectiveness. This is concluded to be an inherent structural weakness due to consistent failure both of the original material and the repairs. This was the main limiting factor which prevented use. Other issues included destabilised text blocks due to removed pages, worn and crumbling cover material, and weakness of folds and large creases in the pages. Although it may be possible to mitigate some of the risk with careful handling and proper support of the bindings during use, the poor structural condition in combination with improper shelving put them at long term risk of further damage regardless of use. Patterns of damage and degradation of the etchings followed an expected patterns of yellowing, foxing, and dirt, being stronger in areas exposed to the surrounding environment and where in contact with presumably acidic material of the binding itself.

This progression of damage is problematic in light of the current uncontrolled storage conditions and the drastically increased exposure to the loose pages. Although climate is monitored and kept

outside acutely damaging ranges it is primarily adapted to human comfort, not levels which would serve to inhibit further degradation. Another significant risk factor is the lack of maintenance routines for the bound material combined with the known presence of silverfish in the building and its infrequent use. The most immediate of the risk discussed is potential dissociation and loss of information due to a lack of adequate records, particularly a potential loss of the connection between the volumes and removed etchings. Addressing this is a prerequisite for carrying out any changes to storage conditions affecting its placement or conservation treatment necessitating documentation.

Although it is possible to propose straightforward solutions to all of the issues mentioned through changes to storage conditions, routines, and conservation treatment, questions which problematise decision-making were raised during the discussion. At the core of these were the question of the Opere's function at the museum and by extension which aspects value should be given priority. Previous efforts targeting the collection have mainly focused items which are closer to the core use of the museum collection. Key questions which need to be addressed in order to determine how the Opere is best preserved are as follow:

- Should the bindings be preserved in their current state and merely prevented from further deterioration, or should treatment strive to restore function to the bindings despite the significant degree of intervention required?
- Should the removed etchings be permanently returned to the volumes to ensuring the integrity of the object is preserved, or is the interest in exhibiting individual etchings strong enough to pursue alternative options for ensuring the connection is maintained?
- Does the potential use for research purposes and relevancy to historical interests outside the museum-sphere motivate making the Opere more accessible and increase outward visibility, despite the associated risk and resources required?
- How may decisions regarding the preservation of the Opere and potential changes to its storage and management affect related material, due to its status as one most notable examples of bound material in the collection of graphic art?

Addressing the final question should take into account the collective significance of the graphic collection, particularly its history and connection to the GMA. Similar issues to that of the Opere may be present among the other bound material within the collections, which if only the most notable objects are singled out for preservation may be left permanently undressed. However, the discussion of such objects may be viewed an opportunity to raise these wider questions.

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Appendix

I. Transcript of titles

The following list is a transcript of volume numbers, titles, and dates of publication as they appear in the GMA index card record system.

<u>Piranesi, Giovanni Battista</u> <u>/Opere./ 1057 planscher. 55 cm.</u>		
1.	Le antichità romane. 1 – 2.	1756.
2.	Le antichità romane. 3 - 4	1756.
3.	Raccolta de' tempj antichi. Sepolcro Scipione.	1790
4.	Della magnificenza ed architettura de' Romani.	1761.
5.	Opera varia. Carceri. Archi trionfali. Trofei di Augusto.	1743 – 57.
6.	Lapides Capitolini, sive Fasti consulares triumphalesq romanorum . . .	1762.
7.	Antichità d'Albano e di Castel Gandolfo.	1764.
8 – 9.	Vasi, candelabri, cippi . . . 1 – 2.	1778.
10.	Colonna Trajana.	1770.
11.	Différentes vues de quelques restes de trois grands édifices . . . de Pes. to . . . – Il Teatro d'Ercolano.	1783.
12. – 13.	Vedute di Roma. 1 – 2.	1778.
14.	Diverse maniere d'adornare i camini . . .	1769.
15.	Raccolta di alcuni disegni del Barberi da Cento detto il Guercino.	1764.
16.	Collection des plus belles statues de Rome . . .	1786.
17.	Schola italica picturae.	1773.
18.	Pompei. Villa Adriana. Padova &.	

II. Full distribution of assessment scores

Score key

0. The object is fully functional with no significant wear
1. There is minor damage/light wear but the structure remains stable and functional.
2. There is damage/heavy wear/structural weakness that limit function.
3. Failure is imminent/has occurred. The volume cannot function without high risk of further damage.

The presence of repairs is marked by an X.

	<i>Board attachment</i>		<i>Spine attachment</i>		<i>Text block stability</i>		<i>Cover material</i>		<i>Page material</i>		<i>Overall score</i>
		X						X			
Vol. 1.	2	X	1		1		2		2		2
Vol. 2.	3	X	2		1		2	X	2		3
Vol. 3.	2	X	2		1		2		2		2
Vol. 4.	3	X	1		1		1		2		3
Vol. 5.	3	X	2		2		2		2		3
Vol. 6.	3	X	2		2		2		2		3
Vol. 7.	3	X	2		2		2		1		3
Vol. 8.	3	X	1		1		2		1		3
Vol. 9.	2	X	2		1		2	X	1		2
Vol. 10.	3	X	2		1		2		2		3
Vol. 11.	2	X	1	X	1		2		1		2
Vol. 12.	2	X	1		2		2		2		2
Vol. 13.	3	X	2		1		2		2		3
Vol. 14.	2	X	2		1		2		1		2
Vol. 15.	3	X	1		1		1		1		3
Vol. 16.	2	X	2		1		2	X	1		2
Vol. 17.	3	X	2	X	1		2	X	2		3
Vol. 18.	3	X	2		1		3	X	2		3