

Comparative Study of Rubbings Metadata Schemes

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Abstract

Rubbings are reproductions on paper from various materials with inscriptions, drawings, and designs. Describing and cataloging rubbings affects the way we use them and in turn, affects resource discovery. This paper compared seven metadata schemes used for describing Chinese rubbings and/or brass rubbings, including the People's Republic of China Cultural Relics Protection Industry Standard: Metadata for rubbings- Cataloguing rules, metadata of the rubbings collection of the Institute of History and Philology of the Academia Sinica, metadata of the rubbings collection of the Metropolitan Museum of Art, metadata of rubbings collection of the British Museum, metadata of brass rubbings collection of the Spurlock Museum of World Cultures, CDWA, and MODS. The result highlights the different purposes of the schemes and significant differences in the numbers of fields, structures, coverages, and granularities. It also shows the common features of the schemes, especially in resource linking.

Keywords: rubbings; metadata; metadata schemes; comparison; rubbings description

1. Introduction

1.1 Rubbings

Rubbing has been a universal print technology for centuries to preserve and disseminate cultures across countries, e.g., China, Germany, Japan, the UK, etc. Rubbing is the process of sticking, pressing, and tapping or rubbing paper on an inscribed surface. In China, the evidence shows that the earliest rubbings can be dated to Tang Dynasty (618-907 A.D.) (朱剑心, 1940). In the West, the practice of rubbing began later. In the UK, brass monuments first appeared around the thirteenth century and brass rubbings were introduced at a later time (Glover, 2012).

Rubbings are of high value for research. They record local events and personalities which are rarely recorded in official historical records, revealing the different classes of society other than the imperial families in history (UC Berkeley East Asian Library, 2004; Vane, n.d.).

1.2 Cataloging and digitization of rubbings

In China, cataloging epigraphs and rubbings arose in Northern Song Dynasty (960-1127 A.D.) and were revived in Qing Dynasty (1644-1912 A.D.) (张靖, 2009). In the West, several catalogs of brasses appeared in the 19th century, e.g. A Manual of Monumental Brasses (1861, attributed to Herbert Haines). Rubbings were previously cataloged along with the objects.

Digitization allows rubbings to be more open to the public, makes them reach a wider range of patrons, facilitates research in relevant fields, and assists with long-term preservation. Many libraries and museums have open digital rubbing collections, e.g. Chinese Rubbings Collection of Field Museum, Chinese Rubbings Collection of Harvard Library, Rubbings Collection of the British Museum, Brass Rubbings Collection of the Spurlock Museum of World Cultures, digital rubbings of the Ashmolean Museum, digital rubbings of Europeana, digital rubbings of The Met, Brass Rubbings collection of Hamline University, Chinese Stone Rubbings Collection of East Asian Library, University of California, Berkeley, Digital Archives of Bronze Rubbings, Rubbings of Han Dynasty Stone Relief, Buddhist Rubbing, Digital Archive of the Oracle Bones Rubbing, Digital Archives Project for the Liao-Chin-Yuan Rubbings of Academia Sinica, digital rubbings of the Palace Museum, digital rubbings collection of the National Library of China.

1.3 The metadata schemes of rubbings

Along with the trend of digitization, structured metadata schemes of rubbings have been generated. Many metadata schemes are used to catalog or register rubbings.

MODS (Metadata Object Description Scheme), designed by the Library of Congress, has been used to catalog rubbings. For example, the Chinese Rubbings Collection held by Harvard University; the Buddhist Stone Scriptures of Shandong Province project (Arnold, 2008). CDWA (Categories for the Description of Works of Art), as a set of cataloging rules for cultural works, can be applied to catalog rubbings.

The People's Republic of China Cultural Relics Protection Industry Standard: Metadata for rubbings – Cataloguing rules (the Chinese Standard) (中华人民共和国国家文物局, 2019) describes a set of national cataloging rules for rubbings. The Institute of History and Philology of the Academia Sinica in Taiwan developed a metadata scheme to describe its rubbings collection in the Digital Archives Project (the Sinica Scheme) (中央研究院歷史語言研究所, 2004).

Additionally, several institutions use homegrown metadata schemes for rubbings cataloging, e.g., the British Museum, the Spurlock Museum of World Cultures at the University of Illinois Urbana-Champaign, and the East Asian Library at the University of California, Berkeley.

In this paper, we present a comparative analysis of the metadata schemes to investigate the common grounds and variations of rubbings descriptions.

2. Method

This study adopts a qualitative comparative research method. We designed a comparative guide (see Table 1) to examine the structural and functional features of metadata schemes. We adopted the four levels of the Relationship Model of Chinese rubbings as one comparative framework, including the Works level, the Objects level, the Rubbings level, and the Digitized Rubbings level, (Kipp & Yang, 2021). Though the relationship model was designed based on the Chinese rubbings resources, the main elements are universal and the model can be extended to describe other types of rubbings. We also adopted a six-category typology of metadata, which was adjusted from the Getty and the NISO typology, including administrative, descriptive, preservation, technical, structural, and use metadata (Gilliland, 2016; Riley, 2017).

TABLE 1. Comparative guide of the rubbings metadata schemes.

Structure	Function
Top categories	Features described
Number of levels	Granularity
Number of same modules	Types of metadata
Number of similar modules	Links to related resources

A total of seven metadata schemes were selected: 1) Chinese Standard, 2) Sinica Scheme, 3) Met (the Metropolitan Museum of Art) Scheme, 4) British Museum Scheme, 5) Spurlock Museum Scheme, 6) CDWA, and 7) MODS.

3. Findings and Discussion

3.1 General comparisons of the metadata schemes

The Chinese Standard and Sinica Scheme are special schemes designed for describing Chinese rubbings. The Met Scheme, British Museum Scheme, Spurlock Museum Scheme, and CDWA are general schemes for describing museum collections. MODS is mainly for cataloging library records. We only used the rubbing-related fields of MODS for the comparison, which were decided according to the application of MODS to the Chinese Rubbings Collection of Harvard Library. Except for the Met Scheme which we harvested from the Met's Open Access Program, all the other

schemes are hierarchical with 2 to 6 levels. The number of fields of each scheme varies a lot. CDWA, with the most fields, has 398 fields while the Met Scheme has 54 fields.

We re-categorized the seven schemes according to the four levels of the Relationship Model. Table 2 shows the statistics of the re-categorization. All schemes consist of major fields describing the Rubbings level; six schemes serve for the Works level, the Objects level, and the Digitized Rubbings level.

TABLE 2. Statistics of the metadata schemes corresponding to the relationship model.

	Chinese Standard		Sinica Scheme		Met Scheme		British Museum Scheme		Spurlock Museum Scheme		CDWA		MODS	
Works	13	13%	20	8%	1	2%	35	11%	-	-	27	7%	44	36%
Objects	20	20%	112	47%	1	2%	23	8%	-	-	29	7%	21	17%
Rubbings	56	57%	89	38%	45	83%	247	81%	99	95%	290	73%	58	47%
Digitized Rubbings	10	10%	16	7%	7	13%	1	0%	5	5%	52	13%	-	-
Total	99	100%	237	100%	54	100%	306	100%	104	100%	398	100%	123	100%

At the Works level, fields describing the subject, title, and language are the most common fields. The granularity of Works fields varies a lot. For example, the Chinese Standard only has one subject field, but MODS subject field has 34 sub-fields and the British Museum Scheme has 29. Fields at the Rubbings level are the main body of the schemes. This part covers rich content including creation, exhibition, location, materials, measurements, provenance, related works, seal, techniques, etc.

We examined the schemes using the 6-category typology. Table 3 shows the statistics of the metadata types of each scheme. Most schemes do not cover all types of metadata and the fields are unevenly distributed across the types. Administrative and descriptive metadata constitute a major part of the schemes while technical metadata constitutes the least part in general. The Sinica Scheme embraces all types of fields, followed by the Schemes of the British Museum, the Spurlock Museum, and CDWA which comprise 5 out of 6 types of metadata.

TABLE 3. Statistics of the metadata types of the schemes.

	Chinese Standard		Sinica Scheme		Met Scheme		British Museum Scheme		Spurlock Museum Scheme		CDWA		MODS	
Administrative	15	15%	22	9.3%	16	29.6%	117	38.2%	36	34.6%	44	11%	12	10%
Descriptive	75	75%	176	74.3%	37	68.5%	138	45.1%	27	26%	276	69%	111	90%
Preservation	3	3%	7	3%	-	-	40	13.1%	29	27.9%	19	5%	-	-
Technical	-	-	1	0.4%	-	-	7	2.3%	4	3.8%	-	-	-	-
Structural	-	-	21	9%	1	1.9%	4	1.3%	-	-	28	7%	-	-
Use	6	6%	10	4%	-	-	-	-	8	7.7%	31	8%	-	-
Total	99	100%	237	100%	54	100%	306	100%	104	100%	398	100%	123	100%

3.2 Comparisons between Chinese Standard and Sinica Scheme

The Sinica Scheme has 237 fields with four levels while the Chinese Standard has 99 fields with two levels. The two schemes both describe authentication of the objects, calligraphy features,

creators with different roles, credit, locations, different titles of a rubbing, decorations, editions, excavation of the objects, marks on a rubbing, serial rubbings, techniques, transcriptions of the original works. They have 6 similar modules, which are type, condition, copyright, exhibition, and version, and 1 same module, which is technique.

Differences exist in 1) Reference description: the Chinese Standard has 3 fields (related knowledge and its 2 subcategories) while the Sinica Scheme has 27 fields to cover detailed information such as author, issued date, page, publisher, title, volume, etc.; 2) Marks description: the Chinese Standard has only one field inscription marks but the field is inclusive that can describe any marks of the rubbings. The Sinica Scheme has 11 fields in two parts describing detailed information about colophons and seals; 3) Title description: the Chinese Standard has 11 fine sorted titles like first title, head title, reverse side title, etc. The Sinica Scheme uses two general categories main title and alternative title to accommodate the different titles.

Generally, the two schemes have fields that are suitable for describing the particular features of Chinese rubbings. The Sinica Scheme is more structured and detailed than the Chinese Standard. Both schemes are a good match for Chinese rubbings description but overfit for brass rubbings which do not have the special features.

3.3 Comparisons within museum schemes

The common features the museum schemes describe are object ID, creator, credit line, culture, date, excavation place, exhibition, location, measurement, and name. The Spurlock Museum Scheme and CDWA have two similar modules. The Spurlock Museum Scheme only describes the Rubbings and the Digitized Rubbings levels, without disclosing subjects, origins, and the stories behind rubbings which might be essential to understanding the rubbings and their values. Although the Met Scheme covers all levels, only one field for the Works level and one field for Objects levels.

Compared to the compactness of the Met and Spurlock Museum Schemes, the British Museum Scheme and CDWA are more comprehensive in terms of the number of fields and the coverage of levels. They are more granular and pay more attention to describing the objects which the rubbings originated from and the works embodied in the objects. For example, the British Museum Scheme and CDWA record the inscriptions and transcriptions on the objects, the subject, and the language of the works. The deeper the resource description, the more linkages between resources and the better knowledge discovery.

3.4 Comparisons between the library and museum representatives

We examined the differences and similarities between MODS and CDWA. The number of categories of CDWA (398) is more than triple the number of categories of MODS (123). CDWA covers all levels of the relationship model; MODS covers most levels but not the Digitized Rubbings level.

Most fields of CDWA (306, 77% of the total) fall into the Rubbings level category. The areas that are described in CDWA but not in MODS include exhibition/loan history, condition/examination history, orientation/arrangement, state, facture, conservation/treatment history, context, and critical responses.

Regarding the typology, MODS only covers administrative and descriptive metadata, where descriptive metadata accounts for 90% of the total fields. CDWA includes administrative, descriptive, preservation, structural, and use metadata.

Extension in MODS is an all-purpose field to describe the information which is not covered by other fields. Although the extension field makes MODS more inclusive, the description is not structured and has a limited effect on resource linking and discovery.

3.5 Common features of the schemes

Besides the common fields that are seen in the seven schemes, such as fields about the information of title, creator, identifier, measurement, technique, material, location, language,

subject, etc., all the schemes have fields to link external resources. The schemes use fields, e.g., `relatedWorks`, `link resource`, `relatedItem`, and `reference`, to link artifacts, artworks, bibliographic materials, etc. The Met Scheme and MODS support linking to any type of resource.

4. Summary

In this study, we did a qualitative comparative study of seven metadata schemes used for describing rubbings resources, which are the Chinese Standard, the Sinica Scheme, the Met Scheme, the British Museum Scheme, the Spurlock Museum Scheme, CDWA, and MODS. These schemes were created in different cultures for different purposes. We did four major comparisons: descriptive statistics comparison, Chinese rubbings metadata schemes comparison, museum metadata schemes comparison, and comparison between library and museum schemes. Many have common fields (although using different terms) to describe the same/similar features of rubbings. Meanwhile, with dozens to hundreds of fields, they have different complexities and granularities thus leading to various degrees of detail and different coverages. Each scheme has its emphasis and focus and serves its main purpose.

When using different schemes to describe different types of rubbings, information loss or overfit of the schemes might happen. In the future, we will do further analysis including a comparison of cultural-specific fields and rubbings case studies to examine the metadata schemes from a perspective of knowledge discovery.

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