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Librarians as Digital Curators: Preserving Nusantara Ancient Manuscripts at North Sumatra Library and Archives Office

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ABSTRACT

The role of librarians as digital curators in the preservation of ancient Nusantara manuscripts at the North Sumatra Provincial Library and Archives Service is discussed in this study. This study uses a qualitative approach that utilizes observation, interviews, and documentation. The results of the study indicate that librarians function as digital curators by collecting and finding ancient manuscripts, digitizing collections, managing metadata and digital collections through the E-Deposit application, providing access to information to the public, and collaborating with various related institutions. The fragile physical condition of manuscripts, limited budget and digitization facilities, a shortage of human resources, and a lack of public awareness of the importance of preserving ancient manuscripts are some of the challenges faced. Therefore, to ensure the sustainable preservation of ancient manuscripts digitally, it is necessary to improve librarians' capabilities, strengthen digitalization tools, and collaborate with and support from various parties.

ABSTRAK

Peran pustakawan sebagai kurator digital dalam pelestarian naskah kuno Nusantara di Dinas Perpustakaan dan Arsip Provinsi Sumatera Utara dibahas dalam penelitian ini. Penelitian ini menggunakan pendekatan kualitatif yang menggunakan observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa pustakawan berfungsi sebagai kurator digital dengan mengumpulkan dan menemukan naskah kuno, mendigitalkan koleksi, mengelola metadata dan koleksi digital melalui aplikasi E-Deposit, memberikan akses ke informasi kepada masyarakat, dan bekerja sama dengan berbagai lembaga terkait. Kondisi fisik naskah yang rapuh, keterbatasan anggaran dan fasilitas digitalisasi, kekurangan sumber daya manusia, dan kurangnya kesadaran masyarakat akan pentingnya pelestarian naskah kuno adalah beberapa tantangan yang dihadapi. Oleh karena itu, untuk memastikan pelestarian naskah kuno berbasis digital secara berkelanjutan, diperlukan peningkatan kemampuan pustakawan, penguatan alat digitalisasi, dan kolaborasi dan dukungan dari berbagai pihak.

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1. INTRODUCTION

The development of information technology has transformed the scope of the librarian profession from merely being "book keepers" to knowledge managers in various formats and channels. In the modern information ecosystem, librarians are required to ensure that information can be found, understood, and utilized appropriately by users. This

transformation demands competencies in classification, cataloging, database management, information integration, as well as the ability to act as intermediaries between information sources and user needs. The shift in information format from print to digital also brings new consequences, namely the need for sustainable management of digital content to remain maintained, meaningful, and accessible in the long term (Nursalimah & Ali,2024), (Safri, 2020).

In this context, the concept of digital curation (digital curation) becomes relevant as a framework for systematic and continuous management of digital information. Digital curation not only focuses on file storage but also includes selection, organization, maintenance, and quality control of digital content to ensure it remains authentic and trustworthy. The main challenge in this domain is the resilience of digital information itself, as digital data remains at risk of damage, loss, or format incompatibility due to technological advancements. Therefore, librarians play a strategic role in ensuring the sustainability of digital information through structured governance (Anas & Salim, 2023a). The urgency of digital curation becomes even more apparent when libraries face vulnerable collections, such as ancient manuscripts of Nusantara. Ancient manuscripts are intellectual heritage that contains historical, cultural, and local identity values, but their condition is easily affected by environmental factors, carelessness in storage, or physical damage. This vulnerability demands solutions that can preserve the content of information without increasing the risk to the physical manuscripts. Digitization has become one of the strategies that allows the content of manuscripts to remain protected and accessible more widely without having to frequently handle the original manuscripts. However, digitization is not just a scanning process. This activity requires planning, organizing, work standards, readiness of human resources, support from hardware and software, as well as adequate funding. Without effective management, digitization risks producing only file archives without quality control and clear structure.Within the framework of digital curation, librarians do not only act as technical operators but also as managers of the process who determine collection priorities, compile metadata, design retrieval systems, and ensure the quality and sustainability of information access.

This role becomes increasingly important in regional institutions that have a mandate for cultural preservation, such as the Library and Archives Service of North Sumatra Province. As a public service institution, this agency has a strategic position in expanding information access while preserving historically valuable collections. Librarians within the agency do not only carry out circulation services but are also involved in information governance, including digitization and preservation of ancient manuscripts (Barbuti, 2021). In practice, librarians determine material priorities, compile consistent metadata, and design access flows so that digital collections are easily found and remain safe to use. In addition to technical aspects, digital curation also touches on policy and ethical dimensions. Not all manuscripts can be freely accessed, as some may contain sacred values or sensitive information related to specific communities. Therefore, librarians as digital curators must be able to balance open access with the protection of collections and respect for social-cultural contexts.

The preservation of ancient manuscripts cannot be done individually by a single institution. Cross-institutional collaboration, both with cultural and educational institutions, is necessary to strengthen funding, technology, and expertise. Through collaboration, ancient manuscripts do not merely remain as stored artifacts but can become living and relevant sources of learning for younger generations. Thus, the role of librarians as digital curators

becomes key in ensuring that the intellectual heritage of Nusantara remains preserved, accessible, and continuously passed down sustainably.

Previous studies have mainly discussed manuscript digitization processes and preservation strategies. However, limited studies have examined the specific role of librarians as digital curators in regional library institutions, particularly in managing Nusantara ancient manuscripts in North Sumatra. This study contributes by exploring how librarians perform digital curation practices, including manuscript identification, digitization management, metadata organization, and access governance in a regional preservation institution.

Based on the description above, the Role of Librarians as Digital Curators in the Preservation of Nusantara Ancient Manuscripts at the Library and Archives Service of North Sumatra Province is important to concretely see how the role of librarians develops in the realm of digital curation, especially related to the preservation and digitization of valuable collections such as ancient manuscripts. Research in the context of provincial services can reveal real needs related to competencies, infrastructure, work standards, and access policies that support long-term preservation. Thus, the discussion in this research can be used as a basis for strengthening strategies more systematic, sustainable digital services and preservation that meet the needs of cultural heritage preservation and public information access.

2. METHOD

1.1. Approach & Type of Research

This research uses a qualitative method with a descriptive design and case study model to deeply understand how librarians at the Library and Archives Service of North Sumatra Province perform their role as digital curators in the preservation of Nusantara ancient manuscripts. The focus of the research is not on testing hypotheses, but on work processes, professional considerations, dynamics, and obstacles in the digitization and management of digital collections. The descriptive approach is used to describe the actual conditions of preservation, including digitization practices, metadata preparation, repository management, and access policies. Meanwhile, the exploratory approach aims to examine more deeper the role of librarians in curation decision-making, long-term data management, and digital preservation strategies. Data is analyzed through reduction, presentation, and thematic conclusion drawing, and validated through source and technology triangulation to produce comprehensive and contextual findings.

1.2. Location and Time of Research

This research is conducted at the Library and Archives Service of North Sumatra Province, located in Medan City. The reason for choosing this location is quite strong, because this institution plays a central role in the preservation of ancient manuscripts from various local cultures such as Batak, Mandailing, and Malay. In addition, they have also started to move towards digitization, although it is not yet fully optimal in terms of systems and human resources. The research is planned to be conducted over 1 month, from May to June, in order to obtain comprehensive and in-depth data related to the processes, strategies, and obstacles faced in the implementation of digital manuscript preservation.

1.3. Subjects and Informants of Research

The informants in this study were determined using purposive sampling techniques, which involve selecting informants based on specific considerations that are most relevant to the research objectives. The informants include: Librarians or officers who are directly involved in managing ancient manuscript collections, digitization activities, compiling metadata, and managing e-deposits or digital collection services.

The informants in this study consisted of two librarians/staff members who were directly involved in managing ancient manuscript collections, digitalization activities, metadata management, and digital collection services at the North Sumatra Provincial Library and Archives Service.

Table 1.1. List of informants

Code	Name	Position	Role in Research
I1	Ahmad Iqbal, S.Kom	Penata Layanan Operasional	Digitalization process, collection management, E-Deposit development
I2	Heru Sanjaya, Amd.Kom	Penata Layanan Operasional	Digital collection management and E-Deposit development

1.4. Data Sources

The data sources in this study consist of primary and secondary data. Primary data were obtained directly from informants through several data collection techniques, including in-depth interviews, direct observation, and documentation. The documentation covered various preservation activities, such as digitization outputs, storage formats, and forms of access services provided for digital collections.

Meanwhile, secondary data were collected from various written sources and supporting documents relevant to the research topic. These sources included scientific journals and books discussing digital curation, digitization, and digital preservation of ancient manuscripts. Previous studies concerning the role of librarians as digital curators and the preservation of Nusantara ancient manuscripts were also utilized to strengthen the theoretical foundation and support the analysis of the research findings.

In addition, the researcher used official Standard Operating Procedures (SOPs) and guidelines related to digitization processes, metadata management, digital preservation, and collection access policies. One of the supporting documents analyzed in this study was the official SOP of the E-Deposit Sumut application managed by the North Sumatra Provincial Library and Archives Service. The SOP describes the workflow of digital collection management, including administrator management of collections, deposit submission processes, and public access services. In relation to ancient manuscript preservation, the SOP provides guidelines for managing digital collections, organizing metadata, and facilitating access through the E-Deposit platform.

The study also utilized information related to the E-Deposit application managed by the North Sumatra Provincial Library and Archives Service. E-Deposit is a digital collection platform that stores and provides access to various regional digital collections,

including ancient manuscripts. The application functions as a repository for digital objects resulting from the digitization process, supported by collection organization and metadata management features to facilitate information retrieval and access services.

1.5. Data Collection Techniques

The data collection techniques used in this study consisted of in-depth interviews, observation, and documentation. In-depth interviews were conducted with librarians or curators responsible for ancient manuscript collections and managers of digital collection services. These interviews aimed to obtain comprehensive information regarding preservation processes, institutional policies, challenges encountered, and strategies implemented in managing digitally based ancient manuscripts.

Direct observation was carried out at the Library and Archives Service of North Sumatra Province to examine the preservation activities of ancient manuscripts. The observation focused application e-deposit and well as digital collection access services. This technique allows researchers to identify preservation activities and obstacles faced in preserving ancient manuscripts.

Documentation was used to collect and analyze supporting records related to the research topic. The documents studied include photos of ancient manuscripts that have been printed in book form and in digital form in the e-deposit application, as well as other relevant documents regarding the preservation of ancient indonesian manuscripts and the role of librarians as digital curators.

1.6. Research Instruments

The main instrument in qualitative research is the researcher themselves. The researcher acts as the data collector, analyzer, and interpreter of the data's meaning. In addition, the supporting instruments used are: Interview guidelines, Observation sheets, Audio recording devices.

1.7. Data Analysis Techniques

The data collected in this study were analyzed using the Miles and Huberman qualitative data analysis model, which consists of three main stages: data reduction, data display, and conclusion drawing and verification.

Data reduction involved the process of selecting, simplifying, and focusing the collected data on information that was relevant to the research objectives. At this stage, data obtained from interviews, observations, and documentation were organized and categorized to facilitate further analysis.

Data display was carried out by systematically organizing the reduced data into descriptive narratives and presenting relevant quotations from interviews. This stage helped the researcher understand patterns, relationships, and findings emerging from the data.

Conclusion drawing and verification constituted the final stage of the analysis process. The researcher interpreted the meaning of the data, identified significant findings, and

drew conclusions based on the evidence obtained. The conclusions were continuously verified throughout the research process to ensure their consistency and validity.

1.8. Data Validity (Validity Test)

To ensure the trustworthiness of the research findings, this study applies four criteria of qualitative research validity, namely credibility, dependability, confirmability, and transferability.

1) Credibility

Credibility aims to ensure that the research findings accurately reflect the realities encountered in the field. To achieve credibility, several techniques were employed. Triangulation was conducted through source triangulation by comparing information obtained from librarians and digitization managers. In addition, technique triangulation was applied by comparing data collected through interviews, observations, and documentation, including SOPs and access policies. Time triangulation was also used, by collecting data at different times to examine the consistency of information. Furthermore, member checking was carried out by confirming interview summaries and preliminary findings with key informants to minimize misunderstandings and ensure the accuracy of the interpreted data.

2) Dependability

Dependability emphasizes the consistency and reliability of the research process. To ensure dependability, an audit trail was maintained throughout the study. The researcher systematically documented all stages of the research process, including the research design, interview guidelines, field notes, data analysis procedures, and conclusion drawing. In addition, peer debriefing or peer review was conducted by discussing the research procedures and analytical processes with the supervising lecturer and peers. This process helped evaluate the consistency of the research procedures and the logic underlying the interpretation of findings.

3) Confirmability

Confirmability is intended to ensure that the research findings are derived from the collected data rather than from the researcher's personal opinions or biases. To achieve confirmability, an audit trail and documentation of evidence were maintained. Research findings were supported by verifiable evidence, such as observation notes, interview transcripts, photographs of activities, and official institutional documents. In addition, triangulation was used to strengthen confirmation by comparing data from multiple sources and collection methods, ensuring that conclusions were not based on a single perspective.

4) Transferability

Transferability refers to the extent to which research findings can be understood and considered applicable in similar contexts. In this study, transferability was enhanced through thick description. The researcher provided a detailed description of the research context, including the profile of the Library and Archives Service of North Sumatra Province, preservation procedures, access policies, the roles of relevant actors, and the

condition of supporting facilities. Through this comprehensive description, readers can assess the relevance and applicability of the findings to other institutions or similar settings.

3. RESULTS AND DISCUSSION

1.1.RESULTS

A. Informant Identity

The informants involved in this study consisted of two staff members from the North Sumatra Provincial Library and Archives Service. The first informant was Ahmad Iqbal, S.Kom, who serves as Penata Layanan Operasional and is involved in digital collection management, digitalization activities, and E-Deposit development. The second informant was Heru Sanjaya, Amd.Kom, who also serves as Penata Layanan Operasional and is involved in managing digital collection services and supporting the development of the E-Deposit platform.

B. Efforts of Librarians as Digital Curators in the Preservation of Ancient Manuscripts of the Nusantara

Based on interviews with informants at the Library and Archives Service of North Sumatra Province, librarians have made various efforts to ensure the preservation of ancient manuscripts of the Nusantara through a digital curation approach. These efforts include collecting ancient manuscripts, digitizing collections, managing metadata and digital collections, providing access to information, and building collaborations with various related parties. The first effort is to collect and identify ancient manuscripts scattered throughout North Sumatra. Librarians conduct direct searches in places that may have ancient manuscripts and visit museums that have cultural heritage collections. According to both informants, librarians from provincial, district, and city library services continue to search areas that have the potential to contain ancient manuscripts. The informants stated: “Librarians or those from the district and city library services continue to hunt in areas that have the potential for library materials, whether in the form of bamboo pustaha lak-lak or from bones. So indeed, we gather it directly by coming to the areas or to museums.”

According to this statement, librarians actively find and record the existence of ancient manuscripts that have historical and cultural value. Because collections that have not been identified can be lost or damaged without documentation, this gathering is the first step in the preservation process. This result is in line with the opinion that digital curation begins with important information objects that are selected and identified (Anas & Salim, 2023). After the gathering process, librarians use digitization to store information in old manuscripts. Based on the interview results, this is done through a media transfer process using photography techniques because the physical condition of the manuscripts is mostly fragile, making it impossible to guarantee with a scanner. The informants explained that the preservation process can involve scanning, photography, duplication, and digitalization. One informant stated: “If going to the museum, it must be accompanied, and gloves must be worn because the manuscripts are very fragile.”

The findings indicate that digitalization has become the primary method for preserving information in ancient manuscripts without the need to frequently use the original manuscripts. Digitalization also helps minimize the risk of physical damage that occurs due to continuous use. The results of this study show that digitalization is a good way to preserve information and protect physical collections (Indriani et al., 2025). The next step is to manage the metadata and the digital collections. After the digitalization process is complete, librarians organize the collection information and store it in the E-Deposit application developed by the Library and Archives Service of North Sumatra Province. The informants explained that after the digitization process, digital collections are organized and managed through the E-Deposit application. One informant stated: "After digitization, we create the application. I, along with my colleagues, developed an application called E-Deposit that collects all regional content collections, one of which is ancient manuscripts."



Picture 1.1 Application E-Deposit

The E-Deposit platform serves not only as a storage medium but also as a digital curation tool that supports the organization, preservation, and dissemination of digital manuscript collections. Through this platform, librarians manage digital objects and their related information to maintain accessibility and contextual value of the collections.

Information about ancient manuscripts can be systematically organized through this application. This facilitates the data retrieval process. This finding aligns with the opinion that metadata is an important part of digital curation because it maintains the authenticity, context, and accessibility of digital information. Managing metadata also helps preserve the context and identity of digital collections (Pasqui, 2024). The development of the E-Deposit application was carried out by librarians involved in digital collection management. According to the informants, E-Deposit functions as a platform for collecting regional digital content, including ancient manuscripts. Librarians strive to provide information access to the community in addition to managing their digital collections. According to both informants, digital outputs have been integrated into the E-Deposit application, allowing users to utilize digital collections according to applicable regulations. The informant explained: "After digitization, we then input it into the application and provide access to the community, but according to the deposit service regulations, it is closed access, so it is only local."

Based on the E-Deposit SOP, the management of digital collections involves several stages, including adding collection data, uploading digital files, validating collection information, and publishing verified collections through the catalog. These procedures demonstrate that E-Deposit functions not only as a storage platform but also as a structured digital curation system supporting the organization, preservation, and accessibility of digital collections.

Librarians continue to strive to educate and inform the community about the existence and value of ancient manuscripts as a cultural heritage of the nation, even though access to digital collections is still limited. This shows that librarians are not only focused on conservation but also on the responsible dissemination of information. Building cooperation with various parties is the final step found in this research. Collaborating with various related institutions is necessary to preserve ancient manuscripts. The informants explained that collaboration with related institutions is necessary for preserving ancient manuscripts. One informant stated: "We coordinate with the cultural service, district and city libraries, museums, and other related parties for the process of collecting and preserving ancient manuscripts." Guidance, collection gathering, tracing ancient manuscripts, and implementing digital-based preservation programs are all examples of cooperation. The results show that libraries, the government, cultural institutions, and the community must work together to successfully preserve ancient manuscripts. This aligns with the idea that the preservation of cultural heritage is a shared responsibility that requires cooperation from various parties (Wibowo et al., 2024).

C. Challenges Faced by Librarians as Digital Curators in the Preservation of Nusantara Ancient Manuscripts

The findings indicate that librarians' activities correspond with several stages in the Digital Curation Lifecycle Model, particularly conceptualization, creation, preservation, and access management. The identification and selection of ancient manuscripts represent the conceptualization stage, while photography-based digitization reflects the creation process of digital objects. Metadata management through the E-Deposit application supports preservation and data management activities, while providing access to users represents the access management stage. This demonstrates that librarians do not only perform technical digitization tasks but also manage the sustainability and usability of digital collections.

The interview results indicate that there are several challenges faced by librarians when conducting digital curation of Nusantara ancient manuscripts. These include the fragile physical condition of the manuscripts, lack of funding and facilities, shortage of human resources, and lack of public awareness regarding the importance of preserving ancient manuscripts. The first obstacle is the physical condition of the ancient manuscripts, which is very fragile. Most are made from bark, bamboo, and other traditional materials that are vulnerable to age and pest attacks. The informant explained: "The challenges may require special treatment, like for a baby. The material is made

from bark, has cracked, many are fragile, heavily eaten by termites, and many are damaged."

This condition causes digitization to be carried out very carefully to avoid damaging the collection. This result supports the idea that the physical condition of at-risk manuscripts is one of the main challenges in the preservation process (Nugraha & Laugu, 2021). Limited funding and the availability of digital infrastructure are the next challenges. According to informants, searching for ancient manuscripts in various regions requires significant costs. The equipment used for the digitization process is also limited. The informant stated: "The main obstacle is definitely the budget, because searching for ancient manuscripts requires costs and also regarding digital tools for media conversion."

Due to these limitations, conservation cannot be optimally carried out. The results of this study support the idea that budget constraints and technological resource limitations remain common issues in the preservation of old films (Pramana, 2022). Limited human resources are also a barrier. Interview results show that both the community and the staff still do not understand the proper procedures for handling old manuscripts. The informant explained: "The lack of understanding regarding the digitization process. Sometimes not using gloves or opening it too roughly can damage ancient manuscripts." This indicates that human resource skills are very important for the success of collection preservation. Therefore, training and mentoring are essential to improve technical capabilities.

In addition, the low level of societal awareness also poses a barrier to the preservation of ancient manuscripts. Some people still consider old manuscripts as personal treasures that should not be known or accessed by others. The informant explained: "They still believe that this is a secret, this belongs to us, the state does not have access." This condition often makes collection and digitization difficult, so librarians must continuously use persuasive approaches and socialization. The Library and Archives Service of North Sumatra Province addresses diverse challenges by disseminating information to the general public, increasing cooperation with related institutions, and encouraging the availability of 31 more adequate digitization facilities. It is hoped that these efforts will assist in the preservation of ancient manuscripts in a more efficient and sustainable manner.

1.2.DISCUSSION

The results of the interviews show that librarians at the Library and Archives Service of North Sumatra Province have participated in various activities aimed at preserving Nusantara ancient manuscripts as digital curators. The collection and identification of ancient manuscripts scattered throughout the country is the initial step of this initiative. Librarians actively seek places that may have ancient manuscripts and collaborate with museums and related institutions. This activity demonstrates that the digital curation process is not only focused on managing digital information but also on searching for

and documenting sources of information that have cultural and historical value before the collections are damaged or lost.

Digitization is used by librarians to store data after the collection process. Since most ancient manuscripts are in fragile condition and at risk of damage if allowed to use scanners, digitization is usually done through photography techniques. This process highlights the importance of preserving both the physical and data. Digitization allows information in ancient manuscripts to be stored and used in digital form, enabling people to access it without having to interact with the original manuscripts regularly. As a result of digitization, the Library and Archives Service of North Sumatra Province developed the E-Deposit application to manage digital data. The processes of organizing, searching, and retrieving data have become easier thanks to metadata management and the storage of digital collections within the system. In addition, librarians strive to offer public access through digital collections available via the application. However, the deposit service provisions still limit access. This indicates that librarians are not only responsible for maintaining the collection but also strive to provide useful information.

On the other hand, this research found that librarians face several challenges when working as digital curators. These obstacles include the physical condition of ancient manuscripts, which are very fragile, budget limitations and digitization facilities, a lack of human resources with specialized competencies in handling ancient manuscripts, and a low level of awareness among some regarding the importance of the preservation of ancient manuscripts. Digitization, the process of collection gathering, and management can be hindered by these factors, making optimal preservation difficult. Despite facing various constraints, the Library and Archives Service of North Sumatra Province continues to strive to enhance the preservation of ancient manuscripts through socialization to the community, collaboration with various institutions, and the development of digital technology. The results indicate that the preservation of ancient manuscripts does not solely depend on the contributions of librarians; it also requires assistance from the government, cultural institutions, and communities that possess cultural heritage. Efforts to immortalize old digital manuscripts are expected to be more efficient and sustainable with ongoing collaboration.

4. CONCLUSION

This study shows that librarians at the Library and Archives Service of North Sumatra Province have made various efforts to become digital curators to preserve Nusantara ancient manuscripts. These efforts include the collection and identification of ancient manuscripts through searches in various museums and regions, the implementation of digitization as a form of media transfer to store manuscript information, the management of metadata and digital collections through the E-Deposit application, and providing information access to the public. In addition, these efforts also include collaboration with various parties such as the National Library, the Department of Culture, museums, and the community. Many efforts demonstrate that librarians do not only manage collections; they also act as digital curators, ensuring that information and cultural heritage remain available on the internet.

This research found that librarians face several challenges when curating digital ancient manuscripts. Some of these challenges include the physical condition of ancient manuscripts, which are very fragile, budget and facility limitations for digitization, a lack of human resources with the skills to process ancient manuscripts, and a lack of public awareness of the importance of preserving ancient manuscripts. The collection, digitization, and management of digital library collections do not always proceed smoothly due to these challenges.

Based on these findings, several practical implications can be considered to strengthen the sustainability of digital preservation of ancient manuscripts. The local government and library authorities need to develop stronger digital preservation policies through sustainable funding allocation, improvement of digitalization facilities, and librarian capacity-building programs. In addition, standardized digital curation procedures should be developed to ensure consistent management of manuscript digitization, metadata organization, preservation, and access services. Strengthening collaboration between libraries, cultural institutions, and communities is also essential to support the long-term preservation of Nusantara ancient manuscripts.

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