



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

Exploring the Forms and Reconstruction of the Armor of the Yuejia Army in Song China a Historical and Technical Analysis

Li Chunli & Taechit Cheuypoung
Faculty of Fine and Applied Arts, Suan Sunandha Rajabhat University,
Bangkok, Thailand
E-mail: s65563832006@ssru.ac.th, taechit.ch@ssru.ac.th

Synopsis

Ancient Chinese armor is of great historical and cultural significance, reflecting the martial arts tradition and craftsmanship of ancient civilizations. Among them, Song Dynasty Yuejia Army Armor is one of the most representative armors in China. Song Dynasty Yuejia Army armor represents the equipment of the army led by General Yue Fei in Song Dynasty, and has important historical significance and value. By studying the craftsmanship, usage and decoration of the armor, we can understand the equipment level and military culture of the Song Dynasty army. Secondly, the decoration and design of the armor distinguishes it from other armor types of the same dynasty, reflecting the unique identity and military strength of the Yue Family Army. Studying the decorative patterns, floral motifs, and symbols of the armor can provide an understanding of the styles and characteristics of Song decorative arts, and has a certain reference value for the study of Song arts and crafts. This research project aims to thoroughly study the form and reconstruction of the armor of the Yue Family Army in the Song Dynasty through a comprehensive examination of the historical records, archaeological discoveries, and artistic representations of the Yue Family Army. By comparing and analyzing different types and styles of armor from the Song Dynasty, the project aims to understand the evolution of the Yue Family Army's armor design, construction techniques and materials, and to compile complete information about the Yue Family Army of the Song Dynasty.

Research Project Title:

Exploring the Forms and Reconstruction of the Armor of the Yuejia Army in Song China: a Historical and Technical Analysis

Background and Issue Scan:

The Yue Family Army armor reflects the historical background and era of the Song Dynasty in China at that time, and is a microcosm of a period of history. The study of Chinese Song Dynasty Yuejia Army armor has important historical, cultural, military and artistic values. First of all, the Yuejia Army of the Song Dynasty was one of the important



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

armies of the Song Dynasty, and its armor is an important physical object that reflects the development of military equipment in the Song Dynasty. By studying the armor of the Yue Family Army, we can understand the type, production process, and use of military equipment in the Song Dynasty, which provides important physical evidence for the study of Song Dynasty military history. Secondly, armor, as an important equipment of Song dynasty soldiers, condenses the expression of military spirit and clan culture. The study of armor can understand the special culture of Yue's army from the decorative patterns, symbols and other aspects, which has an important value for the study of Song Dynasty culture and thought. Moreover, the study of Yue Family Army's armor can reveal the characteristics of Song Dynasty's military strategy, tactics and other aspects, and understand the relationship between the army's equipment and fighting ability. At the same time, the characteristics of the armor can also provide reference for the study of Song dynasty military thought, which is an important revelation for understanding the history of war and military development of the Song dynasty. It is of great significance for a deeper understanding of the history, culture and military situation of the Song Dynasty.

Study the causes:

China attaches great importance to the protection of history and culture. As a country with a long history and a rich cultural heritage, the Chinese Government and all sectors of society attach great importance to the responsibility and obligation to protect and pass on history and culture. China has formulated and implemented a series of laws, regulations and policy measures to protect history and culture. Historical and cultural preservation work has been strengthened through a variety of means, including laws and regulations, policy measures, investment and organizations. This emphasis not only helps to protect and pass on China's rich historical and cultural heritage, but is also of great significance in promoting cultural development and fostering social progress. Song Dynasty Yuejia Army armor as a product of Song Dynasty history and culture, the current number of studies on this category in China is very few and far between, and cultural protection and cultural heritage should be actively strengthened to improve the blank page of China's historical and cultural research.

Research objectives:

Through a comprehensive study of the Yue Family Army armor armor materials, manufacturing technology, shape and structure, protective functions, decorative symbols and cultural history, etc., it aims to comprehensively understand the characteristics, functions and cultural values of the armor, and to deeply study the military development and cultural heritage of the Yue Family Army in the Song Dynasty. Raw materials and



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

manufacturing technology: to study the raw materials (such as iron, leather, etc.) and manufacturing technology used for the armor, to understand the craft characteristics and technical level of the armor production of the Yue Family Army of the Song Dynasty, and to reveal the development of the Song Dynasty military equipment and production techniques. Shape and structure: to study the shape, structure and construction characteristics of the armor, to understand the basic shape of the armor of the Yue Family Army, the way of connecting the armor plates, and the reinforcement of important parts. Decoration and symbols: study the decorative patterns and symbols on the armor to understand the characteristics and significance of the decoration of the Yuejia Army's armor. Cultural and Historical Significance Aspect: Through the study of armor, explore in depth the historical status, military activities and cultural traditions of the Yue Family Army. By studying the design and structure of the armor, it is possible to understand the protective ability of the armor of the Yue Family Army in the Song Dynasty, its use in battle, and the combat style of the Yue Family Army on the battlefield. From there, it is possible to gain insight into the military strategies, tactics, and combat styles of the Song dynasty army, revealing its strengths and weaknesses in war. As well as information on the cultural traditions and clan crests of the Yue Family Army. This helps to probe deeply into the identity, clan culture and military spirit of the Yue Family Army in the Song Dynasty, revealing its position and influence in the Song society and military system.

Scope of the study:

The scope of the study of armor covers a wide range of aspects such as historical and cultural background, types and styles, structures and materials, protective functions and tactical applications, preservation and conservation. Through in-depth study of these aspects, a comprehensive understanding of the characteristics, functions, historical significance and conservation needs of armor can be achieved, helping to reveal a part of historical culture and military development. The armor of the Yuejia Army of the Song Dynasty maps a certain degree of historical and cultural background, so the scope of the study is firstly the historical and cultural background, studying the historical origin, development and evolution of the armor, including the changes and use of the armor in different historical periods and cultural backgrounds, and revealing the armor's status and significance in a specific cultural and historical context. Secondly, types and styles of armor: to study different types and styles of armor, including helmets, breastplates, shoulder armor, leg guards, hand guards and other various parts of armor. Research on the preservation and conservation of armor, examining the state of preservation, the degree of deterioration, and the restoration and conservation efforts required. To understand the difficulties and challenges in the preservation of armor and to formulate reasonable conservation measures to ensure that armor is better



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

preserved and passed on.

Research Methodology:

1. Literature research: Through reviewing, analyzing and interpreting relevant historical documents and materials, including history books, historical collections, military texts, etc., we can understand the information on the historical background, production process and use of armor. This can provide important historical documentary basis and theoretical support for the research.

2. Archaeological research: through archaeological excavation, digging and discovery of armor relics, research on the physical manifestation and existence of armor. Through the analysis of the form, material and production process of the armor relics, we can understand the appearance, production characteristics and use of the armor.

3. Image analysis: Through the analysis of image materials such as photographs, paintings and sculptures of armor, we can understand the information about the appearance, decoration and symbols of the armor. At the same time, armor from different periods and regions can be compared to reveal the evolution and change of armor.

Expected returns:

The value and significance of the expected results of this research include academic, cultural, social, preservation and heritage and economic aspects. The generation and application of relevant research results will not only contribute to the progress of academic research, but also make important contributions to the development of society and culture and the protection of historical and cultural heritage.

1. Academic value: The expected results of the research can provide new theoretical perspectives and research results for the related disciplinary fields, and expand the horizons and depths of academic research. For example, the expected results of the research can provide new explanations and understanding of the historical evolution of armor, the development of military technology, and cultural inheritance.

2. Cultural value: The research and protection of historical and cultural heritage are of great significance to the understanding and transmission of human civilization. The research of relevant expected results can reveal the historical background, artistic characteristics and cultural connotation of armor as cultural relics, and promote the protection, inheritance and display of historical and cultural heritage.

3. Social significance: The research of the expected results can help the public's cognition and understanding of history and culture. The results of the research can deepen the public's understanding of the historical significance, military culture and traditional skills of armor, thus promoting the education of history and culture and the transmission of



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

values in the society.

Definition of Terms:

Yuejia Army: The Yuejia Army refers to the Song Dynasty army led by General Yue Fei. The Yuejia Army was known for its elite fighting skills and strategic thinking, and became an important force in the Song Dynasty to defend against foreign invasions.

Armor: Armor refers to the combat equipment used to protect the body, usually made of metal plates, leather or other materials, covering the head, torso and limbs, etc. It is used to provide protection and defend against enemy attacks.

Transmission: Transmission is the process of passing on culture, skills, knowledge, values, etc. from one group or individual to the next generation. Passing on can involve a number of areas, including arts, crafts, traditional practices, family traditions, etc.

Conclusion:

This chapter closely focuses on the research problem, research background, research objectives, research scope, research methodology, expected benefits and terminology definition issues of the project in detail, laying a foundation for the subsequent chapters. In summary, the study of Song Dynasty Yuejia Army armor has important historical, military, cultural and artistic values. By studying the structure, composition, decoration and use of the armor, we can understand the military strength, cultural heritage and equipment level of the Yue Family Army in the Song Dynasty. At the same time, the study of armor can also reveal the military system, battle strategies and cultural characteristics of the Song Dynasty. In addition, the study of the protection and inheritance of the armor can also contribute to the protection of cultural relics and the inheritance of cultural heritage. The research value and significance of the expected results include academic, cultural, social, conservation and inheritance, and economic aspects. The relevant research results can promote the progress of academic research and enrich and expand people's understanding of history and culture.

Literature review:

Synopsis:

The following literature review provides a reliable source of information and theoretical support for this study.

1. Ancient Chinese Armor and Military Weapons (Author: Zheng Weicheng): This book introduces the classification, production technology and evolution of ancient Chinese armor and military weapons. Through the study of cultural relics archaeology and historical documents, it reveals the important position of armor in Chinese military history.

2. The Illustrated Guide to Ancient Chinese Armor (Author: Wang Mingzhe): This book



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

shows the types, styles and decorations of ancient Chinese armor through illustrations. By interpreting the armor illustrations, one can understand the design features of the armor and the cultural significance of the decorative elements.

3. Ancient Chinese Armor Techniques (Author: Liu Su Xin): This book introduces in detail the craft and techniques of ancient Chinese armor making. Through the study of metal armor forging, cold forging, decarburization treatment and other processes, it provides an in-depth understanding of the traditional techniques of armor making.

4. Ancient Chinese Metalware (Author: Hua Menghan): This book covers all aspects of ancient Chinese metalware, including the design, materials and decoration of armor. Through the study of intangible cultural heritage and traditional crafts, it explores the position and role of metal armor in Chinese history and culture.

5. "Research on Yue Fei and Armor Culture" (Author: Chang Baozheng): The study takes Yue Fei and the Yue Family Army as the entry point to explore the importance and cultural connotation of armor in the Yue Family Army. Through the study of the armor of the Yue Family Army, the value of armor in cultural heritage and military thought is deeply understood.

Search strategy:

Utilizing keywords, databases, and selecting sources for inclusion and exclusion, the most systematic and comprehensive approach was used to cover a wide range of relevant literature searches.

1. Keyword search: select relevant keywords, such as "Song Dynasty armor", "Song Dynasty military weapons", "armor making process", "Song Dynasty military", etc. In the academic search engine or database, input these keywords to search and filter out the literature related to Song Dynasty armor.

2. Academic database search: Use professional academic databases, such as Google Scholar, Web of Science, China Knowledge, etc., to search by entering relevant keywords in order to find academic papers, journal articles and research reports. You can also use advanced search functions, such as time range, author, journal, etc. to filter according to your needs.

3. Library resource search: Use the library catalog system or database to search for books, theses and dissertations related to keywords such as "Chinese armor", "Song Dynasty armor", "Yue Family Army" and so on, Research reports, etc. 4.

4. Reference Tracking: When you find a relevant document, check the reference section of the document, which may contain other documents related to Song Dynasty Armor. By tracking references, you can find more related research and literature resources.

Through the above search strategies, a range of literature resources related to Song



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

Dynasty armor were found for further research and reading.

A review of key concepts and theories:

Through the analysis and collation of preliminary information, the theoretical review of the Yue Family Army armor may differ in different historical periods and among researchers, through a systematic theoretical review of the research results. For the in-depth study of the theory of the Yue Family Army armor, the following are the key concepts and theoretical review of the content of the armor of the Yue Family Army in the Song Dynasty:

1. Protection concept: the design and production of Yue Family Army armor reflects Yue Fei's defense concept. Yue Fei advocated that armor should be able to effectively withstand enemy blows and spear thrusts and provide all-around protection to protect soldiers' lives and combat effectiveness.

2. Material Selection: Yue Family Army armor used high-quality iron and steel as the main materials, which had high strength and durability and were able to counter enemy attacks. Yue Fei pays attention to the quality and treatment process of the materials to ensure the armor's protective ability and service life.

3. Design Principle: Yuejia Army armor focuses on balancing hardness and flexibility according to the combat needs and user's characteristics. The design of the armor takes into account the user's body shape and range of motion, enabling the soldier to move freely and respond to various tactical needs in battle.

Synthesis of previous research findings:

According to the preliminary literature survey and data analysis, it is found that the current research results on the armor of the Yue Family Army is still relatively small, through some of the findings of the research, the following four points are summarized:

1. The material of Yuejia Army armor: the material of Yuejia Army armor is mainly high-quality iron and steel. The core materials used in the making of Yuejia Army armor are usually chosen from forged iron or steel blocks, which are then treated by heating, quenching and other processes to increase their hardness and durability. At the same time, in order to improve the defensive ability of the armor, the surface of the armor may undergo certain treatments, such as polishing, ornamentation, engraving and other processes. In addition, Yuejia Army armor may be equipped with some other materials to enhance the function of the armor. For example, metal plates and iron chains, which are common on the armor, can increase the rigidity and impact resistance of the armor. In addition, Yuejia Army armor may also be equipped with some accessories and decorations, such as helmets and belts, which are mainly used to protect specific parts of the body or to increase the aesthetics of the armor. Overall, the Yuejia Army Armor chooses suitable materials to ensure



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

that it has high strength, durability and defensive capabilities.

2. The production process of Yuejia Army armor: including metal forging, heating, quenching and surface treatment.

3. The defensive performance of Yuejia Army armor: the defensive performance of the armor is also related to the specific production process, material selection and the personal characteristics of the user and other factors. In addition, in the actual battle, the protection of the armor will also be affected by other factors, such as the force and angle of the attack. Therefore, in the battle, in addition to the defensive performance of the armor itself, the user's skill, tactical application and cooperation are also important factors affecting the protective effect.

4. Strategic application of Yuejia Army armor: Through the study of historical documents and military cases of Yuejia Army armor, the application of Yuejia Army armor at the strategic level is explored, including the impact on terrain, enemy formation and combat objectives. It should be pointed out that due to the limited inheritance of the Yue Family Army's armor production techniques, the relevant research results are still relatively limited, and further in-depth research and exploration are still needed.

Through searching a large number of literature, it is found that most of the research only stays in the research of Chinese armor or Chinese armor of Song Dynasty, and there is no in-depth exploration of the research on a prominent representative armor of a certain dynasty. There are even fewer studies on the armor of the Yuejia Army of the Song Dynasty of China, which contains profound historical and cultural contents and has a high research value, so the results of this study can make up for this shortcoming.

Identify research gaps:

There are still some gaps in the research on the identification of Yuejia Army armor. Due to the earlier period of use of Yuejia Army armor in history and the limited relevant inheritance and documentation, the understanding of the specific features and identification methods of the armor is not comprehensive enough. The following are some possible research gaps:

1. Definition of armor characteristics: the definition of the characteristics of Yuejia Army armor is still incomplete. The specific style, decorative patterns, metal organization and other features of the armor need to be further researched in order to be able to accurately identify the Yue Family Army armor.

2. The study of armor symbols: The study of symbols, decorations and other information on the armor of the Yue Family Army needs to be deepened. These symbols may contain military or personal symbols, and the study of these symbols can help to identify and verify the identity of the Yuejia Army armor.



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

3. the delineation of armor production areas: the production of Yue Family Army armor may have been carried out simultaneously in different areas, so further research is needed to distinguish the armor of the Yue Family Army from the armor of different regions by studying the production styles and characteristics of the armor in different regions.

Therefore, in order to fill these research gaps, it is necessary to further strengthen the physical investigation and research on Yuejia Army armor, integrate the historical documents and information, as well as cooperate with relevant experts to jointly promote the in-depth development of the research on the identification of Yuejia Army armor.

Framework Development:

Based on the preliminary investigation and theoretical research of the Song Dynasty Yuejia Army, including the historical and cultural background, types and styles, structures and materials, protective functions and tactical applications, preservation and protection, and other aspects, the following basic ideas and frameworks have been identified to provide a general outline and guidance for the research, which can systematically carry out the research work on the Song Dynasty Yuejia Army armors, and to ensure the scientific, feasibility, and effectiveness of the research. In practical application, the research framework can also be supplemented and adjusted in real time according to the specific scope of research and problems.

1. Problem definition: to determine the objectives and problems of the study and to clarify the scope and focus of the study. This includes defining the theme of the study, the object of the study, key concepts, etc. to ensure that the study has a clear direction and operability.

2. Literature review: according to the literature review found, to understand the existing research results and opinions on the armor of the Yuejia Army of the Song Dynasty. By reviewing relevant literature, we can grasp the research dynamics and knowledge frontiers in the field, and understand the research methods and results of the predecessors, so as to establish the theoretical foundation of the research field.

3. Research design: including determining the multiple types of research (e.g., empirical research, experimental research, documentary research, etc.), solutions to research problems, data collection methods and analysis techniques, etc.

4. Data collection and analysis: according to the research design, collect appropriate data, and organize and analyze the data. This includes choosing appropriate research tools, collecting and organizing data, and applying appropriate statistical analysis methods. Meanwhile, attention should be paid to the quality and feasibility of data to ensure the validity and reliability of data.

5. Presentation and discussion of results: Based on the results of data analysis, write



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

relevant research conclusions and present and discuss the results. It is necessary to present the research results clearly, interpret and discuss them according to the data and theories, and put forward relevant conclusions and insights.

6. Conclusion and Extension: Summarize the main conclusions of the study and make corresponding recommendations or extension based on the findings. Critically evaluate the findings and further reflect on the possible directions of development, practical applications, and implications for future research in related fields.

Integration with research questions and objectives:

The research questions and objectives for the Yue Family Army armor can be integrated with research gaps in order to advance the research on the identification of Yue Family Army armor and to fill the related research gaps.

Research Problems: identification problems of Yue Family Army armor and the definition and study of related characteristics.

Objective 1: Accurate identification of Yuejia Army armor. Through the physical investigation of Yuejia Army armor, literature research and communication with relevant experts, we will explore and establish the specific features for identifying Yuejia Army armor, such as style, markings, ornamentation, metal organization, etc.

Objective 2: To study the craftsmanship of Yuejia Army armor. Through physical evidence and analysis of the Yuejia Army armor production process, explore its materials, forging, quenching, surface treatment and other key process links, in order to reveal the Yuejia Army armor production techniques and characteristics.

Objective 3: Integrate historical documents and collection surveys to promote the depth of research. Through the investigation of historical documents and existing collections, to understand the inheritance, preservation and distribution of Yuejia Army armor, to integrate relevant research results, and to provide the basis and reference for further research.

Through the above integration, researchers can study Yuejia Army armor in depth from multiple perspectives such as identifying features, production process, and survey of related literature and collections, fill the research gap, and improve the knowledge and understanding of Yuejia Army armor. Such research can make important contributions to the protection and inheritance of military cultural heritage and the promotion of related academic and cultural exchanges.

Conclusion:

The research results on the armor of the Yue Family Army are relatively limited, and there still exists a certain research gap. Further in-depth studies and explorations are still



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

needed for the research on the material, production process, defensive performance and theoretical review of Yue Family Army armor. In order to make up for these research gaps, comprehensive research can be carried out from various aspects such as identifying characteristics, production process, literature survey as well as expert exchanges. By accurately identifying the armor of the Yue Family Army, revealing its production process and defensive performance, and integrating historical documents and collection surveys, it can promote the in-depth development of the research on the armor of the Yue Family Army and fill the relevant research gaps. It is also possible to actively collect and study the content of historical documents involving the armor of the Yue Family Army. This includes reviewing ancient documentary records, military history books, war chronicles and Yue Fei related literature. Through meticulous analysis and organization, more information and records about Yue Family Army armor can be unearthed. Conducting examination and comparison, for the existing literature and information to confirm its accuracy and credibility. It also helps to protect and pass on the military cultural heritage and promote relevant academic and cultural exchanges. It is believed that with continuous research and exploration, the research results of Yuejia Army armor will be further enriched and improved.

Data analysis

Synopsis:

Through preliminary data collection and research, information is obtained that contributes to the overall research objectives. This includes information on armor objects, related historical and cultural materials, illustrations and paintings, research reports and papers, and digitized resources. The collected armor objects include various types of helmets, breastplates, leg guards, arm guards, and so on. These objects may be kept in museums, private collections of collectors, or circulated in the artifact market. Information collected on the physical objects may include material, production process, size, decorative patterns and markings. Secondly, the collected documentary information includes historical documents, military history books, epic poems, war chronicles and ancient documents related to Yue Fei and the Yue Family Army. These documents may contain descriptions of the production, form, use and inheritance of Yue Family Army armor. Illustrations and paintings include a number of historical illustrations and paintings that may depict Yue Family Army soldiers wearing armor. These works may provide information on the appearance and form of the armor, decorative patterns, and application scenes. Research reports and essays are research reports and essays published by researchers and scholars when they conduct research on Yue Family Army armor. These research results can provide information about the armor's characteristics, production process, historical background and



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6

วันที่ 2566 กันยายน 6

inheritance. Finally, with the development of digitization technology, some resources such as digitized images, three-dimensional reconstructions, and databases of Yue Family Army armor may be created and collected. These digitized resources can provide insights into the details and features of the armor. By collecting and integrating the information, a comprehensive database of Yuejia Army armor can be created, providing important references and bases for research, identification, and protection of the armor.

Data analysis methods:

When carrying out data analysis of Yue's armor, it is necessary to first collect and organize relevant data and information, including physical information, literature records and so on. Then the following methods can be used for data analysis:

1. Visualization analysis: the collected data of Yuejia Army armor are presented and analyzed using visualization tools, such as charts, images and other forms. For example, the distribution charts of armor styles and the ratio charts of material components are drawn to observe and identify possible patterns and associations.

2. Statistical analysis: use statistical methods to analyze the Yuejia Army armor data, such as frequency statistics, mean value calculation, correlation coefficient and so on. Through statistical analysis, quantitative descriptions of armor characteristics and quantitative results of relationships can be obtained.

3. Cluster analysis: using cluster analysis method, the armor is grouped according to the characteristics and attributes of Yue Family Army armor. Cluster analysis can be used to determine the clusters of armor of different styles, regions or periods, and to study the common features and differences in the groupings.

Through the above data analysis methods, the Yue Family Army armor can be studied and analyzed in depth from multiple perspectives, revealing the rules and characteristics, and providing scientific basis for the understanding and protection of the Yue Family Army armor. However, since the data related to the Yue Family Armor may be limited, attention needs to be paid to the reliability and usability of the data, as well as to the reasonable interpretation of the results when conducting data analysis.

Data discovery and interpretation:

The process of analyzing the Yue Family Army armor data involves discovering and interpreting patterns, associations, and trends in the data in order to draw conclusions about the characteristics of the Yue Family Army's armor, the production process, the historical context, and the legacy. The following are the steps involved in conducting data discovery and interpretation:

1. Data preprocessing: the collected Yue Family Army armor data are cleaned,



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

screened, and organized to ensure data accuracy and consistency. This may include steps such as data cleaning, outliers, missing value treatment and data standardization.

2. Data exploration: explore the data through statistical analysis, visualization and descriptive analysis. For example, histograms of frequency distribution of armor styles, pattern distribution of decorative motifs, pie charts of material proportions, etc. are plotted to understand the overall characteristics and changing trends of Yue's armor.

3. Pattern recognition and correlation analysis: Use cluster analysis, correlation analysis and other methods to identify patterns and correlations in the data. For example, clustering analysis can be used to classify Yue Family Armor into different types of clusters, and correlation analysis can be used to assess the correlation between different attributes.

Through data discovery and interpretation, it is possible to gain further insight into the characteristics, production process, historical background and inheritance of Yuejia Army armor, providing a more comprehensive and in-depth understanding of the research and conservation work in this field.

Integration with literature review:

In the literature review, various related historical documents, history books, research reports and theses are collected and summarized. Combined with the collected physical information, oral heritage and digitized resources, a multi-dimensional information base can be formed to provide comprehensive materials for the study of Yue Family Armor. During the integration process, comparisons and checks are made with existing literature reviews to ensure the accuracy and credibility of the collected information. For the parts with discrepancies or contradictions, further investigation and verification can be carried out to ensure the correctness and reliability of the integrated information. By integrating the literature review, information related to the armor of the Yue Family Army that has not been covered before can be discovered and supplemented. The literature review may contain some missing literature and research results, and for supplementing the missing information, further literature investigation and data collection are carried out to improve the collected information resources. Combined with the research results of the literature review, the collected information is analyzed and interpreted to reveal information about the characteristics, production process, historical background and inheritance of Yue Family Armor. Through the integration and analysis, the knowledge and understanding of Yue Family Army armor is constantly deepened. Through the integration with the literature review, the collected physical information, field research materials, and digitized resources can be combined with the established research results to form a comprehensive data and information resource, which can provide a more comprehensive and detailed foundation for the research and protection of Yuejiajun Armor.



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

Limitations and assumptions:

There are a number of limitations and assumptions that may be encountered when integrating the information gathered from the Yue Family Armor. The following are some common limitations and assumptions:

1. Incompleteness of data collection: due to the long history of Yue Family Army armor, some of the armor may have been lost or damaged, resulting in incomplete data collection. Only partial or partial type of armor information may be available.

2. Data Reliability and Accuracy: There are possible inconsistencies or inaccuracies in the collected literature and oral transmission. Differences in information sometimes occur between different documentary sources, and oral transmissions may have discrepancies due to personal memory and variations in transmission.

3. Data assumptions: In the absence of direct evidence, it may be necessary to make some assumptions based on existing literature and physical information, which can be used to fill in data gaps or speculate on some armor characteristics. These assumptions need to be clearly labeled in the study and reasonably speculated to make full use of the limited information.

4. Comparability and consistency: There may be differences in Yuejia Army armor made in different times and regions, such as styles and decorative patterns. In the process of data collection and analysis, attention needs to be paid to identifying and distinguishing these differences to ensure the consistency and reliability of comparison and analysis.

Despite these limitations and assumptions, it is still possible to make full use of the collected information on Yuejia Army armor and promote in-depth research and understanding of it through rational research design and data analysis methods. The calibration of the accuracy and reliability of the data, as well as the notation of the premises and bases of the assumptions and speculations, help to enhance the credibility and scientific validity of the study.

Conclusion:

Data analysis of Yuejia armor is a complex and challenging task. When integrating the collected information, full consideration needs to be given to the completeness, reliability, and consistency of the data with each other. It is also necessary to be fully aware of the limitations and assumptions in the process of data analysis and to take measures to overcome these limitations as far as possible. Despite some limitations and assumptions, through rational research design and data analysis methods, it is possible to conduct an in-depth study on the characteristics, production process, historical background and inheritance of Yuejia Army armor. This helps us to better understand and protect this important military cultural heritage. In order to overcome the limitations of the data analysis



การประชุมวิชาการและนำเสนอผลงานวิจัยระดับชาติ ครั้งที่ 6
วันที่ 2566 กันยายน 6

process, researchers can further carry out field surveys, communicate with experts, promote international cooperation, and apply advanced digital technology, image processing and data modeling. By continuously improving data collection and integration, and enhancing the refinement of data analysis methods, the level of understanding and research on Yue Family Army armor can be continuously improved. Data analysis of the Yue Family Armor is a comprehensive task that requires focusing on the reliability and accuracy of data while actively overcoming limitations and assumptions. A combination of appropriate information integration, data analysis, and research methodology can help to draw meaningful conclusions. And by expanding data collection, we continue to collect and organize physical information, documentation and oral transmission of Yue Family Army armor. Through cooperation with museums, collectors, experts and scholars, we will further enrich the data resources of Yue Family Army armor, gain more insights from them, and expand the scope of research.