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Accumulating Earth to Build a New Pavilion: Path and Exploration in the Compilation of Local Gazetteer Products Literature

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Abstract

Purpose/Significance: The Fangzhi Wuchan (Local Gazetteer Products) literature, hand-copied in volume (book) form in 1958, constitutes a leishu (categorized reference book) within classical texts that systematically compiles sections on local products and related content from local gazetteers, possessing extremely high natural, economic, and cultural value. Constrained by the historical conditions of that era, its completeness and accuracy inevitably contain numerous imperfections, urgently requiring collation and proofreading to establish reliable historical documentation. **Methods/Process:** Taking the Fangzhi Wuchan literature as an example, and with the assistance of modern information technology, this study employs several methods from textual collation such as comparative proofreading, and approaches from three aspects—catalogue, version, and content—to conduct in-depth collation practice on the Fangzhi Wuchan literature. **Results/Conclusion:** Through collation practice, the study explores and constructs a feasible scheme for the restoration and verification of Fangzhi Wuchan, laying a foundation for further development and utilization.

Full Text

Building on Accumulated Foundations: Paths and Explorations in the Collation of “Produce in Local Chronicles” Documents

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Abstract

[Purpose/Significance] The “Produce in Local Chronicles” documents, hand-

copied into volumes in 1958, represent a systematic compilation of produce-related entries and content from local gazetteers, holding immense natural, economic, and cultural value. Constrained by historical conditions of the time, these documents inevitably contain numerous flaws in completeness and accuracy, necessitating urgent collation and proofreading to establish a credible historical record. [Methodology/Process] Taking the “Produce in Local Chronicles” documents as a case study, and with the assistance of modern information technology, this study employs various methods of textual collation—including comparative proofreading—to conduct an in-depth collation practice from three perspectives: catalog, edition, and content. [Results/Conclusions] Through this collation practice, we have explored and constructed a feasible framework for restoring the “Produce in Local Chronicles” to its authentic state, laying a foundation for further development and utilization.

Keywords: Produce in Local Chronicles, Historical Collation, Textual Criticism

Chinese Library Classification: G255.1

Among the transmitted classics of the Chinese nation, local gazetteers, as a unique genre of historical record, have received widespread attention from scholars across generations¹, and together with genealogies and national histories constitute the historical narrative system of ancient China². “By examining the traces of differential development across regions and their comparisons, the perceptive reader can discern vital information from within—this is precisely why local gazetteers are so valuable”³. The content recorded in gazetteers transcends the limitations of genealogies while enriching the deficiencies of national historical records, serving to construct the cultural traditions of a locality. According to incomplete statistics, China possesses over 9,000 extant old gazetteers, comprising more than 100,000 volumes—approximately one-tenth of all surviving ancient Chinese books. These include both comprehensive national gazetteers, such as *Yuanhe Junxian Tuzhi*, *Dayuan Dayitong Zhi*, and *Daming Yitong Zhi*, as well as prefectural and county gazetteers documenting specific localities, such as *Suzhou Fuzhi*, *Wugong Xianzhi*, and *Qimen Xian Xiangtu Dili Zhi Gaoben*. The term “fangzhi” (方志) first appears in the *Zhou Guan*: “The Recitation Instructor is responsible for expounding local records to inform observational affairs,” referring to accounts of regional conditions. After the Song Dynasty, this term became fixed as a specialized designation for local documentation⁴. “Ancient geographical records documented regional territories, mountains, rivers, and produce.” Produce in local chronicles refers to the information on products recorded in ancient Chinese local gazetteers, primarily comprising plants, animals, minerals, and goods.

Produce data, on the one hand, serves the function of historical source material, reflecting local agricultural activities and the natural environment of territories; on the other hand, it constitutes an important vehicle for the long-term documentation of the natural historical and knowledge-based aspects of produce,

bearing the function of continuing the codes of civilization. This paper proceeds from the hand-copied *Produce in Local Chronicles* to excavate the multiple values embedded in local chronicle produce within the new era, employing several methods of classical textual collation while leveraging modern information technology to explore effective pathways for the utilization of historical documents.

1 Overview of the “Produce in Local Chronicles” Documents

1.1 Formation Background of the “Produce in Local Chronicles” Documents

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In the 1920s, as foreign scholars began to pay attention to ancient Chinese agricultural achievements and agricultural literature, they awakened a strong sense of national cultural consciousness among Chinese scholars, with Mr. Wan Guoding being a prominent representative⁵. In his 1929 essay “Collating Ancient Agricultural Books,” he emphasized that “fragmentary records of agricultural knowledge can be found in considerable quantity within provincial, prefectural, and county gazetteers; therefore, we must spare no effort in collecting these gazetteers”⁶. Consequently, beginning in July 1955 when Mr. Wan Guoding assumed the directorship of the Chinese Agricultural Heritage Research Office, he launched the collection and collation of agricultural materials from local gazetteers. Over eight years from 1955 to 1963, using Mr. Zhu Shijia’s *Comprehensive Catalogue of Chinese Local Gazetteers* as the basic guide for locating agricultural materials in gazetteers, and cross-referencing against gazetteer catalogs held at Nanjing Library and obtained through field research, Wan established the comprehensive *National Gazetteer General Catalogue*. Based on this catalog, Wan organized over 100 personnel to visit more than 100 cultural and historical institutions in 40 major cities across the nation, copying produce and agricultural materials from local gazetteers covering all administrative regions

from the sixteenth year of the Tang Zhenguan era (642) to the thirty-eighth year of the Republic of China (1949). From 1961 to 1963, he dispatched researchers to conduct proofreading and supplementary work. The materials were subsequently compiled into three major categories: *Produce in Local Chronicles*, *Classified Gazetteers*, and *Comprehensive Gazetteers* (quantities shown in Table 1). This paper takes the collation of the *Produce in Local Chronicles* documents as its case study.

Table 1. Source Gazetteer Types, Volumes, and Scale (Supplement to *Produce in Local Chronicles*)

Item	Volumes	Pages	Characters
<i>Produce in Local Chronicles</i>	120 volumes	156,659 pages	23,225,659 characters
Supplement	1,640 pages 6,261,687 characters	51,931 pages 9,157,386 characters	60,154 pages 6,557,745 characters

1.2 Sources of the “Produce in Local Chronicles” Documents

The *Produce in Local Chronicles* documents comprise 446 volumes (including 15 supplementary volumes), 158,299 pages, and a total of 29,487,346 characters, copied from 6,170 gazetteers nationwide. Among these, 6,149 are local gazetteers (calculated according to current administrative divisions), and 21 are national gazetteers such as the *Yitong Zhi* (Unified Gazetteers). The source regions and quantities of copied gazetteers are shown in Table 2.

The *Produce in Local Chronicles* documents draw from a wide range of gazetteer types. In addition to unified gazetteers, prefectural gazetteers, provincial gazetteers, prefecture gazetteers, county gazetteers, and native-place gazetteers, the collation also includes produce materials from territorial gazetteers, travel records, interview booklets, local customs gazetteers, neighborhood gazetteers, and survey data forms. Every accessible local gazetteer was sought exhaustively, with copied gazetteers dating back to the Tang and Song dynasties. Copied entries were drawn from gazetteer sections titled “local produce,” “produce,” “material splendor,” “agriculture,” “food and goods,” “agricultural products,” “biological products,” and similar headings. The copied content covers local produce varieties, economic and trade conditions, cultivar names, introduction and promotion efforts, and related information (as shown in Figures 1 and 2).

1.3 Value Characteristics of the “Produce in Local Chronicles” Documents

The *Produce in Local Chronicles* documents follow the fundamental concepts and systems of agricultural science, collecting all agricultural knowledge concerning produce from local gazetteers, with specialized produce content forming their core. These works serve both as natural histories and as references and guides for industrial development. The content primarily comprises two parts: produce names and descriptive information about produce. The descriptive information includes aliases, varieties, characteristics, efficacy, place of origin, quantity, habits, development and utilization, cultivation techniques, foreign trade, citations from other classical texts, relevant historical figures, and textual research on produce. For example, the Southern Song *Jingding Jiankang Zhi* records the deer pear: “The *Bencao* states that Jiangning Prefecture produces a small pear called the deer pear. Its leaves resemble tea, its root is like a little finger; local people use its bark to treat sores, tinea, and scabies, reportedly with great effect, harvesting in the eighth month.” The content value characteristics of the *Produce in Local Chronicles* exhibit remarkable diversity:

First, they exhibit regional characteristics, providing historical evidence for the utilization of local specialties and the excavation of produce culture. Gazetteers adhere to the regional principle of “not recording beyond borders” and “not including universal national codes,” taking the geographical features, customs, and produce of specific regions as their foundational basis, using “independent works” to manifest “local conditions.” The produce sections in local gazetteers similarly emphasize the principle of territoriality, recording only plants, animals, minerals, and goods within the local geographical scope, highlighting differentiation from produce of other regions and embodying a certain “regional perspective” and “territorial consciousness” that accentuates local characteristics—making them invaluable local historical materials. The *Produce in Local Chronicles* documents contain records of the historical origins of local high-quality agricultural products, traditional premium varieties, and tribute goods, as well as documentation of unique local cultures. They record how localities utilize the integrated characteristics of produce as a “complex of objects, affairs, rituals, and people”⁷, constructing isomorphic relationships between human affairs and the “circumstances” and “principles” of objects, thereby establishing aesthetic modes and cultural spirits rich in local features⁸. Regarding tribute produce, for instance, the 1915 *Jiangsu Tongzhi Fangwu Kao (Draft)* (Part 1) records: “Arrow-grain rice, with long and slender grains, white color and sweet taste, is the finest quality aromatic rice, ripening in the ninth month. According to the continuation of the *Wujun Tujing* record on rice, only that called arrow-grain is supreme, presented annually as tribute to the capital.” In terms of folk culture related to produce, betel nut, as a characteristic product of Hainan, plays a significant role in local marriage customs. The 1511 *Qiong Tai Zhi* from the Zhengde era records that local people “customarily value this object, using it as an introductory gift in social interactions and as betrothal gifts in marriages.”

Second, they possess knowledge-based characteristics, reflecting ancient approaches to natural resource utilization and traditional concepts of natural history. Traditional agricultural production patterns required rural communities to observe seasonal timing in their farming activities and to cultivate diligently. The series of activities through which humans utilized soil, animals, plants, climate, and water conservancy conditions from nature to obtain livelihoods involved first adapting to nature, then actively transforming it according to developmental needs rather than being constrained by it⁹. Throughout this process, people continuously grasped patterns to make advantageous and harm-avoiding utilizations. This is reflected in produce records through the principle of “embedding perspectives within materials” and “recording without creating,” naming, describing, classifying, and presenting local produce. In terms of classification, produce types are divided into categories such as plants, animals, minerals, and goods, with further subdivisions under each. Plants are subdivided into cereals, vegetables, flowers, fruits, miscellaneous plants, herbs, bamboo, and trees; animals into livestock, birds, beasts, insects, and fish. Further subdivisions exist beneath these categories—for instance, under medicinal substances are fruit, herb, and wood sections; under goods are textiles, food and drink, and utensils. This composite knowledge system embodies the traditional natural historical concept of “naming and distinguishing objects,” demonstrating on the one hand how ancient people observed, represented, utilized, and understood produce, while on the other hand accumulating rich natural historical knowledge. Such a systematic and objective knowledge tradition represents not merely the knowledge system of ancient people but their fundamental way of understanding nature, within which were fused their understanding of the “heavenly way,” “human affairs,” and “material phenomena” as direct confrontations with their lived world, life practices, and emotional experiences¹⁰.

Third, they demonstrate continuity, allowing insight into the complex dynamics of growth and decline, evolution, fusion, and competition of local produce. Regarding produce in local chronicles, the millennia-long tradition of gazetteer compilation and produce recording, characterized by continuity, has played a crucial role in maintaining the historical origins of local produce. “The produce recorded in gazetteers, whether tribute goods or minute items, must be detailed; what is witnessed and heard, all that is known must be recorded. Examining the ancient to verify the present, deleting redundancy while preserving essentials, with objects increasing beyond previous records while text decreasing from older versions”¹¹. It is precisely such supplementation, deletion, and continuous accumulation that provides cross-temporal textual presentations of local produce. Moreover, in the continuation of produce records, “those not collected in old gazetteers, or collected but inaccurate, or erroneous and confused, or mixed without distinction, or analyzed inappropriately, are all corrected. Spanning over a thousand years, the listings are as clear as the palm of one’s hand”¹². This to some extent rectifies maladies and biases in produce documentation, causing records of produce knowledge to become increasingly objective and ac-

curate, presenting a more rational and high-quality historical form of produce. Through relevant records in the *Produce in Local Chronicles* documents, we can perceive ancient “population fluctuations in regions, abundance and scarcity of produce, and the patterns and regularities of growth, migration, and extinction of flora, fauna, and aquatic life”¹³. For instance, Mr. Wen Huanran utilized historical produce materials from gazetteers to reveal how the habitat of parrots shifted historically due to changes in forest coverage and human factors¹⁴. Mr. Zhu Kezhen employed gazetteer records alongside other observational data to discuss the periodic warm-cold climate changes in eastern China over the past five millennia¹⁵.

2 Current Status of the “Produce in Local Chronicles” Documents

2.1 Historical Review

The historical collation of the *Produce in Local Chronicles* documents has concentrated in two time periods:

1957–2000. Beginning in 1956, Mr. Wan Guoding started to systematically organize the collected *Produce in Local Chronicles* documents. Over nearly half a century, scholars worked diligently, producing a substantial body of academic achievements through their collation of the *Produce in Local Chronicles* materials (as shown in Table 3).

Table 3. Collation Achievements of “Produce in Local Chronicles” Documents (1957–2000)

Publication Title	Publisher
Selected Collections of Chinese Agricultural Heritage, Part 1: Cotton	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Legumes	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Rice	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Wheat	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Citrus	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Food Crops	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Oil Crops	Agriculture Press
Selected Collections of Chinese Agricultural Heritage, Part 1: Fiber Crops	Agriculture Press
Selected Historical Materials on Chinese Tea	Chen Zuqian, Zhu Zizhen

Publication Title	Publisher
Selected Collections of Chinese Agricultural Heritage, Part 1: Evergreen Fruit Trees	Agriculture Press
Continuation of Selected Historical Materials on Chinese Tea: Compiled Gazetteer Tea Materials	Southeast University Press
Selected Collections of Chinese Agricultural Heritage, Part 2: Rice	Wang Da, Wu Chongyi, Li Chengbin

2000–Present. Entering the twenty-first century, with the rapid popularization of computer technology, new changes have emerged in the collation of the *Produce in Local Chronicles* documents. First, the research team of Professors Wang Siming and Hu Fuping achieved digital collation of the *Produce in Local Chronicles* documents through image scanning, OCR, and manual entry. Second, Professor Hou Hanqing’s team began using information technology to conduct collation and research on aliases, citations, and indexes within the *Produce in Local Chronicles* documents. Third, Professor Bao Ping’s team employed artificial intelligence technology to perform structured and knowledge-based collation of the *Produce in Local Chronicles* documents, forming relatively complete material repositories, corpora, and knowledge bases.

2.2 Problems and Deficiencies

Building upon the collation achievements of the *Produce in Local Chronicles* documents, scholars have conducted rich and multi-dimensional research, mapping out research blueprints for the deep utilization of these documents across various disciplinary fields. However, as research has deepened, fundamental issues within the *Produce in Local Chronicles* documents have become apparent.

First, no systematic collation has been conducted of the source gazetteer catalog for the *Produce in Local Chronicles* documents. The *National Gazetteer General Catalogue*, which served as the source catalog for these documents, was lost during turbulent times for certain historical reasons. Subsequent users did not pay special attention to the source gazetteer catalog, resulting in diverse and inconsistent statistical data across different scholars without a unified data standard.

Second, the gazetteer copying for the *Produce in Local Chronicles* documents remains incomplete. Given the transportation conditions of the time, omissions occurred in copying gazetteers from remote regions and those below the county administrative level. Additionally, some gazetteers were scattered overseas. Taking remote regions as an example, Tibet had 27 gazetteers whose produce content was not included, such as the *Lasa Tingzhi* from the Daoguang era (date unknown) and a 1937 copied version of the Yongzheng-era *Zang Ji Gai*. Taking sub-county administrative divisions as an example, Shanghai’s jurisdiction had 18 gazetteers whose produce content was not included, such as the 1888 *Yuepu Zhi*.

Third, content errors emerged at various stages of the *Produce in Local Chronicles* documents. Constrained by the knowledge, literacy, and difficulties faced by copyists at the time, the copying process inevitably resulted in omissions, transpositions, interpolations, and disorder. During subsequent digital transcription, later generations did not conduct proofreading against original gazetteers, and the same problems recurred. For example, in the case of omissions, the 1919 *Liuhe Xian Xuzhi* lost its produce preface and classification information during copying (as shown in Figure 3). In another case of disorder, the 1750 *Zhenjiang Fuzhi* from the Qing Qianlong era had the order of “utensils category” and “flowers category” incorrectly copied.

Figure 3. Comparison of the 1919 *Liuhe Xian Xuzhi* copied version and facsimile edition

Fourth, numerous non-standard characters emerged during the digital transcription of the *Produce in Local Chronicles* documents. Both the initial copying and subsequent digital transcription of the *Produce in Local Chronicles* documents required human involvement, which inevitably introduced subjective errors by copyists or transcribers in misreading, miscopying, or misrecording character forms. Moreover, the conversion from classical language to computer-recognizable language, due to factors such as font libraries and other objective constraints, resulted in untranscribable cases. The accumulation of these errors and untranscribable instances led to the emergence of non-standard characters¹⁶. For example, in a misreading case, the 1915 *Jiangsu Tongzhi Fangwu Kao (Draft)* (Part 1) records “foreign wheat, that is, six-angled wheat from the *Shoushi Tongkao*,” but during entry, the character for “kao” (考) was entered as “lao” (老).

Historical experience teaches us that neglecting the documentary foundation means that “letting data speak” does not necessarily equate to data representing objective facts. While large quantities of data may exist, this does not guarantee an abundance of useful information. “Garbage in, garbage out” —if these data contain substantial errors or biases, or if retrieval and compilation of materials based on such data are used for theoretical and result induction, this often leads to the neglect and destruction of semantic integrity¹⁷, and the resulting achievements frequently cannot withstand empirical textual verification¹⁸. Therefore, research based on the *Produce in Local Chronicles* documents must be built upon a solid documentary foundation.

3 Overview of the Collation of “Produce in Local Chronicles” Documents

As the custodian institution of the *Produce in Local Chronicles* documents, Nanjing Agricultural University has consistently prioritized their collation and research as a key focus. Benefiting from the opportunity provided by the approval of the Major Project of the National Social Science Fund, “Construction and Deep Utilization of the Knowledge Base for Produce in Local Chronicles,” the

Digital Humanities Research Center team at Nanjing Agricultural University has begun in-depth collation of these documents.

3.1 Developing a Roadmap for Gazetteer Compilation

China currently possesses approximately ten thousand extant local gazetteers scattered across the nation. Systematically extracting produce materials from them again requires comprehensive consideration. Mastering the national gazetteer general catalogue serves as the master key for re-compiling produce content from local gazetteers. As Zhang Zhidong stated: “The way of learning requires finding the proper approach. Aimless wandering leads to lifelong gainlessness; finding the entrance yields twice the result with half the effort”¹⁹. Therefore, it is necessary to define the temporal limits, regional scope, and general catalog of gazetteers to be copied, and to produce a collation roadmap (as shown in Figure 4), in order to systematically search existing local gazetteers and compile their produce content.

The specific work involved includes: **Figure 4.** Roadmap for Catalog Collation of *Produce in Local Chronicles* Documents

First, defining the publication timeframe of gazetteers and dividing them according to current administrative divisions. The source gazetteers for the *Produce in Local Chronicles* documents are old gazetteers published before 1949; therefore, when supplementing gazetteer sources, the timeframe is delimited to pre-1949, consistent with the *Produce in Local Chronicles* documents. For administrative regional division, to better organize the source gazetteer catalog, current administrative divisions are used as the basis. The historical Anhui (hereinafter the same) is divided into Anhui and Jiangxi, Sichuan into Sichuan and Chongqing, Guangdong into Hong Kong, Macau, Guangdong, and Hainan, Jiangsu into Jiangsu and Shanghai, and Hebei into Beijing, Tianjin, and Hebei.

Second, based on the source gazetteer catalog from the *Produce in Local Chronicles* copying, breaking through regional, institutional, and media limitations to conduct systematic investigation of collection units nationwide and open-source databases, comprehensively searching and organizing local gazetteer produce materials to achieve complete collection and recording. First, extract the source gazetteer catalog from the *Produce in Local Chronicles* documents; simultaneously, conduct detailed textual research on those gazetteers that contain content but lack catalog entries. Use this as a baseline for comparison with catalogs extracted from *Classified Gazetteers* and *Comprehensive Gazetteers*, as well as the *Union Catalogue of Chinese Local Gazetteers*, deleting duplicate source gazetteers and retaining non-duplicate ones as collection 线索 for retention, thereby forming a base catalog. Second, collect and organize local gazetteer catalog resources from currently domestic open-source databases such as the Erudition “Chinese Gazetteer Database” and Jiguxuan “Chinese Digital Gazetteer Database,” and conduct searches, analysis, and comparisons with data resources from 275 specialized ancient book databases in China as well as main-

stream search engines to further clarify complete gazetteer catalogs. Finally, after completing the administrative division-based organization of the compiled gazetteer catalogs, on the one hand, conduct textual research by comparing with existing achievements in gazetteer studies such as *Investigations of Ancient Chinese Local Gazetteers* and *Investigations of Shanghai Local Gazetteers*, and send inquiries to archives, local gazetteer offices, academies of social sciences, major domestic libraries, and cultural heritage institutions in corresponding provinces to verify catalog completeness. On the other hand, send letters and make calls to colleagues conducting related research abroad, requesting their assistance in locating materials in libraries within their countries.

Following catalog collation, comparative analysis added 1,792 gazetteers containing produce records, expanding the total number of source gazetteers for the *Produce in Local Chronicles* documents to 7,862, including 7,840 local gazetteers and 22 national gazetteers. The specific source regions and quantities of gazetteers after supplementation are shown in Table 5:

Table 5. Source Regions and Quantities of Gazetteers After Supplementation for *Produce in Local Chronicles*

3.2 Version Comparison and Original Archive Reproduction

The source gazetteers copied for the *Produce in Local Chronicles* documents were primarily derived from relatively error-free fine editions, and the origins of these versions had been clarified. However, during the copying process, only the era and title of source gazetteers were recorded, without detailed documentation of edition or compilation information, creating significant difficulties for subsequent determination of version characteristics. To clarify the version origins of the *Produce in Local Chronicles* documents, and according to the tasks and methods of edition studies, our research team has undertaken the following major tasks:

Locating and preliminarily determining the source versions of copied gazetteers. In the initial copying work, copyists primarily recorded gazetteer titles, eras, and produce content. During subsequent proofreading, virtually every copied gazetteer contained puzzling notations such as “Jiangsu lower: 439” or “18:1.” In an interview with Mr. Zhu Zizhen, we learned that such notations precisely mark the source gazetteer versions, indicating roughly from which volume and which page within that volume the produce content was copied. Based on this information, we launched large-scale comparison work on source gazetteer versions to determine version information.

For gazetteers without version documentation information, it is necessary to broadly search for versions for comparison. This requires locating all versions from approximately the same era, sorting them chronologically, and examining prefaces and postscripts to clarify precise version information. On this basis, using the *Produce in Local Chronicles* documents as the base text, we compare them respectively with the specific content of all collected source gazetteer

versions. Beyond this, we must also examine whether layout formats, recording conventions, and even errors are consistent, thereby determining version information. However, the collation notes must indicate that such versions are tentative.

Supplementation of omissions. As previously mentioned, copyists did not copy compilation information or specific version details from source gazetteers. Therefore, supplementation primarily involves adding compiler information and version details. The former refers to supplementing the names of compilers and revisers of source gazetteers; the latter refers to marking whether the gazetteer is a manuscript copy, block-printed edition, or printed edition. This serves to identify the unique source version.

Upon completing the above work, and referencing the commonly used Dublin Core metadata standards in digital libraries, we compile catalogs of source gazetteers copied for the *Produce in Local Chronicles* documents (as shown in Table 4). Cataloging elements include: title (gazetteer name), date (compilation date), principal creator (gazetteer chief compiler and responsibility type, such as compilation, revision, or continuation), subject (produce, material splendor, local produce, etc.), source (volume number, page number, etc.), description (produce preface), publisher, gazetteer type (provincial gazetteer, prefectural gazetteer, county gazetteer, etc.), region, edition, physical carrier, holding institution information, etc.

Table 4. Sample Formatting of Source Gazetteer Catalog and Version Information for *Produce in Local Chronicles* Documents

Element	Example 1	Example 2
Title	Qianlong 54 (1879)	Qianlong 15 (1750)
Principal Creator	Compiled by Zheng Jianlong	
Source	Volume 1, Page 19A	Volume 17, Page 1B
Description	“Produce originates from the land; fertile soil yields abundant goods. Yizhou has long been called a vast fertile wilderness, but its western region lies at the extreme edge of Bayu...”	“Preface: The ancient kings regarded agriculture and sericulture as fundamental, teaching the system of tithes...”
Gazetteer Type	Chongqing, Youyang	Jiangsu, Rugao
Region	Youyang Tujia and Miao Autonomous County, Chongqing	
Holding Institution	Harvard University Library	Archives Gazetteer Office

3.3 Textual Collation to Provide Credible History

Through the re-collation of the *Produce in Local Chronicles* documents, and building upon the experience of predecessors, we carefully supplement omissions and correct errors to provide credible historical records for subsequent research. In text processing, we conduct detailed examination according to the original appearance of copied gazetteers:

First, content supplementation and correction. When proofreading the *Produce in Local Chronicles* documents, we employ a computer-based three-panel display: the left panel shows facsimile editions of source gazetteers, the center panel shows the copied *Produce in Local Chronicles* documents, and the right panel shows the digital version of the *Produce in Local Chronicles* documents. The facsimile edition of source gazetteers serves as the proofreading base text, while the digital version of the *Produce in Local Chronicles* documents serves as the working base text. When encountering discrepancies, all variant texts are annotated in red font on the working base text (Figure 5).

Figure 5. Example of Content Supplementation and Correction

Second, character collation and annotation. As mentioned earlier, the hand-copied and digital versions of the *Produce in Local Chronicles* documents contain erroneous characters and non-standard characters, which are primarily corrected using external collation and rational collation methods. For external collation, we mainly utilize citation content within produce descriptive information. For instance, in the digital version of the 1948 *Liling Xianzhi*, records appear as “rice wine, facilitates medicine {upper zhi lower li}” and “turtle shell, treats blood {sickness inner duan}.” Comparing these with the facsimile edition of the source gazetteer reveals that these characters are also illegible. However, since the recorded content cites *Bencao Gangmu* (Compendium of Materia Medica), we consulted the grain and shellfish sections of *Bencao Gangmu* and determined that the original text should read “rice wine, facilitates medicinal potency” and “turtle shell, treats blood concretions.” For rational collation, we primarily conduct textual research from the perspectives of character form and meaning. For example, the 1829 *Dong’e Xianzhi* from the Daoguang era records “vegetable melon, can be made into (*upper cao lower cu*).” Based on everyday experience and semantic analysis, vegetable melon should be capable of being made into pickles, suggesting the character should be “zu” (菹). Subsequent comparison with the Erudition Digital Gazetteer Database basically confirms that the original text should read “vegetable melon, can be made into zu.”

Third, chronological correction. During the copying of the *Produce in Local Chronicles* documents, errors occurred in recording gazetteer compilation dates, and mistakes were also made in converting between Chinese and Western calendar systems. When encountering such issues, chronological verification is required. For example, the 1710 *Fengdu Xianzhi* from the Kangxi era was incorrectly converted to “1910” in the Chinese-Western calendar conversion. The 1885 *Shu Jing Hui Kao* from the Guangxu era was copied as “Guangxu nine-

teenth year” instead of eleventh year. Although such errors are not numerous, they require individual verification and correction.

The above collation is based on original texts and respects documentary objectivity, to some extent resolving the contradiction between the weak and lagging collation of *Produce in Local Chronicles* documents and the burgeoning research on produce. Borrowing from semiotic principles, we may consider the author’s writing process as “encoding” and the reader’s reading process as “decoding.” Phenomena such as erroneous, omitted, interpolated, transposed, and variant texts that emerge during document transmission can be regarded as “garbled code.” By attending to and correcting this “garbled code,” restoring documents to their original appearance, and ensuring the authenticity and accuracy of recorded content, we can effectively avoid erroneous “decoding.”

4. Conclusion: Pathways for Collation of “Produce in Local Chronicles” Documents

With the arrival of global digitization, digital technology has become an important engine powering humanities and social sciences research. Against the backdrop of the new era, and grounded in the preservation and utilization of *Produce in Local Chronicles* historical materials, we offer several perspectives to explore new pathways for the deep collation and utilization of these materials.

4.1 Continuous Collection of Produce Documents from a User Co-Creation Perspective

Up to the present, the collation and supplementation of the *Produce in Local Chronicles* documents has essentially reached a temporary conclusion. However, we must recognize that numerous rare, fine, and even unique gazetteer copies remain scattered overseas⁷. Beyond official collections, a small portion of gazetteers are dispersed among private collectors. This situation adds considerable difficulty to gazetteer collection.

The digital era has brought opportunities for solving such problems. Alvin Toffler and others have proposed that digital technology increasingly blurs the boundaries between production and consumption²⁰. Therefore, we can employ a “user co-creation” model to transform the supply formation of *Produce in Local Chronicles* documents. With sharing as the core, we can construct a cloud-based utilization platform for these documents. Based on the interactive concept between users and services, the traditional user role can be transformed into that of knowledge provider and service agent, enabling them to proofread existing content in the *Produce in Local Chronicles* documents and supply resources for missing content. Only through continuous comprehensive collection—preserving both extant and lost materials—can we achieve complete collection of produce corpora from Chinese local gazetteers and enable comprehensive summarization of produce knowledge.

4.2 Accelerating Intelligent Processing of “Produce in Local Chronicles” Document Content

The *Produce in Local Chronicles* historical materials contain substantial and rich knowledge concerning “people, time, place, objects, and events.” Based on the linguistic characteristics of these documents, we can organize semantic knowledge and design an intelligent processing methodology for *Produce in Local Chronicles* content centered on proper nouns, agricultural terminology, named entities, and sequential knowledge. For example, in identifying “same name for different objects” and “different names for same object” in produce, we can combine produce metadata information and employ principles and methods from computational linguistics (deep learning, text analysis, social network analysis) to achieve verification of produce names and examination of produce descriptive information. Simultaneously, guided by the construction of digital humanities research infrastructure for domain-specific studies, we can apply multidisciplinary theories and methods from computational linguistics, philology, and information science to the storage, computation, mining, analysis, and

4.3 Constructing Specialized Produce Databases for Categorical Content Organization

While the *Produce in Local Chronicles* documents have achieved the construction of an overall knowledge base, the development of specialized databases remains weak. Specialized databases for *Produce in Local Chronicles* refer to single-produce databases, categorical produce databases, and regional produce databases. Single-produce databases are constructed around a specific type of produce, such as rice, wheat, potatoes, corn, peppers, etc. Categorical produce databases are built around categories of produce, such as grain crops (mountain grains, field grains, tree grains, etc., with further subdivisions possible), economic crops, horticultural crops, and medicinal produce. Regional produce databases are Over forty rare Ming dynasty local gazetteers are collected in Japan, the United States, the United Kingdom, and other countries, totaling more than nine hundred volumes. Among them, the *Tianshun Rugao Zhi*, as the first gazetteer of Rugao County in Jiangsu, exists only in the London Museum.

Regional produce databases are constructed around produce from a specific region, such as the Taihu Lake basin, the middle and lower Yangtze River region, the Southwest region, etc. Through constructing specialized and systematic produce databases, we can gain insights into regional characteristics of produce structures in certain localities or regions, inter-regional produce exchange, and the introduction and evolution of produce itself. This facilitates understanding the relationships between produce and natural history, environmental history, social development history, and cultural history, exploring the harmonious co-existence between produce and human civilization, and discovering survival wisdom embodied in concepts such as “unity of heaven and humanity,” “following natural laws,” and “taking with restraint.”

4.3 Promoting Produce Research from Laboratory to Museum and to the Public

Seizing the opportunity presented by the national cultural digitization strategy, and based on the symbiotic theoretical perspective of a “cultural content—digital technology” system, we can utilize digital means to link knowledge from the *Produce in Local Chronicles* documents according to trends in cultural digitization development: “hyperspace” —the digital upgrading of physical spaces; “hypertime” —the digital extension of temporal systems; “hyperreality” —the digital immersion blending virtual and real; and “great convergence” —the digital exploration of old and new industries²¹. This creates new historical materials and facts that can be organized, expanded, associated, and displayed, providing integrated knowledge services featuring datafication, toolification, and platformization for the public, academic community, and government. This allows the *Produce in Local Chronicles* documents to be promoted and continued under the internet wave of “mobilization, socialization, data-driven operation, and intelligence,” driving the creative transformation and innovative development of Chinese agricultural civilization.

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Notes:

Comprehensive Catalogue of Chinese Local Gazetteers was published by The Commercial Press in 1935, initially containing 5,832 titles. After the founding of the People's Republic of China, Mr. Zhu Shijia supplemented the book, forming a revised manuscript that recorded 7,413 gazetteers.

The current whereabouts of the *National Gazetteer General Catalogue* have not been discovered.

Classified Gazetteers primarily copies from sections on mountains, rivers, customs, water conservancy, etc.; *Comprehensive Gazetteers* mainly records local diet, customs, clothing, utensils, etc. Given their different recording conventions and content from *Produce in Local Chronicles*, their collation has not yet been undertaken.

Wuyuan City was under the jurisdiction of Anhui Province before 1934 and was officially transferred to Shangrao City, Jiangxi Province in 1949.

Primarily involving Singapore, Japan, the United Kingdom, and the United States.

The main tasks of edition studies are to determine the nature, date, quality, and origins of versions. When examining an ancient local gazetteer, the first task is to identify its title, volume count, compiler, and dynasty, then determine the edition type—whether it is a block-printed edition, manuscript copy, stone rubbing, mimeograph, movable type, or printed edition—and further distinguish whether it is a draft or ordinary copy.

Over forty rare Ming dynasty local gazetteers are collected in Japan, the United States, the United Kingdom, and other countries, totaling more than nine hundred volumes. Among them, the *Tianshun Rugao Zhi*, as the first gazetteer of Rugao County in Jiangsu, exists only in the London Museum.

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv – Machine translation. Verify with original.