

## Collecting and Classifying : Ming Dynasty Compendia and Encyclopedias (*Leishu*)

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The publication of reference encyclopedias (*leishu*) and daily-use compendia (*riyong leishu*) during the late Ming dynasty (1368-1644) drew on earlier book collections, which Chinese literati previously had valued as texts while preparing for civil examinations or for collecting source materials needed by officials to carry out their activities (see Hilde De Weerd's paper in the issue). During the Song dynasty (960-1280), these traditional collections transmitted a specific epistemological approach for investigating things, events, and phenomena. Beginning in the Yuan period (1280-1368), new types of *leishu* developed, some of which, owing to the steady expansion of printing as well as literacy and the corresponding proliferation of a bookish print culture, reached a broader readership than ever before.<sup>1</sup>

The actual production of such collections for both high-brow and low brow elites relied on reusing woodblocks previously carved to print books. On the one hand, these new types of *leishu* covered a wider range of knowledge. On the other hand, they represented a form of classicism that approached things/events/phenomena textually, i.e., in a lexicographic and etymological way. Using the encyclopedic form, compilers increasingly applied the ideals for “investigating things and extending knowledge” (*gewu zhizhi*) beyond the classical corpus. They had derived the term from the Great Learning (*Daxue*; one of the Four Books, *Sishu*) in the *Record of Rites* (*Liji*, one of the Five Classics, *Wujing*), which were canonical texts required for the civil examinations. The textual approach to natural studies and practical knowledge culminated in the creation of encyclopedias and collectanea (*congshu*, lit., “a collection of books”) that served as textual repositories simulating “textual museums.”<sup>2</sup>

During the Southern Song (1127-1279), the philosopher Zhu Xi (1130-1200), who became the core interpreter of the late imperial *Daoxue* (lit., “Learning of the Way,” often called “Neo-Confucianism”) classical canon,

argued that “investigating things and extending knowledge” (*gewu zhizhi* = *gezhi*) presupposed that all things had their principle/pattern/coherence (*wanwu zhi li*). Later encyclopedias drew on Zhu Xi’s scholarly eminence after the Southern Song, when *gewu zhizhi* became a popular term borrowed by literati to discuss the proper approach to the diversity of things.<sup>3</sup> Zhu concluded: “one should in three or four cases out of ten seek principles in the outside realm” (*sansifen qu waimian lihui fangke*). In the other six to seven out of ten situations, however, moral principles should be sought within one’s moral cultivation.<sup>4</sup>

Zhu Xi proposed a uniform methodology to accumulate knowledge and wisdom in both the cultural/moral and natural/political realms. He did not delineate a precise classificatory system within which “investigating things” represented a particular kind of knowledge, i.e., calendrical or mathematical, social or political, cultural or religious. For Zhu Xi, *gezhi* and *bowu* (“broad knowledge of things”) were opposed to each other, because the former was guided by moral purpose in contrast to the latter’s aimless erudition. Unlike *gezhi*, *bowu* often still carried with it a popular notion of curiosities or *esoterica*, which would later make it the more appropriate term to use for museums (*bowu guan*) in modern times. But we will see below that despite Zhu Xi’s influence, *bowu* and *gezhi* were not mutually exclusive.

Zhu Xi and his followers believed that the common knowledge of the literati had often been disaggregated through the widely used genre of “brush notes” (*bitan*) (see Fu Daiwie’ paper in this volume). The reunification of knowledge toward a moral purpose was possible only if a universal approach was followed, that is, a search for the principles of all things, events, and phenomena (*gewu qiongli*). Zhu Xi’s predecessor Cheng Yi (1033-1107) had feared that without the unity of approach provided by investigating things, “broad learning” would succumb to trifles of knowledge. Thereafter, the investigation of things (*gewu*) became the key to opening the door of knowledge for literati versed in the Classics and Histories. In Ming encyclopedias, however, investigating things and broad knowledge became regular bedfellows.

Despite an emerging consensus, there was still much scholarly debate surrounding Zhu Xi’s prioritizing of the *gewu* passage in the Great Learning to establish the epistemological boundaries for literati learning.<sup>5</sup> As a *Daoxue* master, Zhu had elevated his own commentary on the *gewu* passage in the Great Learning by putting it into the mouth of one of Confucius’ direct disciples, Zengzi. Through ventriloquism, Zhu thereby entered his own commentary into the canon, an act that was disputed by many since the Southern Song but which remained the orthodox view for knowledge-

gathering in encyclopedias until early modern times.<sup>6</sup> Under Mongol rule, Cheng Yi's and Zhu Xi's views on the Five Classics and Four Books were declared orthodox for the Yuan civil examinations that were restarted in 1313-14. Hence, Song classical learning became the framework for accepted knowledge from 1400 to 1900. Using this framework, Ming scholars and printers together produced a wide variety of classified compendia that increasingly went beyond the classical, literary, and historical encyclopedias used by literati to prepare for the competitive civil examinations.<sup>7</sup>

During the mid-Ming, for example, the classical controversies about the *gewu* passage in the Great Learning emboldened revisionist literati-scholars such as Wang Yangming (1472-1529) to take their predecessors to task for their naiveté concerning the relationship between knowledge and morality. In general, in the hands of Wang's more radical late Ming followers, however, the focus on the "investigation of things" began to shift away from a pathway to sagehood to a more rigorous methodology for extending all knowledge, whether moral, textual, or worldly, which carried over to late Ming encyclopedias. This growing emphasis on ancient classical learning as the cornerstone of literati scholarship also occasioned a revival of encyclopedias and digests to recapture the things, events, and phenomena delineated in the authentic classics and histories.

This return to book-learning and precise scholarship enabled recovery of the exact meanings of the texts themselves, rather than wasting time on speculation. The ancient content of the classical tradition could be revived, literati thought, through exacting research and analysis. Literati entered such hard-earned knowledge in the encyclopedias of the age. Such research depended on access to classical sources that were increasingly printed in urban centers for both civil service candidates and a larger reading world of aspiring scholars, examination failures, and lower-brow elites anxious to emulate their cultural superiors. One of the chief aims of the account below will be to describe the wide variety of Yuan and Ming encyclopedias and compendia that were published as a repository of classical, historical, institutional, medical, and technical knowledge since antiquity.

## 1. Yuan-Ming Encyclopedias and Compendia

During the Yuan dynasty, newer and more popular forms of knowledge circulating in the wider Mongol empire forced Chinese compilers to constantly add material to Southern Song (1127-1280) compilations, but the military dislocations of the period from 1350 to 1450 yielded a dramatic downturn in the numbers of such publications at the same time that Chinese

population declined significantly. The *Expanded Records of a Forest of Matters* (*Shilin guangji*), for example, was a Southern Song compilation that scholar-printers added to in the Yuan. By 1330-1332, the edition had 43 divisions, which included heavenly correspondences, the calendar and time, topography, plants and fruits, bamboo and trees, musical harmonics, Daoism, Chan Buddhism, mathematics, tea, wines, liquors, in addition to topics for the recently revived civil examinations. In contrast, the original *Expanded Records* during the Song had only 17 divisions, which generally focused on government and essay questions from the civil examinations.<sup>8</sup> These remarkable additions to the collection came at a time when the role of the civil examinations were severely curtailed by the Mongol warrior elites, and Han Chinese officials remained a minor group serving the Yuan dynasty.<sup>9</sup>

### **The Rise of Low-Brow Printing During the Yuan and Ming**

The Yuan roots of the new type of encyclopedia emerged when the lesser role of the classical learning was confirmed by the pathetic scope of Mongol civil examinations after 1313. Only some 1100 Chinese passed the palace examination during the entire Yuan, compared to some 39,000 earlier during the Song and about 25,000 under the succeeding Ming. Few literati bothered. The Yuan encyclopedia *Complete Collection of Classified Affairs Essential for Those Living at Home* (*Jujia biyong shilei quanji*), for instance, was a precursor to late Ming practical-use encyclopedias that focused on literati customs, practical learning, home rituals, sericulture, maintaining health, etc. The 1301 preface of the *Complete Collection*, for instance, called it a “guide to local clerks’ learning” for those who served in their home communities. Late Ming daily-use encyclopedias (*riyong leishu*) continued this focus for its audience on those who served as hereditary clerks in cities and the countryside without examination degrees. Because the readership now reached a wider social world of clerks and commoners, the *Complete Collection of Classified Affairs* was organized to provide the practical knowledge and common sense needed in one’s home, although it was still categorized as a *leishu*.<sup>10</sup>

Beginning with the Ming economic revival in the late fifteenth century, cheaper editions of books were published in Fujian province and in the Yangzi delta. Ming publications for a popular audience centered in Fujian province, especially in the interior county of Jianyang. The production of daily-use compendia then spread more widely from the Southeast China coast to the hinterlands. They also spread across social formations. Such new compendia no longer merely served as classically technical encyclopedias for examination-conscious literati. A noticeable increase occurred in printed

works on agriculture, health, medicine, and mathematics for social groups in traditional Chinese society who were classically or functionally literate, that is, literati, artisans, and merchants. This publishing upsurge from the late fifteenth to the sixteenth century should be understood in light of a similar expansion during the Southern Song. In other words, the publishing of popular encyclopedias from the Song to late Ming increased, although there was a significant dip for economic reasons in the early Ming.<sup>11</sup>

Family businesses predominated in Fujian publishing, for example, particularly in the western mountains where the local lineages established successful low-cost enterprises through an intricate network of bookstores and traveling merchants. The kinship links among local publishers, distributors, and sellers supported a nested geographical hierarchy for producing and selling books for elite and popular audiences locally and regionally. As family businesses, the local print shops fulfilled their lineage's cultural aspirations by catering to the local civil examination market for books on the Classics and classical primers. In this manner, merchant families that profited from the book trade also invested in educations for their kin in the hope that their social status would improve through an association with books and the classical scholarship of elites. The well-forested province of Sichuan in the southwest has proved to be a similar province where middle- and lowbrow Ming printing flourished.<sup>12</sup>

As New World and Japanese silver penetrated the Ming economy after 1550, higher-brow printing reemerged for literati elites who again competed in the enlarged Ming civil examinations, which were expanded to include local biennial written tests in all 1350 counties. As a result, cheaper books—such as those printed in Jianyang in Fujian—were now criticized during the Wanli reign period (1573-1619) for their poor paper and for their use of soft wood to carve woodblocks to sell editions quickly. They remained popular, however, as part of an expanding print culture, which took advantage of a decline in printing costs and book publication expenses. Such savings were due in part to a more efficient division of labor in the production of wood blocks for printed books and because the sea route for Jianyang editions from Fujian in the southeast to other regions, particularly the prosperous Yangzi delta, proved cheaper. High-brow printers in Hangzhou and Nanjing now took over the market for higher quality books and encyclopedias catering to the upper levels of the civil examination marketplace in provincial capitals and in the dual capitals of Nanjing and Beijing.<sup>13</sup>

The classification system for daily-use encyclopedias published in the late Ming typically ranged in content from twenty to over forty major categories. Shorter tables of contents usually implied more limited and more elitist appeal

to civil examination candidates, while longer tables implied a wider concern for daily life and practical learning. Topics that appeared most frequently in late Ming practical encyclopedias, i.e., those that appealed to commoners, clerks, and aspiring local students, were astrology, topography, medicine, mathematics, dream interpretation, nourishing life, sericulture, writing skills, legal matters, and plants. The cheaper encyclopedias published in Jianyang encompassed a wide variety of books, including household manuals, quotation dictionaries, and collections of anecdotes, but their common feature was their topical arrangement as “household encyclopedias” and manuals for everyday life, for example, what rituals to follow in birth, marriage, and death.

We can identify seven types of late Ming daily-use compendia: 1) general; 2) oriented to the civil service; 3) reference use (phrase dictionaries, letter writing, etc.); 4) literary collections; 5) sources for looking up names and people; 6) collections of stories and anecdotes; and 7) primers for children. These divisions reflect the growing audience of high- and lowbrow elites, as well as commoners, who were targeted by the literati and merchant printers who published the encyclopedias. Private encyclopedias increased their categories to cater to a wider audience of readers, while officially sponsored *leishu* tended to focus on the more orthodox forms of knowledge and information related to the classical canon, the civil service, and dynastic statecraft.<sup>14</sup>

The late Ming scholar-merchant bookseller Hu Wenhuan (fl. ca. 1596), for example, published a massive and widely available private collection that was reviewed by the editors for inclusion in the Qianlong emperor’s (1736-95) famous Imperial Library known as the *Siku quanshu* (Complete collection of the four treasuries) in the 1780s. Although not an encyclopedia itself, the editors noted, critically, that Hu’s collection contained 181 works – including encyclopedias – which he had divided into twelve classifications. Because many of Hu’s categories were unorthodox, the imperial editors refused to copy the collectanea into the Complete Collection of the Four Treasuries.

- 1) Classics and commentaries: 15 works
- 2) Histories and popular accounts: 21 works
- 3) Officialdom: 12 works
- 4) Legalists: 12 works
- 5) Lessons and admonishments: 14 works
- 6) Masters and others: 8 works
- 7) Honoring life: 18 works
- 8) Seasons and agriculture: 8 works
- 9) Arts and crafts: 10 works

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- 10) The virtuous and praiseworthy: 17 works
- 11) Fictional works: 11 works
- 12) Arts collections: 35 works<sup>15</sup>

Similarly, the imperial editors never considered late-Ming popular encyclopedias for inclusion or even mention in the Complete Collection of the Four Treasuries. Like many Ming scholar-printers, Hu mixed and matched his editions to sell more copies. At times he also changed several original works to conform to his own printing formats.

### **Elite Printing during the Late Ming**

As the Ming economy grew, woodblock printing developed into a sophisticated art. Although classical learning had revived during the Song due in part to the increased circulation of books and the diffusion of classical texts precipitated by the spread of printing, this already high development was surpassed in the late Ming. By then, woodblocks included multicolor printing, artistic illustration, the use of copper movable type, and woodcut facsimiles of earlier editions. Song government printing had encouraged paper production (invented in the second century A.D.) and printing, but the explosive expansion of printing after 1500 produced a wider circulation of erudite and practical knowledge empire-wide. Highbrow printing of classical works for literati elites in South China was paralleled by printing of popular literature, vernacular novels, almanacs, encyclopedias, and literacy primers for a wider commoner audience in the Yangzi delta, Fujian in the southeast, and Sichuan in the southwest. The geographical expansion of printing was paralleled by the penetration of print culture into the lives of the lower- and middle-brow people living in China's tens of thousands of towns and hundreds of thousands of villages.<sup>16</sup>

Woodblock printing reached its peak in technical sophistication in the mid-sixteenth century with the rise of scholar-printers in the Yangzi delta, but the scale of printing and the scope of the market were also controlled by the more commercially oriented printers in Fujian and Sichuan. During the late Ming, Nanjing, the Ming southern capital, and nearby Hangzhou and Suzhou (all in "Jiangnan," south of the Yangzi River) became the center for quality printing, and outstanding xylographers staffed the printing shops. But Jianyang, the center for commercial publishing in Fujian, produced a larger quantity of novels, dramas, and popular manuals (including medical handbooks) than elsewhere. Merchants from Huizhou (in Anhui), who could access the cheaper wood in their home area for woodblocks, and book traders from elsewhere congregated in Nanjing, and Hangzhou, the former Song

capital. Nanjing printers featured color editions of books. These elite tiers of print culture extended all the way down to the provincial hinterlands, where local and regional families involved in paper production, wood-block carving, and ink manufacture helped printers to produce more printed items in China than anywhere else in the world between 1600 and 1800.

Chinese printers experimented with movable type, but xylography was generally – but not always – more economical, when publishing many copies of a particular work was required. Books set with movable type accommodated misprints and errors more easily, whereas a woodblock, once proofread, was permanently correct. Breaking down type matrices after a printing rendered later editions very expensive. A previous woodblock, on the other hand, could be used for cheap later printings. When relatively few copies were needed (for imperial projects with limited circulation), then it was feasible to employ movable type. Woodblocks were especially economical for the books and manuals produced by lowbrow print shops in Fujian and Sichuan, but traveling printers who produced family genealogies on demand found that moveable wooden type was more economical for their more formulaic products.

Woodblocks were easily stored and, with reasonable care, preserved for frequent reuse. In fact, printers often used the same woodblocks for collectanea that included many diverse titles or were prepared by different compilers. The wide dissemination of more elite books printed from reused woodblocks allowed such editions to circulate from the Hangzhou and Nanjing print shops to Japan and Korea, as well as Vietnam. In this milieu, popular encyclopedias became very influential and representative works, which successfully commoditized classical learning in an age of Ming connoisseurship. Moreover, they afford us a unique window onto the more common divisions of knowledge among commoners, when such compendia reached a broader audience.

The proliferation of printing during the late Ming was the enabling factor for the publication of numerous encyclopedias for the civil examination market and simultaneously more classified digests for commoners and the nouveau riches. Although these sorts of books were organized along the same pattern, they served different functions depending on the context for their use, that is, for examination aspirants or for householders. Thus, they functioned as manuals for accepted rituals and practices during the late Ming, in addition to serving as scholarly compendia for students preparing for the civil examinations.

A book-oriented atmosphere conducive to the development of scholarship and the practical arts emerged from this environment of readily available



reference books, practical manuals, and popular compendia of knowledge, which each aimed at a different though overlapping audience of students, householders, literate artisans, and merchants. In addition, the printing of daily-use compendia since the 1590s was emblematic of a widening publishing world that appealed to the lesser lights of Ming and Qing (1644-1911) society, namely, merchants, artisans, and those only licensed to take higher examinations.

Hu Wenhuan, for example, prefigured the Sino-Jesuit dialogue concerning the investigation of things and European *scientia* in the early seventeenth century when he compiled and published his widely circulated collection of books. He published them as a Ming repository of classical, historical, institutional, medical, and technical works from antiquity to the present. Its wide dissemination in China and Japan, in many editions from Hu Wenhuan's Hangzhou and Nanjing print shops, marked it as a very influential and thus representative work. It did not have the scholarly pedigree of classical encyclopedias, but Hu's printing shop presents us with a unique window onto more common divisions of knowledge.<sup>17</sup>

Presented as repositories of useful information for daily life, popular encyclopedias and book collections provided non-elites with a wide choice of subjects dealing with medical prescriptions, divination formulas, ancient lore, astrology, geomantic almanacs, calligraphy, etc. Unlike reference books for elites that focused primarily on the civil examinations, elite family ritual, or classical learning, many encyclopedias included information on travel and lodging useful to merchants. Such attention to the practical needs of non-elites in provinces such as Fujian meant that compilers and printers were no longer limited to orthodox topics. They could present the ritual and practical aspects of normal life in rich detail for a broad audience of new readers. In addition to their book collecting efforts, bibliophiles in the Yangzi delta also undertook major printing projects that went beyond the wider focus on lowbrow publishing. Publishing was an important part of family businesses in the late Ming. Scholar-printers became invaluable members not just of the highbrow Yangzi delta academic community but also local towns everywhere.<sup>18</sup>

Indeed, the range of Ming *leishu* became so broad that classical scholars had trouble based on the classifications used in various encyclopedias to find the appropriate bibliographic locations for such information, which was never exclusively classical, historical, technical, or literary. Although the four classifications (*sibu*) were usually in effect in imperial libraries since medieval times, we cannot identify a single, unified field that encompassed both official and private encyclopedias during and after the Ming. The official *sibu* system was often bypassed by Song-Yuan-Ming lowbrow and highbrow encyclopedias.<sup>19</sup>

Despite this quandry, both the “wide learning of things” (*bowu*) and “investigating things and extending knowledge” (*gezhi*) together became a common epistemological frame for the accumulation of classical and practical knowledge among late Ming and early Qing elites. By the late eighteenth century, the editors of the Qianlong emperor’s Complete Collection of the Four Treasuries conceded that during the Ming a new category of hybrid encyclopedias had emerged, which challenged the traditional classification system for knowledge. These new variegated collections, the editors conceded, were best placed in the category of the “Masters” (*zibu*), rather than among literary collections, which some collectors had done, because they contained more specialized information normally associated with the technical writings of the “Masters.”<sup>20</sup>

But the editors also had a warning for the more lowbrow compilers. Like many Ming scholar-printers, Hu Wenhuan had mixed and matched the contents of his editions to sell more copies of his printed works. The Qianlong editors found this aspect of Hu’s editions especially deplorable, and they castigated him for his blatant profit-seeking. The editors made clear in their 1780s critique of Hu’s massive collection that they also disapproved of his inclusion of fictional accounts posing as works on natural history (*bowu*). Rather than grant Hu’s collection the status of a *leishu*, the imperial editors relegated mention of it to the section on *zajia* (miscellaneous lineages of writers).<sup>21</sup>

## 2. Ming Compendia: Ordering Things Through Names

By 1600, scholarship, book production, and libraries were at the heart of China’s cultural fabric. New types of artifacts were accommodated within the existing framework of knowledge, but such frameworks had now been stretched to include a wider variety of information and knowledge than ever before. The link of the new late Ming encyclopedias to the orthodox epistemological agenda for “investigating things and extending knowledge” was increasingly enunciated as a way to “order things through names” (*shi mingwu*)

The printer-merchant Hu Wenhuan, for example, included his work on the *Poetry Classic* in his own collection, in which he repeated that knowledge of the names of birds, animals, herbs, and trees was important for understanding the *Poetry Classic*. In his 1593 “Preface,” Hu replied to critiques that his research was redundant or too nitpicking: “If one says that Master Zhu [Xi] brought together [all knowledge about the *Poetry Classic* in his “Collection of Commentaries”] and that I have split it all up, then what good is erudition?”

In effect, Hu revived focus on the “things-phenomena-affairs” mentioned in the *Poetry Classic*, which displaced Zhu Xi’s efforts to censor the more sensuous love poems in the classic.

The charge that Hu was splitting up knowledge, however, was an indication that his printings dealing with things, affairs, and phenomena no longer sustained an overarching methodological unity, which had informed the Song appeal to universal knowledge. In his scholarship on the *Poetry*, Hu collected items of information. He was not searching for universal principles.<sup>22</sup> Hu’s views reflected what was common in late Ming civil examination policy questions on “broad learning.” In a 1597 examination, for instance, the Shuntian provincial examiners in Beijing asked several thousand candidates for civil office to address why Confucius had focused students on “names and things” and not just “principles and nature.”<sup>23</sup>

### **The Role of Collectanea (*Congshu*)**

Collectanea such as Hu Wenhuan’s, which included Ming encyclopedias, provided a medium through which Chinese scholar-printers could reprint their rare books, as well as short works of scholarship and newly collated versions of previously published texts. In this way, such works were made accessible to other scholars and collectors. Generally, a collectanea was a collection of independent works of many periods published together in a single edition. They were an answer to the loss of literature, especially monographs too small to circulate independently, because of warfare and social upheaval. Ming and Qing collectanea, which contained rare works, led the way in preserving ancient writings in their respective collections.<sup>24</sup>

Such collectanea originated in the Song and were particularly popular during the late Ming period. Mao Jin (1599-1659) initiated the practice of private libraries publishing *congshu*. Hu Wenhuan’s *Collectanea of Works Inquiring into and Extending Knowledge* (*Gezhi congshu*), became a late Ming repository of classical, historical, institutional, folkloric, medical, and technical works from antiquity to the present in China. In it, Hu presented a cumulative account of all areas of native textual knowledge important to a literati audience in the seventeenth century.

Because printing in the early Ming capital at Nanjing had surpassed Hangzhou, which had been a publishing center in the Southern Song, merchants from Huizhou and elsewhere congregated there. Color editions of books became a prominent feature of Nanjing editions. By the late Ming, Hangzhou printers such as Hu Wenhuan thus operated shops in both cities to disseminate their publications. Because Hu printed his *Gezhi congshu* in so many different combinations, few of the editions were commensurable in

numbers of volumes or titles. In aggregate, however, the works he printed became widely available in China and Japan. Hu printed many of the same titles for his other notorious collectanea known as the Famous Works of the Hundred Schools (*Baijia mingshu*).<sup>27</sup>

By the eighteenth century, a collectanea resembled a miniature library. According to Arthur Hummel, *congshu* were usually constituted according to five criteria: (1) common authorship, for example, the *Yan-Li congshu* (Collectanea of Yan Yuan [1635–1704] and Li Gong [1659–1733]); (2) similar subjects such as geography, history, *Daoxue*, philology, Buddhism, Daoism, for example, the *Daozang* (Daoist patrology); (3) same locality; (4) same period of time, for example, the *Tang-Song congshu* (Collectanea of the Tang and Song dynasties); (5) special collections issued by schools and societies. Hu Wenhuan's collectanea added to these criteria by including many ancient lexical works and several Ming encyclopedias, which we will discuss further below.

Such collectanea were the principal medium used in traditional China to preserve anything corresponding to periodical literature. In them authors could print short articles, papers, or monographs that today find their way into journals and magazines before they are finally deposited in book form. Collectanea that focused on one class of subjects were also very popular. In the absence of systematic library facilities, collectanea (for example, the *Fozang* [Buddhist patrology]) also served as subject bibliographies that complemented existing library catalogs

### Ordering Antiquities and New Findings

In addition to its central epistemological place in literati classical learning since 1200, and its occasional use in medical discourse, the notion of *gewu* was also applied to the collection, study, and classification of antiquities, as in Cao Zhao's (fl. 1387-99) *Gegu yaolun* ("Essential Criteria of Antiquities," lit., "Key issues in the investigation of antiquities"), a *leishu* that was published in the early Ming and enlarged several times thereafter.<sup>25</sup> The work originally appeared in 1387-88 with important accounts of ceramics and lacquer, as well as traditional subjects such as calligraphy, painting, zithers, stones, bronzes, and ink-slabs. The 1462 edition prepared by Wang Zuo (palace graduate of 1427) was considerably enlarged and included findings from the official Ming dynasty naval expeditions led by Zheng He (1371-1433) to Southeast Asia and the Indian Ocean from 1405 to 1433. Wang was particularly interested in ancient bronzes, calligraphic specimens, and curiosities. He also added the subjects of imperial seals, iron tallies, official costumes, and palace architecture.

The new information the Zheng He fleets brought back to Ming China from other parts of Asia in the fifteenth century, however, did not challenge the existing frameworks of orthodox knowledge among literati because the Zheng He findings were assimilated to the traditional study of antiquities. This accommodation differs somewhat from the wider impact sixteenth century oceanic discoveries allegedly had in early modern Europe. Over a century prior to the Jesuits arrival, Ming China and its paradigm for knowledge based on the investigation of things and the extension of knowledge had enough epistemological authority to allow the compilers of the *Gegu yaolun*, for instance, to domesticate the new materials received from the Indian Ocean within a traditional focus on encyclopedic knowledge and its already established range of classifications.<sup>26</sup>

The passion for things, artifacts, utensils, and odd phenomena among Ming literati are amply recorded in collections such as the *Gegu yaolun* that stressed the investigation of things. Moreover, the popular encyclopedias make it clear that Ming encyclopedists never took literally Wang Yangming's famous – although likely apocryphal – efforts to refute Zhu Xi's affirmation of external knowledge by finding the principles of bamboo in the mind through meditative techniques alone. Gainsaying Wang Yangming's introspective idealism, book compilers continued to focus on things, affairs, and phenomena, which flowered into an eruption of “daily use” compendia in the 1590s.<sup>27</sup>

### Ordering Pharmacology Through Names

Medical learning was decisively impacted by the late Ming turn to the summation of contemporary knowledge in the textual museums of *materia medica*. Biographies of Li Shizhen (1518-93), for instance, have noted that the future pharmacologist extraordinaire had at the age of fourteen *sui* (Chinese added one year after the first new year), circa 1532-33, passed the preliminary civil examinations held at the local county level in his Middle Yangzi home. After he failed in three attempts in the Huguang provincial examinations, Li never advanced further, however, thus sharing the fate of 95% of the 50,000 candidates empire-wide in the early sixteenth century who competed triennially for provincial honors in late Ming times. Unable to pursue an official career, because by the early sixteenth century only provincial and palace graduates received such competitive appointments, Li Shizhen turned instead to medicine because he came from a family of medical practitioners who practiced pharmacology for generations.<sup>28</sup>

If we place Li Shizhen in his social and cultural context, we find that in terms of classical literacy, i.e., mastery of the classical canon and dynastic

histories, Li was by 1535 just one out of some 35,820 licentiates (*shengyuan*) within an approximate population of 100 million, a ratio of almost one licentiate per 2,800 persons. The likelihood for licentiates to pass higher examinations entitling them to civil appointments became ever more formidable. Beginning in the fifteenth century, each stage of the Ming civil service selection process eliminated the vast majority of candidates, with most eliminated at the local and provincial levels of competition.<sup>29</sup>

An unexpected consequence of the empire-wide civil examination system was the high number of literate men who as a writing elite also formed a significant reading public. Assuming approximately 1000 candidates per county for biennial local civil qualifying examinations during the late Ming, then Li Shizhen was one of some 1.2 million local candidates, who because of the residualism of failures over time in the “examination life” probably numbered several times more classically literate men, not to mention literate women in elite lineages. Put another way, these large numbers of classically literate men and women meant that an author of a popular Ming work, such as a practical encyclopedia, pharmacopoeia, or popular novel, could potentially reach upwards of five million individuals and through them their families. A vast constituency of “failures” like Li Shizhen sought alternative careers in teaching, medicine, pettifoggering, etc., where their classical skills as potential scholars and writers could be best utilized.<sup>30</sup>

It is interesting that examination failures such as Li Shizhen, when they turned to fields of natural inquiry such as medicine and pharmacology, adopted a classical mode of writing that had been used for other purposes in the past. They redirected the investigation of things towards new fields of learning. Li Shizhen’s magnum opus, the *Bencao gangmu* (Classified *materia medica*, lit., “Systematic pharmacopoeia”), and the effusion of *leishu* in the late Ming were a follow-up, indirectly, to similar Ming collections from the 1560s. An unprecedented combination of an ample number of classically literate men, whose chances for success in the civil service were declining, with a large audience of potential readers of practical manuals, compendia, and popular fiction, provided the publishing fuel for late Ming printers in south China to issue, profitably, a wide assortment of works by men such as Li Shizhen in the late sixteenth century. Preparation for the civil examinations, in addition to shaping classically literate men, also inculcated them with modes of organizing and producing knowledge. We should add Chos\_n Korea, Tokugawa Japan, Lê Vietnam, and the overseas Chinese communities in Southeast Asia as important additional markets for Ming and Qing editions.<sup>31</sup>

Li, for instance, had completed the final version of the *Bencao gangmu* in 1587, but it was not until 1590 that he lined up a printer in Nanjing for the complete project. The first printed version of 1593 appeared, posthumously, in 1596. Subsequently the huge work sold rapidly enough that there were eight reprints in the seventeenth century alone. The *Bencao gangmu* was quickly transmitted to Tokugawa Japan via European traders in about 1607. The first edition came out there in 1637. Subsequently, scholars in Europe took notice of Li Shizhen's work in the middle of the seventeenth century, and the French Jesuit scholar Jean-Baptiste du Halde (1674-1743) cited it extensively in his 1735 geographical and historical account of the Manchu empire. Later in the late eighteenth century, the imperial editors included the 1655 edition of the *Bencao gangmu* in the Qing *Complete Collection of the Four Treasuries* library under the medical section of the "Masters" division, alongside *leishu*.<sup>32</sup>

Li Shizhen should be considered a more exemplary example of Ming scholarship than the more famous Wang Yangming, whose moral idealism strongly influenced Ming classicists. It is revealing how, with respect to a given area of knowledge, Li Shizhen relied on previous classical texts to shape his research and how he dealt with the names of things as medicines. We find that from 1552 to 1578 Li worked tirelessly on producing a revised encyclopedia of pharmacopoeia that would correct the errors of identification, classification, and evaluation that had accrued in the standard Song dynasty series of pharmacopoeia. From 1556, Li traveled widely in major drug-producing provinces, which enabled him to include comprehensive information on mineralogy, metallurgy, botany, and zoology in the *Bencao gangmu*, in addition to medicines.

His wide reading permitted Li to supplement his account with much new added information about drugs and diseases since the Song dynasties. He incorporated, for example, the medicinal uses of maize and the sweet potato, which were New World crops introduced in the middle of the sixteenth century, and reported on the emergence of a new disease, syphilis, that could be traced back to the late fifteenth century in Guangdong province. Li Shizhen argued in his "Outline" ("Fanli") to the *Bencao gangmu* that the ancient headings in earlier canonical works on *materia medica* had been mixed up and that their true meanings were lost.<sup>33</sup>

By the time Li Shizhen turned to *materia medica* issues, then, there was a clear sense that past classifications of pharmacopoeia had by 1550 become problematic, both because of mounting confusions in the historical record and due to a good deal of new information that had to be added to the pharmacopoeia tradition. In his "Outline," Li further declared the need to

reorganize the existing knowledge on drug products. Li's sorting was sometimes determined by: 1) habitat; 2) morphology; 3) wild or cultivated things; 4) pharmacology; 5) culinary and medical aspects; and 6) his categories for grains. His taxonomy was often based on subjective judgment, and, hence, the criteria for his categories were not exclusively naturalistic.<sup>34</sup>

Trained in the Classics, Li had learned to think about knowledge in light of the relationship between moral philosophy and encyclopedic writing. Moreover, Li Shizhen's *Bencao gangmu* reclassified the entire *materia medica* record according to a new framework, which revealed Li's concern with the "investigation of things" (*gewu*). His unique application of *gewu* to pharmacology transferred Zhu Xi's Song epistemology to medical matters. Accordingly, Li Shizhen's *materia medica* enterprise was also a scholarly project: "Although this is what doctors have called medicine, in examining and explicating their patterns/principles I have actually practiced what we literati scholars call the 'study of the investigation of things'." Li Shizhen's explicit work of medicine and pharmacopoeia also belonged to the Ming tradition of *gewu*, which gainsaid in practice Wang Yangming's theoretical claims about the inefficacy of careful research concerning the external world.<sup>35</sup>

Like Li Shizhen's *Bencao gangmu*, other late Ming encyclopedias also encompassed a wide variety of books, manuals, dictionaries, and literary collections. They shared increasingly complex topical arrangements, which were accompanied by the accumulation of new knowledge and more information about "things." Such works were widely printed in south China by printers at a fortuitous time when lower printing costs made cheaper editions accessible beyond the classically literate elite. Li Shizhen's failure to become an official by elite was somewhat compensated for by his posthumous influence through his printed *materia medica*.

### 3. Collecting the Collectors

We have already reviewed the parallel achievements of the Ming scholar-merchant and Hangzhou bookseller Hu Wenhuan, whose *Gezhi congshu* was mentioned by the compilers of the Qianlong emperor's Complete Collection of the Four Treasuries in the 1780s. Because they had major misgivings about it, however, they did not include it in the collection. We should also reiterate that the *Gezhi congshu* by including several important Ming encyclopedias presented a cumulative account of all areas of textually collected knowledge important to a literati audience in the early seventeenth century before the Jesuits made their presence felt in Ming literati circles in Hangzhou and elsewhere in China after 1611.<sup>36</sup>



The dramatic changes over time in the content of the different editions that Hu Wenhuan printed were tied to Hu's untiring emphasis on the names for things. Because Hu also had wide ranging interests in medicine, Buddhism and Daoism, some versions of the collectanea often contained a lower-brow range of illumination texts and esoteric writings. But Hu's inventory for organized knowledge in the higher-brow editions reveals how he presented his various editions for distinct uses and discrete audiences. The earliest printing of the *Gezhi congshu*, for example, included forty-six classical works that he targeted for his most educated literati audience. Later, Hu compiled enlarged editions of 180-200 to over 340 or more works to sell more copies for profit. As his printing repertoire increased, Hu surrounded his core collection of classical works with an inordinate number of titles that his most literate audience often scoffed at.

His initial *crème de la crème* version ranged from heaven and earth to birds, animals, insects, fish, grasses, foodstuffs, architecture, and tools. We have seen above how the *Poetry Classic* served Hu's fixation on defining things rather than enunciating classical doctrine. Such knowledge of things presupposed a Chinese frame of reference for the systematic collection of data from a wide variety of native sources about the names for China's natural resources, the arts, and manufactures. The portions selected for these highbrow classical themes reveal Hu Wenhuan's efforts to republish and cumulatively build on previous works that focused on natural phenomena, "names and their referents" (*mingwu*), and "affairs and things" (*shiwu*).

Starting with Song and Ming dictionaries that built on and annotated the earliest Chinese thesaurus, that is, the *Erya* (Progress toward elegance, circa third century B.C.), and lexicography, that is, the *Shiming* (Explication of names, circa 200 A.D.), Hu Wenhuan's initial edition of 46 works emphasized a comprehensive account of etymologies and word definitions that would shed light on the golden age of antiquity and its enlightened governance. Hu's comprehensive account was composed, from a textual point of view, as a series of lexicons, which surveyed the knowledge world of the ancients. One of those, Lu Dian's Song dynasty *Adding to Elegance* (*Piya*), for example, relied on the *Erya* to present a classical collection of glosses on phenomena such as thunder and lightning. Citing ancient and medieval sources on how rain produced thunder, Lu Dian explained thunder in terms of the concatenation of yin and yang: "Thunder is the yang part of yin." He then cited a medieval work entitled *On the Principles of Things* (*Wuli lun*) to the effect that "an accretion of wind produced thunder." From this perspective, the fundamental cause of lightning was thunder and not vice versa as in modern accounts. Hence for lightning, Lu Dian noted that when "yin and

yang intercept each other and dazzle, this is the same [configuration of] *qi* as thunder, which when released produced bright light.”

Based on traditions that thunder emanated from heavenly *qi*, while lightning came from earth's *qi*, Lu Dian noted that thunder belonged to the fire phase, and that the bright light was the lightning while the sound was thunder. In conclusion, Lu cautioned that although related in terms of yin-yang and the fire phases, one should still see thunder and lightning as separate phenomena. Lu added that when the ruler decided court cases, such cases were seen as “counterparts of heaven” and that if there were occurrences of lightning and thunder during a trial, these were taken into account.<sup>37</sup>

By collecting together all such available lexicons in his collectanea, Hu Wenhuan turned Confucius's ideal of the “rectification of names” (*zhengming*) into a passionate classificatory agenda for all things, which would yield a cumulative gathering of knowledge. Overall, the *Gezhi congshu* collectanea emphasized a broad learning of phenomena (*bowu*), which encompassed natural and textual studies within a humanist, esoteric, and institutional agenda. Rather than searching for explanations himself, Hu was content in his many prefaces to the works collated in his series to introduce the lexicographers together in one place without any guidelines for synthesis or analysis.

Although a collection, the *Gezhi congshu* responded to the same late Ming publishing climate that also precipitated the production of a large number of daily-use encyclopedias. They aimed to reach elite and popular audiences. Their contents incorporated historical accounts of phenomena, such as thunder and lightning mentioned above, as a genealogy of glosses, a sort of textualized “natural history.” Hu also literally collected Ming encyclopedias in his collectanea to fill the gaps in meaning that had opened between things and words in classical learning since the Song. Scholars working on pharmacopoeia and medicine, such as Li Shizhen, were also concerned that the language used to designate “things/phenomena/affairs” (*wu*) had by 1500 become increasingly muddled because the accounts of phenomena as a genealogy of glosses had accrued chaotically. Names for plants, animals, etc., in terms of kind, species, attributes, and use, in encyclopedias needed reordering, i.e., rectification. New encyclopedias were needed to set the literary record straight through a meticulous reexamination of “things,” i.e., to restore all the “words” (*yan*) that were lost or muddled since antiquity

Inscribed in the classical language for elites but accessible to commoners, the *leishu* form allowed Hu Wenhuan and the encyclopedias he included to create a new space to describe and order things-phenomena-affairs. A genealogy of classical glosses was the first step in capturing the classical

language in which they were historically represented. Language in the late Ming encyclopedia became the compiler's means to refashion and reproduce as closely as possible the observing gazes of past sages, worthies, scholars, wizards, monks, masters, and commoners. The *leishu* made visible through texts and diagrams the lineage of the knowledge of things-phenomena-affairs and *esoterica* from the ancients to the present.<sup>38</sup>

### Early Natural Histories in the *Gezhi congshu*

Just as Li Shizhen engaged in a reformative agenda of observing, analyzing, recognizing, and naming plants for medicinal purposes, others revisited the classical search for why things were the way they were (*suoyi ran*). Since high antiquity, the sages and worthies had described the visible structure of things through the “names for things.” When the Jesuits presented an alternative genealogy for “natural history” in an Aristotelian conceptual language (= *scientia*), Chinese collaborators such as Li Zhizao (1565-1630) translated their description of the structure of the visible world in the language of the late Ming theory of knowledge, namely *gewu qiongli* (investigation of things and exhaustively mastering principles).

For instance, Alfonso Vagnoni's (1566-1640) *Treatise on the Composition of the Universe* (*Kongji gezhi*, 1633) was in part a refracted presentation of the theory of the four elements from Aristotle's works. In his translation, Vagnoni vainly tried to convince the Chinese of the error of their ways for including wood and metal and excluding air as the building blocks of things in the world. His efforts built on Matteo Ricci's (1552-1610) earlier efforts to expound the theory of the four elements.<sup>39</sup> Vagnoni rendered Aristotle's concept of element into classical Chinese, and he offered the Chinese an alternate explanation for thunder and lightning, which differed from the Chinese notion of yin-yang and the five phases:

What is a pure substance? It is a substance of a single nature with no other composite elements. Accordingly, the myriad things in the world are distinguished by their being pure or composite. The pure elements are the four elements of earth, water, air, and fire. Composite things take on five forms such as the category of rain, dew, thunder, and lightning, the category of metals and stones, the category of plants, trees, and the five grains, the category of birds and animals, and the category of humans. All five of these forms are composites of the four elements.<sup>40</sup>

Chinese naturalists also represented the physical world through an historical array of entries about things, phenomena, and affairs (*bowu*). Several works were included in Hu Wenhuan's *Collectanea* that resembled

natural history in the classical period in the West, when a dividing line between animate and non-animate objects was not yet decisive. A notion of biology did not yet exist among the Chinese or the Jesuits, although we can identify aspects of a vitalism linked to *qi* and nurturing life (*yangsheng*) in Ming-Qing medical discourse.<sup>41</sup>

Like their classicist counterparts in Europe, Chinese naturalists whose works were included in the first printing of Hu's *Collectanea* sought to identify and classify natural phenomena through language. The authors of such natural histories included in the first printing of the *Gezhi congshu* sought to identify and classify natural phenomena—but not “Nature”—a concept that Chinese had avoided in favor of a notion of imminent spontaneity and this worldly naturalness (*ziran*).<sup>42</sup>

The first natural history that Hu Wenhuan included in the *Gezhi congshu* was the hoary *Shanhai jing* (Classic of mountains and streams), annotated by Guo Pu (268-324), a “master of *esoterica*” (*fangshi*, lit., “master of occult arts”) known for his role as a medieval commentator on several archaic texts that dealt with anomalies and natural phenomena. Guo's official biography noted that he was a student of naturalistic techniques (*jingshu*) and that his broad studies (*boxue*) carried over to study of the five phases, astronomy-astrology, techniques for prognosticating the future, and warding off calamities and misfortunes.

The *Shanhai jing* was a composite work compiled over several centuries since the third century B.C., which Riccardo Fracasso has described as a *descriptio mundi*. Ascribed by some to the sage-king Yu the Great, it described the earth in terms of three concentric rectangles with a central territory, four seas encompassing the central lands, and a great wilderness. Because it also contained valuable information about mountain spirits, popular medicine, divination and other mantic arts, which were often incorporated in later texts known as *zhiguai* (records of anomalies), it was at times classified simply as a handbook of prodigies, in addition to a reliable historical geography.

These anomalies and prodigies also became entries in Ming encyclopedias, which often appended such unorthodox classifications to the classical categories long in use. In the last years of the Former Han dynasty (202-8 B.C.), courtiers regarded it as a window on ancient portents and foreign customs. The Ming bibliophile Hu Yinglin (1551-1602), a Zhejiang contemporary of Hu Wenhuan, described it as the ancestor of oddities in Chinese literature, which foreshadowed its inclusion under the *xiaoshuo* (lit., “lesser words,” that is “fictions”) subcategory in the late eighteenth century Complete Collection of the Four Treasuries.<sup>43</sup>

Within Hu Wenhuan's collection, Zhang Hua's *Bowu zhi* (A treatise presenting an historical array of entries about things, phenomena, and affairs), and a Song dynasty continuation, titled *Xu bowu zhi* (Continuation to the treatise . . .) were presented under the general title of *gezhi* in Hu Wenhuan's collectanea, indicating that Hu considered *bowu* an important part of the investigation of things.<sup>44</sup> In general these works stressed correlating each human event, object-implement, or natural phenomenon in terms of a teleology of their usefulness to humans and presented a genealogy of discovery that traced each item back to the appropriate sage, ruler, or scholar in antiquity.

Hu Wenhuan presented the natural histories in his collection in sequence. For example, the "Preface" to the Song *Shiwu jiyuan* (Record of the origins of matters and things), dated 1448 (with an internal date of 1444), opened by linking all myriad things and affairs to their principles-patterns, which can be investigated by studying their origins.<sup>45</sup> The meaning of the title of the *Shiwu jiyuan* assumed an overlap of natural things/phenomena and human affairs with a stress on the "investigation of things/phenomena/affairs" and "exhaustively mastering principles" (*gewu qiongli*). Its scope covered from large (heaven, earth, mountains, streams) to small (birds, beasts, herbs trees), from the subtleties of yin and yang to the manifestness of rituals, music, and institutions. It in effect moved from natural phenomena (*wu*) to socio-political fields (*shi*). Overall, the *Shiwu jiyuan* was divided into 55 categories and 1764 items with quotations organized under each item, and the sources were always given. Its key difference from earlier Ming encyclopedias was that the *Shiwu jiyuan* cited sources for each item without any accompanying analysis.<sup>46</sup>

The *Gujin shiwu kao* (Examination of affairs and things from antiquity to the present) also contained a wide range of materials, which included an institutional account of historical geography, as well as a collection of general information required for classical literacy under the category "writing matters." In addition, it presented a brief history of "numerical correspondences" (*shuxue*), which Ming literati attributed to the sage-king Fu Xi. Fu was usually linked to the *Yijing* (*Change Classic*) and the naturalistic process of the formation of things based on yin and yang and *qi*. The compiler, Wang Sanpin, noted in 1538 that he had purposely built upon earlier work cumulatively by adding material based on earlier sources.

For instance, Wang presented naturalistic explanations for the phenomena of wind and lightning based on yin-yang and *qi* that added some precision to Lu Dian's earlier Song analysis described above. Lu Dian had cited sources affirming that "an accumulation of wind formed lightning." Wang Sanpin, on the other hand, explained this by contending that "the yang that was within

could not escape, and its resounding blows produced lightning.” “When yang was outside,” Wang continued, “and could not get inside, then it swirled around without stopping, forming wind.”<sup>47</sup>

### Collecting Things in Texts

The proliferation of late Ming daily-use encyclopedias reflected a widening audience for old and new information about things of all sorts. Although the classical lexicons and natural histories were the beginning points, the knowledge in the encyclopedias no longer could be contained within the limits of a set of canonical texts dating from antiquity and their formative commentaries, which usually recapitulated their contents. The accruing knowledge of things and affairs among Ming scholars was still subsumed in the sixteenth and seventeenth centuries within the moral and philosophical frameworks that informed the orthodox literati classification of the natural world and which drew on classical repertoires of knowledge. These repertoires notably included medieval masters of *esoterica*, who were central to the late imperial definition of cumulative knowledge of things and phenomena.

Things were deployed in these encyclopedias through chronological or topical presentations of past glosses and words about them. It was as if things, events, and anomalies had to be displayed textually before their significance could be fully fathomed. As a result, natural studies became a venue for Chinese textual scholars who were fascinated with the etymologies of the words used to encompass phenomena. Unlike early modern European scientific culture, where natural history could increasingly be displayed as concrete items in a museum, the historical array of entries, which were included in late Ming encyclopedias, represented a distanced account of natural phenomena as words in a text that needed to be decoded primarily through the analysis of language.

The sociology of collecting and its cultural logic comparatively allows us to see that in Ming and Qing China collecting and classifying knowledge about things occurred within the pages of *leishu*. Just as the museum was firmly set in the premodern European encyclopedic tradition of catalogs and the vocabulary of collecting, so the daily-use encyclopedias of the late Ming - and the collectanea that contained them - were sites of classically derived knowledge where only individuals of privilege and learning earned the right to collect and classify the world.<sup>48</sup>

Collecting information about things in the late Ming was not a prelude to the display (in museums) and manipulation (in laboratories) of nature per se. Li Shizhen certainly shared aspects of the early modern European naturalist's

agenda, but Li's pilgrimages to collect medicines and herbs was done mainly through perusing texts. His intellectual haven for natural studies remained firstly a philological fascination with the etymologies of living things, which could then be applied via the investigation of things to classifying appropriate medicines. This close relation between philology and classifying things reminds us of European naturalists during the age of science. Ming encyclopedists rarely expressed a penchant for purely experiential knowledge obtained in the laboratory, however, although the artisanal alchemists' fires continued to produce empire-wide a rich plethora of medicines and accessories for traditional Chinese treatment regimes.<sup>49</sup>

Rather than microcosms of nature, the late Ming encyclopedias created textual museums for their theater of marvels. Hu Wenhuan's efforts in the 1590s to print *congshu* and thereby collect the collectors within a single encyclopedic discourse was not unique, but his economic resources allowed him to entertain the production of several collectanea that contained several hundred works he deemed appropriate to place under the general heading of "investigating things and extending knowledge." His initial reconstruction of ancient classicism allowed him to use highbrow learning as an orthodox base for later enlarged editions, which included domains of knowledge that far exceeded the boundaries of the official canon. The coexistence of the old and new, the occult and the demonstrable, in the encyclopedic world of natural history, was as prevalent in early modern Europe as in the late Ming.<sup>50</sup>

## NOTES

1. For an example, see *Gujin yuanliu zhilun*, compiled by Lin Jiong (Taipei: Xinxing Bookstore reprint of early Ming edition, 1970). See also Benjamin A. Elman, "Le système des examens publics aux derniers siècles de la Chine impériale (1400-1900)," in Christian Jacob, ed., *Les Lieux de savoir* (Paris: Albin Michel), forthcoming. Compare Lucille Chia's *Printing for Profit: The Commercial Publishing of Jianyang, Fujian (11th-17th centuries)* (Cambridge: Harvard University Asia Center, 2002).
2. "Encyclopedias" below refers to edited works that collected information based on a classification scheme for reference purposes. "Compendia" (also called "collectanea") refers to collections of separate works or bodies of writings that were organized by topics but did not produce an index or classification scheme for reference purposes. Some collectanea included encyclopedias in their contents.
3. Yung Sik Kim, *The Natural Philosophy of Chu Hsi 1130-1200* (Philadelphia: American Philosophical Society, 2000), pp. 19-27, and 105-46.
4. See *Zhuzi yulei* (1473 edition. Taipei: Zhongzheng Bookstore reprint, 1973), 18.14b-15a.
5. Daniel Gardner, *Chu Hsi and the Ta-hsueh: Neo-Confucian Reflection on the Confucian Canon* (Cambridge: Harvard University Council on East Asian Studies,

- 1986), p. 27-59. See also *Jingyi kao*, Zhu Yizun (*Sibu beiyao* edition), hereafter JJK, 156.1a-8b, 157.1a-10b.
6. See Yü Ying-shih, "Some Preliminary Observations on the Rise of Ch'ing Confucian Intellectualism," *Tsing Hua Journal of Chinese Studies*, New Series 11, 1 and 2 (December 1975), p. 125, for discussion of critiques of Zhu Xi's elucidation of the *Great Learning*, which created a textual crisis in the sixteenth century.
  7. See Elman, *A Cultural History of Civil Examinations in Late Imperial China* (Berkeley: University of California Press, 2000), p. 29-38, 56-61.
  8. Chia, *Printing for Profit*, pp. 138, 144. Compare Stephen West, "Leishu (Encyclopedias) & the Textualization of Quotidian Life in the 12th Century," paper presented at the conference "Print, Anthologies, & the Shape of Knowledge in Late Imperial China," sponsored by the UCLA Center for Chinese Studies in conjunction with the Southern California China Colloquium, Los Angeles, October 19, 2002.
  9. Elman, *A Cultural History of Civil Examinations*, p. 29-38, 646-47.
  10. Elman, *A Cultural History of Civil Examinations*, p. 223, 226-227.
  11. Sakai Tadao, "Mindai no nichiy\_ ruisho to shomin ky\_iku," in Hayashi Tomoharu, ed., *Kinsei Ch\_goku ky\_ikushi kenky\_* (Tokyo: Kokutosha, 1958), p. 27-154.
  12. Cynthia Brokaw, *Commerce in Culture: The Sibao Book Trade 1663-1946* (Cambridge: Harvard University East Asian Monograph Series, 2006).
  13. Chia, *Printing for Profit*, pp. 234-239. See also Cynthia Brokaw, "Commercial Publishing in Late Imperial China: The Zou and Ma Family Businesses of Sibao, Fujian," *Late Imperial China* 17, 1 (June 1996): 49-92.
  14. Sakade Yoshinobu, "Kaisetsu—Mindai nichiy\_ ruisho ni tsuite," in *Ch\_goku nichiy\_ ruisho sh\_sei*, edited by Sakai Tadao and Sakade Yoshinobu (14 vols. Tokyo: Kyūko shoin, 1999-2003), Vol. 1, p. 15-27.
  15. *Siku quanshu zongmu*, compiled by Ji Yun et al. (Taipei: Yiwen Press reprint, 1974), 134.14b-15a.
  16. Cynthia Brokaw, "On the History of the Book in China," in Brokaw and Kai-wing Chow, *Printing and Book Culture in Late Imperial China* (Berkeley: University of California Press, 2005), p. 3-54.
  17. Elman, *On Their Own Terms: Science in China, 1550-1900* (Cambridge: Harvard University Press, 2005), p. 34-53.
  18. Compare Shang Wei, "Jin Ping Mei Cihua and Late Ming Print Culture," in Judith Zeitlin and Lydia Liu, eds., *Writing and Materiality in China: Essays in Honor of Patrick Hanan* (Cambridge: Harvard Asian Monograph Series, 2003), pp. 187-231, and Shang, "The Making of the Everyday World: Jin Ping Mei and Encyclopedias for Daily Use," in David Wang and Shang Wei, eds., *Dynastic Decline and Cultural Innovation: From the Late Ming to the Late Qing and Beyond* (Cambridge: Harvard University Asia Center, 2006).
  19. See Robert F. Campany, *Strange Writing: Anomaly Accounts in Early Medieval China* (Albany: SUNY Press, 1996), pp. 49-52.
  20. *Siku quanshu zongmu*, 135.1a-1b.
  21. *Siku quanshu zongmu*, 134.14b-15a.
  22. Yves Hervouet, ed., *A Sung Bibliography* (Hong Kong: Chinese University Press, 1978), p. 24. See also Jianhua Chen, "The 'Licentious Poems': Poetic Hermeneutics and Problems of Autonomy in Chu Hsi's Confucianism," *Papers on China* (Harvard) 7 (Spring 1998): 19-39.



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23. See *Huang Ming ceheng*, compiled by Mao Wei (Wuxing, 1605 edition), 15.7a.
24. On Chinese collectanea, see Elman, *From Philosophy To Philology: Social and Intellectual Aspects of Change in Late Imperial China* (Second edition. Los Angeles: UCLA Asian Pacific Monograph Series, 2001), pp. 190-191.
25. Sir David Percival, trans., *Chinese Connoisseurship, the Ko Ku Yao Lun: The Essential Criteria of Antiquity* (London: Faber, 1971).
26. Michael Ryan, "Assimilating New Worlds in the Sixteenth and Seventeenth Centuries," *Comparative Studies in Society and History* 23 (1981): 519-527. See also D. E. Mungello, *Curious Land: Jesuit Accommodation and the Origins of Sinology* (Honolulu: University of Hawaii Press, 1989), p. 145.
27. Elman, *On Their Own Terms*, pp. 5-12.
28. Nathan Sivin, "Li Shih-chen," in Charles Gillispie, ed., *Dictionary of Scientific Biography* (N.Y.: Charles Scribner's and Sons, 1973), VIII, p. 390, and *Dictionary of Ming Biography* (hereafter DMB), L. C. Goodrich, et al., eds. (2 vols. New York: Columbia University Press, 1976), p. 859. See also Elman, *A Cultural History of Civil Examinations*, pp. 125-42.
29. Elman, *A Cultural History*, pp. 125-42.
30. Elman, *A Cultural History*, pp. 133-42. John Dardess, *A Ming Society: T'ai-ho County, Kiangsi, in the Fourteenth to Seventeenth Centuries* (Berkeley: University of California Press, 1996), p. 161, gives the following figures for the sixteenth century: 5,244 official teaching posts, 1,564 instructors, and 3,680 assistant instructors.
31. During the 1590s Japanese invasions of Korea, however, Ming books did not travel to Korea or Japan very easily. Many in Korea were lost.
32. DMB, p. 861, and Sivin, "Li Shih-chen," pp. 394-95.
33. Li Shizhen, "Fanli," *Bencao gangmu* (1603 edition), 1A, pp. 7b-9b. This version is in the Library of Congress. See also DMB, p. 862.
34. Nathan Sivin, "Li Shih-chen," pp. 390-98, and Georges Métaillié, "The *Bencao gangmu* (Classified *Materia Medica*) of Li Shizhen—An Innovation for Natural History?," in Elisabeth Hsu, ed., *Innovation in Chinese Medicine* (Cambridge: Cambridge University Press, 2001), pp. 221-61.
35. Willard Peterson, "Confucian Learning in Late Ming Thought," in Denis Twitchett and Frederick W. Mote, eds., *The Cambridge History of China*. Volume 8: *The Ming Dynasty, 1368-1644*, Part 2 (Cambridge: Cambridge University Press, 1998), pp. 782-84.
36. David E. Mungello, *The Forgotten Christians of Hangzhou* (Honolulu: University of Hawaii Press, 1994), pp. 3, 15-18.
37. Lu Dian, *Piya*, 20.1a-3a on thunder, and 20.3a-4a, on lightning, in Hu Wenhuan, comp., *Gezhi congshu*, (Taipei: National Library Rare Books Collection edition with 46 works, ca. 1592-97). Cf. Charles Hammond, "The Interpretation of Thunder," *Journal of Asian Studies* 53, 2 (May 1994): 487-503. A modern account for lightning and thunder is: "When lightning flashes across the sky, it heats the air in its path to temperatures as high as 55,000 degrees F (30,500 degrees C) – over five times hotter than the surface of the sun. The air expands at supersonic speed, sending off shock waves that weaken into sound waves and greet us as the boom of thunder." See "Ask Us," *National Geographic* 199, 1 (January 2001), p. 1. For seventeenth and eighteenth century explanations of lightning as the same phenomenon as thunder, see

- J. L. Heilbron, *Electricity in the 17th and 18th Century: A Study of Early Modern Physics* (Berkeley: University of California Press, 1979), pp. 339-340.
38. Compare Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1970), pp. 130-32.
  39. See the critique of Vagnoni by eighteenth century Chinese literati in SKQSZM, 125.34a-b. Compare the account in Qiong Zhang, “Demystifying *Qi*,” pp. 74-106.
  40. Vagnoni, *Kongji gezhi*, A.1b-2b, in *Tianzhu jiao dongchuan wenxian sanbian* (Taipei: Wenjin chuban she, 1979).
  41. Foucault, *The Order of Things*, pp. 153-162. Compare Fa-ti Fan, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter* (Cambridge: Harvard University Press, 2004), pp. 91-121, who notes that Chinese literati did not have a scholarly tradition equivalent to Euro-American notions of natural history, botany, or zoology until the late nineteenth century.
  42. There was no “discourse of Nature” in imperial China until the modern era.
  43. See Company, *Strange Writing*, pp. 34-36, Riccardo Fracasso, “*Shan hai ching*” in Loewe, *Early Chinese Texts*, pp. 357-67.
  44. Company, *Strange Writing*, pp. 49-52, and Roger Greatrex, trans., “Bowu Zhi: An Annotated Translation” (Stockholm University Ph.D. dissertation in Oriental Studies, 1987).
  45. Elman, *On Their Own Terms*, pp. 44-45. See also Company, *Strange Writing*, pp. 51-52.
  46. *Siku quanshu zongmu*, 135.23b-24b, Joseph Needham, *Science and Civilization in China* (multi-vols. Cambridge: Cambridge University Press, 1954-), Vol. 6, p. 213.
  47. See Wang Sanpin, *Gujin shiwu kao*, 1.1b-2b, 1.4b-11a, 2.3b-17b, in Hu Wenhuan, *Gezhi congshu*, Vol. 19.
  48. Compare Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Europe* (Berkeley: University of California Press, 1994), passim.
  49. Anthony Grafton, *Defenders of the Text: The Traditions of Scholarship in an Age of Science, 1450-1800* (Cambridge: Harvard University Press, 1991), pp. 1-5.
  50. Findlen, *Possessing Nature*, pp. 10, 18-27, 32, 46, 398-405.

# Collecting and Classifying: Ming Dynasty Compendia and Encyclopedias

## CHINESE CHARACTER LIST OF TERMS, PEOPLE, AND BOOK TITLES

*Baijia mingshu* 百家名書  
*Bencao gangmu* 本草綱目  
*bitan* 筆談  
*bowu* 博物  
*Bowu zhi* 博物志  
*bowu guan* 博物館  
Cao Zhao 曹昭  
Cheng Yi 程頤  
*congshu* 叢書  
*Daoxue* 道學  
*Daozang* 道藏  
*Daxue* 大學  
*Erya* 爾雅  
*fangshi* 方士  
*Fanli* 凡例  
*Fozang* 佛藏  
Fu Xi 伏羲  
*Gegu yaolun* 格古要論  
*gewu qiongli* 格物窮理  
*gewu zhizhi* 格物致知  
*gezhi* 格致  
*Gezhi congshu* 格致叢書  
*Gujin shiwu kao* 古今事物考  
*Gujin yuanliu zhitun* 古今源流至論  
*Gujin yuanshi* 古今原始  
Guo Pu 郭璞  
Hu Wenhuan 胡文煥  
Hu Yinglin 胡應麟  
*Huang Ming ceheng* 皇明策衡  
Ji Yun 紀昀  
*jingshu* 經術  
*Jingyi kao* 經義考  
*Jujia biyong shilei quanji* 居家必用事類全集  
*Kongji gezhi* 空際格致  
*leishu* 類書  
Li Gong 李暉  
Li Shizhen 李時珍  
Li Zhizao 李之藻  
*Liji* 禮記  
Lin Jiong 林駟  
Mao Jin 毛晉  
Mao Wei 茅維  
*mingwu* 名物  
*qi* 氣  
*riyong leishu* 日用類書

*sansifen qu waimian lihui fangke* 三四分去外面  
理會方可  
*Shanhai jing* 山海經  
*shengyuan* 生員  
*shi* 事  
*Shiming* 釋名  
*shi mingwu* 釋名物  
*Shilin guangji* 事林廣記  
*shiwu* 事物  
*Shiwu jiyuan* 事物紀原  
*shuxue* 數學  
*sibu* 四部  
*Siku quanshu* 四庫全書  
*Siku quanshu zongmu* 四庫全書總目  
*Sishu* 四書  
*sui* 歲  
*suoyi ran* 所以然  
*Tang-Song congshu* 唐宋叢書  
*Tianzhu jiao dongchuan wenxian sanbian* 天主教東傳文獻三辨  
Wang Sanpin 王三聘  
Wang Yangming 王陽明  
Wang Zuo 王佐  
*wanwu zhi li* 萬物之理  
*wu* 物  
*Wujing* 五經  
*Wuli lun* 物理論  
*xiaoshuo* 小說  
*Xu bowu zhi* 續博物志  
*yan* 言  
*Yan-Li congshu* 顏李叢書  
Yan Yuan 顏元  
*yangsheng* 養生  
*zajia* 雜家  
Zengzi 曾子  
Zheng He 鄭和  
*zhengming* 正名  
*zhiguai* 志怪  
Zhu Xi 朱熹  
Zhu Yizun 朱彝尊  
*Zhuzi yulei* 朱子語類  
*zibu* 子部  
*ziran* 自然