

The Library and the Book

Forms of Alexandrian Encyclopedism

Christian Jacob

The history of encyclopedism seeks to trace the metamorphoses and various cultural adaptations of three essential components. The first of these is an intellectual endeavor, reflecting the conception, hierarchy, and articulation of knowledge in a given society: How is the map of knowledge organized and defined? How do human thought and memory gather together and master all accessible knowledge? The second component can take the form of a material object, the encyclopedia – whether conceived as a book that unites the knowledge found in all other books, or again as the body of texts that, though not titled as such, belong nevertheless to an encyclopedic genre. The last constituent of the trilogy consists of the group of practices that fan out between these two poles, between the intellectual endeavor and the material object, and contribute to collecting, shaping, and transmitting the knowledge in a given society and time.

These practices are linked to writing and to reading, understood not as neutral processes, but as active and culturally determined phases of the construction of knowledge.

We will consider this last aspect – writing and reading – by examining several of the literary models for collecting knowledge in the Alexandrian world, which we can term the “making of ancient encyclopedism”: compilation, the forging of links allowing the reader to navigate through the vast databases of information, the organizational logic, the opposing processes of selection and exhaustive collection, the intellectual effects resulting from the accumulation of things, words, and books.

Under what conditions can we gather information, produce summations, work toward the totalization of knowledge? It all

depends on the choice of organizational principles, the various logics of classification, and sometimes the way they overlap and complement one another, enabling scholars to accumulate knowledge while making it possible for the reader to consult and exploit it. Bringing together an unrivaled collection of books, the Alexandrian Library, founded at the beginning of the third century B.C., gave a new dimension to literary practices that originated in Athens in the preceding century, in Aristotle's Lyceum for example. One type of intellectual work undertaken by the scholars and writers who frequented the Alexandrian Museum consisted in treating the Library's collection as both the object and the very instrument of their research, in using books as a medium for gathering knowledge and establishing inventories, lists, and collections. Information was selected from books – words, quotations, factual data, astronomical observations, travel measurements – then extracted from its context and brought together in new and artificial texts. The various techniques of compilation made this information transitive: successive thresholds of rewriting transformed it and sometimes modified its status, objectifying it, disassociating it from its original context of enunciation.

The encyclopedic endeavor thus took shape through a series of technical gestures that organized textual materials in specific ways. The collections of words and data, the infinitely open catalogues, the maps or universal histories were instruments of totalization that offered a different knowledge, different meanings from those singular elements that were compiled and recombined. The extensive compilations of the Hellenistic and Roman period are often harshly judged by modern historians: it is only with difficulty that Athenaeus' *Deipnosophists*, Aulus Gellius' *Attic Nights*, Aelian's *Varia Historia*, for example, reveal their internal logic, the type of intellectual curiosity that inspires texts conceived as collections, selected reading notes and quotations, each of which constitutes an object of knowledge. It is however essential to reconstitute the culture in which such devices could function: How were these texts read, and by whom? What was the link between the fixing of knowledge onto specific written mediums and the mental operations that prompted them: memorization, quotation, combination, and association? How should we interpret the cul-

tural dynamic that led to summarizing and dismantling the great works of the past, the multiple and changing ways in which the incorporated information was circulated, thereby ensuring the larger dynamic of exploitation, transmission, and reuse?

Naturally, I will not be answering all of these questions here, but I would like to clarify their formulation and what is at stake, as a prelude to more subtle explorations. I will keep to an inventory of certain methods of collection in the Alexandrian Library and reflect on the role of the treatise as a “library” of the discipline of which it forms a part.¹

Models of Collection

Compiled texts provide useful examples for observing the mobility of objects of knowledge. What can be extracted from books? How can these extracts be recombined and made useful? And what is the logic, both in terms of editorial production and in terms of cultural sociology, behind the act of impinging on the integrity of these works, when they are considered as deposits of data and information, factual and instrumental, interesting in and of themselves, independently of their original context?

Book compilation and the resultant production of new texts in the form of catalogues reflect a particular stage in the development of a literary and learned culture. They attest to the need for a new visibility of information, for new modes of access to the objects of knowledge. Data are selected from multiple books to be united in a single medium; a new space, both visual and intellectual, is created, one governed by analogical associations, polarities, metonymic links, classifications (alphabetical, thematic, geographical, chronological, bibliographical). Information is picked out, decontextualized, then combined and accumulated into a collection with a view to anticipating its new uses. It is noteworthy that, at the level of the book itself, this process reproduces one of the logics of the Alexandrian library. The book as a collection constitutes perhaps the only chance of achieving a local, transversal comprehension of the knowledge disseminated over the tens of thousands of rolls of papyrus gathered together by the

Ptolemaic dynasty. For accumulation produces new objects of knowledge. The knowledge that can be gained from a collection of words, quotations or objects cannot be reduced to that obtained from each of these elements taken in isolation. The collection produces totality, and inspires the complex operations of inventory, comparison, and classification.

The Greeks termed *ekloge/sulloge* (selection/collection) the operations that led to the constitution of anthologies (*sunagogai*) or “tables” (*pinakes*), implying that the original data or quotations were submitted to a series of manipulations and transformations. First, through readings and manipulation of the rolls of papyrus, one had to identify the data to be isolated : What are the minimal units of knowledge? What constitutes raw, self-sufficient, information that lends itself to inclusion in a series? Depending on the compiler’s intentions, such data could be factual information, quoted or paraphrased statements, words, astronomical observations, numbered data. Following the selection of information, the second stage consisted in clarifying the enunciative status of this textual fragment: the compiler, in fact, appropriates someone else’s statement, but at the same time modifies its literality, the better to isolate its informative contents and sometimes to alter their status, for example, by omitting the mention of sources or the reservations of the original author who might undermine a fact as impossible, incredible or false. Compilation is a product of an economy of written communication: in that it establishes a certain mobility of data, independently of their insertion in the context of the original book, but also because it seeks to optimize efficiency by altering the form that transmits this data. This process clearly comprised a syntactic dimension: How should the data be recombined? What principles should guide the process of collection? How to proceed so as to make the contiguities in the catalogue semantically, aesthetically, and even emotionally productive, so that they have a heuristic power? And in fact, is an organizational principle always necessary? This last question opens a reflection on the performative dimension of this compilation process: What knowledge is created by the juxtaposition of all the isolated and recombined elements? What is the logic behind reading a text that is constituted by the addition of heterogeneous, and thus funda-

mentally discontinuous, fragments, unless the implicit strands of thought reintroduce underlying thematic continuities?

It is thus appropriate to identify some of the different approaches of the learned readers in the Hellenistic and Greco-Roman libraries: the lexicographer in search of variants and rare words; the author of a collection of *mirabilia* or miscellaneous stories in search of surprising anecdotes, curiosities of the natural world, strange rituals, beliefs, and customs; the author of doxographies who works to gather together the “opinions” of past philosophers on a given subject all the while deconstructing their discursive and argumentative context; the chronologist who collects all the dates that can be found, cross-checks them and puts them in order so as to produce a universal chronology; the cartographer who combines topographical measures and data; the poet in search of rare words, obscure images, dialectal variants, and metrical formulas, which he will reuse in his own writings and which will elicit, in the informed reader, the pleasure of recognizing the original. What is common to these different figures is their use of books collected in the library as a vehicle for traveling across space and time, and all produce forms of knowledge related to inventory and collection, by employing the observations, descriptions, and accounts fixed in writing by their predecessors.

We can distinguish the compilations that objectify the collected data by concealing their textual source, from those that, on the contrary, attribute their origin to a clearly identified author. In the first case, the library serves as an instrument for attempts to establish inventories of raw data: languages, customs, natural curiosities, etc. The data can be selected, transmitted, recombined, and transformed, without having these various phases of manipulation alter the original informative content. And one compilation can generate another one, in which only the principle of distribution is different. Alexandrian and Greco-Roman lexicography exemplifies this process of transitivity of material, which leads, for example, from literary works to commentaries, then from commentaries to glossaries, and sometimes from glossaries to new literary works.

The compiled information can also preserve the mention of its author. Such attribution can serve a variety of purposes. It places

the statement in question under an authority, which guarantees its truth. When a series of data comes from the same author, the authorial mention is a principle of classification within the collection, and, at the same time, confers on this collection an element of summary or anthology of the work in question. Short of referring back to the original text, the collection offers both a summary and a selection, according to a grid of determined criteria: hence, incredible and surprising anecdotes that excite the curiosity and pose a specific intellectual problem while escaping the classifications or explanatory grids of the naturalists.² In the collection of *paradoxa* (curiosities, marvels, strange anecdotes) attributed to Antigonus of Carystus, an author in the second half of the third century linked to the Pergamene court, we read for example: “And the other aspects concerning the skill of animals, for example in combat, in the treatment of injuries, in the manner of meeting all the basic needs of life, in expressions of tenderness and memory, we can very precisely learn from Aristotle’s collection: it is from this text that we will choose our first excerpts” (§ 26). The compiler then offers a selection of descriptions from the *History of Animals* and states further on: “Callimachus of Cyrene carried out a kind of *ekloge* (selection) of *paradoxa*, from which we will retranscribe everything that seemed to us worth reading” (§ 129). In this last case, the authority is not the original author, but the first compiler, the author of the *ekloge*. And Antigonus thus cites the authors already compiled by Callimachus: Eudoxus, Theophrastus, Megasthenes, Lycus, Timaeus, etc. But in so doing he is not satisfied with simply recopying excerpts from Callimachus’ catalogue: he proposes a new reading of them, since he redistributes in thematic order data that were previously classified in topographical order. The transitivity of *mirabilia* is one of the characteristics of the genre. For example, the Crathis is a river in southern Italy that has the power to dye hair blond. This information first appears in writings of the historian Timaeus. It is then taken up by Callimachus, then later by his disciple Philostephanus, and by Antigonus of Carystus (§ 134). The textual origin of the phenomenon, and the fact that we can identify the first author to have recorded it, inscribe this observation within a shared and transmissible knowledge: there is no need to verify the exactitude of

the phenomenon, and even less to explain it. The strange property of a river in Italy and its successive bibliographical transmissions are simply recorded.

Another particular case is that of philosophical doxographies.³ Their development began with Aristotle's school, and their premises, perhaps in the fifth century, with the activity of a Sophist such as Hippias. Theophrastus, a successor of Aristotle, is the author of the *Opinions of Physicists*, a collection pulling together a large number of materials coming from pre-Socratic writings. This collection was itself to yield new compilations and summaries, and the reading of original works is replaced with this mediated second-hand knowledge. Doxography created a new intellectual space: a space of accumulation and hoarding of the *doxai* (opinions) of philosophers, where the coherence of systems and texts was deconstructed into a group of partial and fragmentary statements that could be compared, criticized, and regrouped around a single question. Doxography played an instrumental role in philosophical work, as Aristotle demonstrates:⁴ indeed it presupposed a very skilled reader ("*architecteur*") capable of pursuing, across opinions, a problematic and critical reading, leading to the formulation of new solutions. Accumulation and collection, here again, produce intellectual effects that cannot be reduced to those of their isolated components. The examination of earlier solutions is therefore an essential step in the search for truth, and opens up a space for abstract and utopian dialogue where past philosophers are read solely from the point of view of the thinker's contemporary problematics, concepts, and terminology. However, doxography may also have perverse effects: beyond its impact on the transmission of past philosophical works, the originals of which are eclipsed by these artificial rearrangements, it may have contributed to the development of Scepticism. For members of the Academy such as Archelaus and Carneades, the multiplicity and contradictions of philosopher's "opinions" tended to prove that truth was beyond the reach of human knowledge.

It is now important to reflect on the modes of consulting the textual devices that reuse quotations, words, and data excerpted from other books.

Jean Céard, in his study of the commentary genre in the Renaissance, clearly illustrates the impact of the printing press on the modes of consulting books that combine aspects of miscellany and corpus, such as Coelius Rhodiginus' *Commentarii*.⁵ The edition published in Geneva in 1620 counts "1720 columns of text, includes an index that is printed in a small size, of 122 pages in 3 columns." Céard adds (p. 167): "Without an index, works of this sort would be virtually unusable, so prevalent are the *ordo fortuitus* and the *disparilitas rerum*. The reader can use these indexes in various ways: to look up a simple fact, to unravel a subject by gathering various passages to which the index points, or again, by extending his reading around the passage indicated by the index, to accompany the commentator in his research itinerary."

Yet the Greek books of the Hellenistic period appear in the form of papyrus rolls that are simultaneously rolled and unrolled. They cannot be leafed through for rapid consultation. The text unfolds in parallel columns. There is no pagination. There is no index. The reading methods cannot resemble the punctual and pinpointed consultation of a *locus*, which a fixed index and pagination consistent across copies would enable the reader to find again with speed and certainty. Given the handwritten reproduction, each book was a different and singular copy.

If we accept the instrumental function of collections, glossaries, and catalogues, and their intermediary position between the books they have compiled, on the one hand, and the new texts they can generate, on the other, what principles of composition facilitated their reading and permitted a targeted consultation in a search for particular information? The case of word collections is an instructive example.⁶ In Alexandrian productions, we can find glossaries organized in alphabetical order: it seems, on the basis of a papyrus (*P. Hibeh* 175), that Zenodotus' *Glosses* (Glossaries) were put together in alphabetical order. Since these fragments borrow words from Homeric vocabulary, we can assume that the alphabetical order made it possible to group complementary explanations together, to supplement the great philologist's edition of Homer. The alphabetical order thus made possible a rapid and punctual consultation, but did not lend itself to updating or expanding the glossary: in order to add new terms, the entire papyrus

would have had to be rewritten. But we also come across glossaries organized according to morphological or semantic criteria. Philetas, for example, who is said to be the initiator of Alexandrian lexicography, is the author of an enigmatically titled collection of words, the *Glossai Ataktoi*: "Glosses in disorder," selected from literary authors or from the different Greek dialects. What does this absence of order signify? No doubt, the loss of Philetas' collection means we can probably never answer this question with certainty. Another papyrus glossary (*P. Hibeh* 172) demonstrates that "entries" could be amassed grouping terms with the same root or presenting a particular grammatical point, for example. The collection was therefore open and lent itself, in the absence of a systematic outline, to infinite expansion by the addition of entries.

Two types of accumulation can be noted here: vertical (alphabetical order) and horizontal (series of like terms).

Turning now towards collections of data and information, how could they be classified? They could follow a geographical order, such as Callimachus' collections: the *Ethnic Denominations*; *Foundations of Islands and Cities and their Changes of Names*; *Collection of Wonders of the World, arranged geographically*. His disciple Philostephanus of Cyrene follows the same principle: *The Rivers of the Inhabited World* and a work on the *Foundations* of which we seem to know only the titles of its subdivisions: *On the Cities of Asia*; *On Islands*; *On Cyprus*; *On the Cities of Europe*. The preserved fragments (and the new compilation produced by Antigonus on the basis of Callimachus' *Collection of Wonders*) do not help to clarify the status of this topographical order: did the list of places obey a more general geographical order broken down, for example, in the form of rubrics corresponding to countries and continents? Topographical order offered a principle of exposition: to each wonder there corresponded a place. The inventory thus took the form of a voyage, both within the library and over the earth's surface. In the same way, geographers and periegetes would weave a thread across their journeys (in a region or on the map of the earth) which would serve to reactivate a great deal of localized information and reutilize the reading notes pulled from other texts.

Other compilations were structured according to bibliographic criteria: these were collections derived from a given corpus of texts,

but offering a new distribution and formulation of contents. The best example is no doubt that of the pseudo-Aristotelian *Problems*, a repertoire of questions with various answers, emanating from the works of Aristotle and Theophrastus. Another essential device was the linear commentary of literary texts (*hypomnema*). The continuity of the work itself, and the succession of words or groups of words within it, made up the organizational principle for an accumulation of historical, mythological, grammatical, and stylistic information: a brief citation of the original text (the “lemma”) can introduce a scholarly development or the explanation of an editorial choice with respect to the text in question. Philological work on texts (the establishment of an edition) therefore provides a unifying thread leading to new journeys through the stores of the Library, ushering in a new phase in the mobilization of knowledge. The loci of commented text are so many points at which lists of parallels, synonyms, historical or geographical information, can be set down, with varying degrees of analogical or digressive connection to the lemma under discussion. In a commentary of this kind, the order of notes and information is artificial and non-systematic: only an *index rerum* could unchain it from the commented text. All the knowledge thus collected by the Alexandrian philologists was to be compiled and reorganized by Byzantine commentators, in the form of scholia accompanying the great literary texts henceforth produced in books in codex form. These scholia are our principal source for understanding the nature of the work performed by the philologist-editors of the Alexandrian Library.⁷

Compilations could also follow a thematic order. Antigonus of Carystus’ collection of wonders offers a good example of this type of distribution: within it we progressively note *mirabilia* relating to zoology, human physiology and physiognomy, hydrology (springs, rivers), etc. A few *varia* slip in between these subdivisions. Within this framework another principle of classification comes into play: bibliographic references. The two orders interweave, and sometimes overlap with one another. In the first two sections, Aristotle’s *History of Animals* (I to IX) is the key reference; in the third, Antigonus relies almost exclusively on Callimachus.

Chronological order provided a more rigorous unifying principle for coherently gathering and ordering historical events. From

the local (for example a genealogy, a list of winners of the pan-Hellenic Games), it was possible to produce a form of universality (a general chronology of historical times, for example).

The different organizational principles – space, time, the linearity of the commented text, alphabetical order, broad thematic categories – were liable to overlap (for example, Callimachus' *Ethnic Denominations* probably mixed together a geographical principle – the Greek dialects – and a thematic principle: the names of fish, of winds, etc.).

Both the genesis and use of these different forms of compilation imply specific reading practices. Pliny the Ancient, in the first century A.D., and Athenaeus of Naucratis (a librarian!), at the end of the second or beginning of the third century, are only two examples of those voracious scholars whose innumerable readings were accompanied by systematic transcription, compilation, selection of excerpts, and reclassification.

What type of reading did such collections lend themselves to? Here we can draw an instructive parallel with the practice of compiling common places during the Renaissance. This technique for amassing knowledge involved recording maxims and anecdotes from readings starting at a very young age; classified alphabetically or thematically, the accumulated data provided material that could be reused in new texts. The notebooks of commonplaces could be kept as an individual exercise, but they also gave rise to monumental printed collections offering readers a large mass of anecdotes or examples extracted from books. In this case, tables of contents and indexes facilitated consultation.⁸

Athenaeus is yet again the privileged witness. At the opening of the *Deipnosophists*, we are provided with a summary giving a brief description of the content of the work, intended to whet the reader's appetite so to speak: "and there is no sort of gentlemanly knowledge which [the author] does not mention in [his book]; for he has put down ... fish, and their uses, and the meaning of their names; and he has described diverse kinds of vegetables, and animals of all sorts. He has introduced also men who have written histories, and poets, and, in short, clever men of all sorts; and he discusses musical instruments, and quotes ten thousand jokes: he talks of the different kinds of drinking cups, etc." Within these

large sections, we discover a juxtaposition of “reading notes” redistributing an impressive amount of information according to an associative and analogical logic: around a word, an object, a type of vegetable or a table manner, the author juxtaposes word-for-word quotations or paraphrases selected from his readings. The methods of Alexandrian scholarship are recognizable: literary commentary, philological editing of texts, etymology, lexicography and onomastics, etiology, dialectology, and bibliography (which authors have written on a given subject?). These brief notes, in their juxtaposition, sometimes form little monographs, such as, for example, the long section of Book I devoted to table manners in the Homeric epic.

Like the notebooks of commonplaces, the *Deipnosophists* represent perhaps an artificial memory that made it possible to mobilize recollections of reading and to furnish individual memories with new anecdotes and new quotations. This work was a memory-jogger for a certain type of cultural performance, where, from a word, a problem, or a citation, a chain of associations, explanations, and parallels had to be unraveled. Athenaeus’ art lay in his choice of a setting for these performances and actors to represent literary banquets, so as to showcase the vast scholarly knowledge that he had collected.

The Treatise as Library

Does this mean that the encyclopedic dream generated by the Alexandrian Library could materialize itself only in such methods of collection *ad infinitum*, whereby learned men transformed and manipulated words, data, and quotations into catalogue-texts offering the unending pleasure of discovery and surprise in the face of a lexical singularity, a natural curiosity, a mythical variant? Catalogues and other collections are not the only forms that make it possible to totalize knowledge.

The scientific book – the treatise – could be not only an archival site, but also the driving principle behind the constitution of knowledge in a corpus. In an evocative study, Mario Vegetti underlines the role the Euclidean paradigm played in Hellenistic

epistemology, particularly the role of axiomatic structure as the organizing principle of the treatise (principles, elements, proofs), as well as of the biological paradigm.⁹ He especially shows how, in a field like geometry, the axiomatic structure enabled scholars to gather past knowledge in a treatise so that the successive layers remained invisible, as well as to subsequently expand knowledge through additions to the system: hence, Apollonius of Perge's (*Treatise on*) *Conics* with respect to Euclid's *Elements*.

I would like to pursue this reflection by focusing on two particular genres, ecumenical geography and history, that seem to clearly illustrate the impact of the library and the new resources for literary work on the project of totalizing knowledge during the Hellenistic era. I will briefly discuss three exemplary texts: Polybius' *History*, Diodorus of Sicily's *Historical Library*, and Strabo's *Geography*. The three authors resided for a time in Alexandria; yet nothing indicates that Polybius worked in Alexandria, as did the two others.

Rather than approaching these texts chronologically, I will discuss Diodorus, Strabo, and Polybius in succession, in an attempt to suggest some of the solutions that they brought to the same fundamental problem: How can accumulation be transformed into totality? With such an end in sight, what are the necessary processes on the part of the author and of his reader? What kind of arrangement must be imposed on the materials of the collection in order to achieve an organic whole? How can a vast assemblage of empirical data, accounts, and information be reconciled with the exigency of intellectual synthesis, which unifies the whole, gives it its coherence, renders it visible and thinkable? This whole is exemplified here by universal history and the map of the world.

Diodorus of Sicily is representative of those historians working in libraries whom Polybius judges so severely. In a famous passage of his work (XII.27), Polybius reproaches Timaeus of Tauromenion of belonging to this family of historians who, because of the fatigues of travel and the field, prefer to settle in a city where books can be found, in a city close to a library, in order to devote themselves to a comparative critique of the ignorance of their predecessors. As for Polybius, he opted for a life full of travels, investigations in the field, and interviews with the actors of history: in

short, he was a traveling historian like Ulysses. Diodorus, as a good reader of Polybius, tries to make us believe that his great historical compilation is the fruit of thirty years of labor, dangers, and travels across the vast regions of Asia and Europe, which make him an eyewitness of the greatest possible number of things. But the very title of the work, *Historical Library*, and Diodorus' ambition – a universal history, from the most ancient times to the contemporary era, of the Greek peoples and the barbarian peoples alike – suggest that his sources were essentially bookish.

The introduction to Book I applies itself to demonstrating the superiority of the universal history over the genre of more restrained monographs.¹⁰ The authors of universal histories succeed in assembling all of mankind, united one with another by kinship, in a single "syntax," a single collation. They write the history of the world's events as if it were about one single city. As Polybius does, Diodorus defends history's usefulness, its exemplary and didactic value. Yet for the readers, its usefulness resides in the possibility of grasping a very large number and a very great variety of events (I.3.2). Most historians have reported the wars of a single people or city, and very few have undertaken to retrace the events of all the peoples, from their origins to their time. Diodorus cannot even think of someone who has succeeded in such an endeavor, in gathering everything within the confines of one single composition, a single *Syntax*, that is, gathering and collecting, then ordering.

Diodorus thus lays claim to this project of compiling all the events that have occurred in the entire cosmos – a supremely useful project, since it offers a universal history in one unique work aimed at readers who, but for Diodorus, would have been forced to search through the multitude of relevant treatises in order to achieve such a global vision, and to confront their discrepancies and their very number: it would then have been impossible to grasp all these events. To spare readers the infinite navigations, from library to library and through the rolls of papyrus, it was therefore necessary to transform the work itself into a library, by condensing all books of history. Within the framework of a single "syntax," Diodorus' treatise thus encompasses the whole series of events, not only facilitating reading but providing the only way

to preserve totality and continuity and to avoid fragmentation and scattering.

The title "Historical Library" sheds light on the nature of this "syntax," which relies immensely on the reading and compilation of earlier authors: Ephorus of Cyme (middle of the fourth century), Posidonius, Polybius, Agatharchides of Cnidus, Megasthenes for India, Hecataeus of Abdera on Egypt. Diodorus' *Library* is first and foremost a collection of books, summarized and paraphrased, interspersed with interpolations in which Diodorus supplies complementary information. The totality is the result of an assemblage of books – the compiled books, and the forty rolls (or "volumes") that make up Diodorus' work alone.

Let us presently consider Strabo and his *Geography*, privileged witnesses of Alexandrian cartography. The XVII books of this work constitute a summation, within which we can pinpoint a number of the characteristic traits of the types of accumulation previously mentioned – literary exegesis, etiology, *mirabilia*, quotations, etc. Strabo, in fact, even refers to his own work in terms of a "syntax" (I.1.22-23 C 13). It is governed by the topographical principle of the *Periodoi gês* – those "world tours" that, taking the form of an intellectual journey across the *oekoumène* (the inhabited earth), made it possible to store and order an entire cluster of information relating to the places and people encountered en route. I would like to pause on two aspects that throw a particular light on the problematic of totality. The first concerns the map by Eratosthenes, who is the third librarian of Alexandria, as it figures in Strabo's *Geography*. I see the following passage (II.5.11 C 117) as an essential text for the history of Hellenistic cartography:

However, the greater part of our material both they and I receive by hearsay (*akoe*) and then form our ideas of shape and size and also other characteristics, qualitative and quantitative, precisely as the mind forms its ideas from sense impressions – for our senses report the shape, color, and size of an apple, and also its smell, feel, and flavor; and from all this the mind forms the concept of apple. So, too, even in the case of large figures, while the senses perceive only the parts, the mind forms a concept of the whole from what the senses have perceived. And men who are eager to learn (*philomathês*) proceed in just that way: they trust as organs of sense those who have seen or wandered over any region, no matter what, some in this and some in that part of the earth, and they form in one diagram their mental image of the whole inhabited world.

This is not the place to enter into the reverberations provoked by this text in Hellenistic philosophy, particularly its links with the question of the *kritérion* of knowledge, where the example of the apple is recurrent.

Strabo describes in striking manner the process that leads from a multitude of local and empirical data to an intellectual and global vision, or even from travel accounts to their translation into an all-encompassing geometrical device. In his critique of Timaeus, Polybius taught us that *akoe*, hearsay, had two forms: oral testimonies and the testimonies of books. In favoring *akoe* over vision in the geographer's work, Strabo is thinking not only of the oral tradition, but also of the massive stores of information housed in the Alexandrian Library. In another passage (II.1.5 C 69), he seems to describe Eratosthenes' work in the lengthy polemic on the latitude of the mountains in northern India. Eratosthenes, Strabo tells us, had updated this region of the map using the testimonies of those who had been there, "for he has read many historical treatises – with which he was well supplied if he had a library at his disposal as large as Hipparchus says it was."

The Alexandrian librarian did not have to go to India, Iberia, Ethiopia, or to the land of the Scyths to trace a map of the earth. It was enough for him to assemble voyagers' accounts and geographical texts, and from this mosaic of spatial fragments, to reconstitute, "synthesize" (*suntithenai*) a *diagramma*, moving thus from empirical and partial visions to an intellectual, abstract and geometrical, vision of the entire earth.

The instrument of this transformation is the map, governed by Euclidean geometry, making it possible to translate the descriptive and discursive data disseminated by literature in terms of distances, lines, positions, and forms. The map, in short, can summarize an entire geographical library, condensing it into a synoptic and homogeneous form. Totalization and synthesis are achieved at the end of a series of processes that lead from the testimony of the senses to the intelligible, from the multiple and the partial to the unique and global image.

But what about Strabo's treatise itself, his *Geography*? I will limit myself to one text that defines both the ambition of the work and a protocol for reading it (I.1.23 C 13-14):

Now just as in judging of the merits of colossal statues we do not examine each individual part with minute care, but rather consider the general effect and endeavor to see if the statue as a whole is pleasing (*ei kalos to holon*), so should this book of mine be judged. For it, too, is a colossal work, in that it deals with the facts about large things only, and wholes, except as some petty thing may stir the interest of the studious or the practical man.

The image of the colossal statue appears to be taken from Caecilius Caleacta's treatise *On History*. What seems remarkable to me is the contrast between the two modes of perception of the work, one turned toward the exactitude of detail and the other toward the representation of overall form, of totality. We may wonder whether Strabo is not in the end inviting his reader to adopt the synthetic and global point of view of the cartographer, to avoid getting lost in the seventeen books of the *Geography* and, instead, always to keep in mind the perception of the whole, of the earth's form in its entirety. There would thus be a mimetic effect between the geographic treatise and its subject – the civilized world – by means of reference to the map.

Concluding our triad is Polybius, who can fruitfully be read in light of Strabo and Alexandrian cartography. Here it is History that forms an organic whole. Among many other passages, I will cite the following text (III.1.1):

The chief intention then of this history is to show, at what time, in what manner, and from what causes, the whole known world became subject to the Roman power. And since this great event had a known beginning, and is allowed to have been completed likewise in a determinate course of time, it will be useful first to recapitulate all the chief transactions which passed between the commencement of it and its completion. From this method, the reader will be able to acquire at once a right conception of all that we have undertaken to describe. For in the study of history, as in every other kind of science, as a general view of the whole enables the mind to form a truer judgment on the several parts, so on the other hand, a distinct survey of all the parts is also no less necessary for the right comprehension of the whole.

Alongside the biological model of Aristotelian inspiration,¹¹ I would like to underline the importance of the cartographic model in Polybius' text. His project is in fact to show how a sequence of causes and a simultaneity of events occurring in spatially separated theaters of action contributed to the genesis of the Roman Empire, which "arranges all the known parts of the world under one unique domination." The local and the circumstantial always

refer to the ecumenical: "From this time forth the affairs of Italy and Libya are involved with those of Greece and Asia, and the tendency of all is to unity" (I.1.3). If the annalistic model made it possible to reconstitute the temporal sequence, it was necessary to interweave it with a periegetic principle, visiting the principal theaters of operation one after another. For Polybius is less interested in the events in and of themselves than in the ways they are connected and in their sequential outcomes.

The account, despite its linearity, is divided up as if to lead the reader to a simultaneous vision, east to west, north to south, of Rome, Carthage, Spain or Antioch. The central role of the great geographical developments – such as the one treated in Book XXXIV – thus becomes understandable. The essential problem that Polybius encounters is a topological one: telling each historical event so that a general overview can be attained. Polybius' "syntax" is therefore exemplary, in that it shows us that accumulation is not totality. Totality is an effect of the account; it arises from the perception of the invisible, the understanding of the links and sequences that enable us to see the *télos* of history. Only the reading of the work can lead to the perception of all the links, spatial as well as temporal, the sequences of causes and the profound unity of the historical process that manifests itself in seemingly independent theaters of action. Polybius' reader is thus endowed with a cartographic and ecumenical perspective on history, permitting him to seize, synoptically, "the arrangement of all its parts" (IX.11.44).

The different devices discussed herein represent a range of strategies for mastering the accumulation of data, facts, and texts, managing their exponential growth in a society where large libraries exist along with the habit of working in them. Glossaries, collections, doxographies, historical and geographical "syntaxes," are all instruments that manage the mass of texts and the information contained in them, all the while promoting modes of circulating knowledge and making it visible that function, not by reproducing books, but by objectifying, extracting, and reformatting the data they enclose.

Glossaries and collections draw on a logic of indefinite growth. Vertical and horizontal organizing principles guarantee the elasticity of the devices and the mobility of the data stored within them in the development of other devices of reclassification. The extreme form of this process is the pure and simple reproduction of data, in a closed circuit, according to different ordering principles that modify their readability, the ways they may be consulted, and in consequence, their intellectual effectiveness. The encyclopedia is thus the perpetual reclassification of texts and of knowledge.

On the other hand, the universal projects of cartography, geography, and history construct totality according to different principles: the assemblage of partial and empirical data contribute to the creation of a global object, at a higher level of abstraction; it is up to the reader, by navigating through the work, to ensure the transition from collection to synthesis, and, from the totalization of visions and experiences, to arrive at the perception of the invisible: the lines of force that underlie world history and the arrangement of the civilized world.

*Translated from the French by Janine Alexandra Treves,
with Jennifer Curtiss Gage.*

Notes

1. On Alexandrian erudition, the works of reference remain R. Pfeiffer, *History of Classical Scholarship from the Beginnings to the End of the Hellenistic Age*, Oxford, 1971, and P.M. Fraser, *Ptolemaic Alexandria*, Oxford, 1972.
2. On the genre of collections of *mirabilia* (or "paradoxography") in the Hellenistic world, see A. Giannini, "Studi sulla paradossografia greca, 2. Da Callimaco all'età imperiale: la letteratura paradossografica," *Acme*, XVII, 1, 1964, pp. 99-140. The same author has compiled the fragments in *Paradoxographorum Graecorum Reliquiae*, Milan, 1965. The scientific stakes of the genre and its links to the Peripatetic tradition are clearly underlined by M.M. Sassi, "Mirabilia," in G. Cambiano, L. Canfora, D. Lanza, (eds.), *Lo Spazio Letterario della Grecia Antica*, Vol. 1. *La produzione e la circolazione del testo*. Vol. 2, *L'Ellenismo*, Rome, 1993, pp. 449-468.

3. See the collection of studies gathered together by G. Cambiano, *Storiografia e dossografia nella filosofia antica*, Turin, 1986, and the special issue of the *Revue de Métaphysique et de Morale*, 1992, 3.
4. See, for example, *Topics* I. 14, 105b12, which clearly defines this process of *eklogé* from books and the classification of doctrines by subject.
5. J. Céard, "De l'encyclopédie au commentaire, du commentaire à l'encyclopédie: le temps de la Renaissance," in *Tous les savoirs du monde. Encyclopédies et bibliothèques de Sumer au XXIe siècle*, Paris, 1996, pp. 164-169.
6. For a general reflection on this field of knowledge, see R. Tosi, "La lessicografia e la paremografia in età allessandrina ed il loro sviluppo successivo," in *La Philologie grecque à l'époque Hellénistique et Romaine*, Entretiens préparés et présidés par Fr. Montanari, Vandœuvres – Genève 16-21 Août 1993, *Entretiens sur l'Antiquité Classique*, 1994, vol. 40, pp. 143-197.
7. On this history, see L. D. Reynolds and N. G. Wilson, *Scribes and Scholars: A Guide to the Transmission of Greek and Latin Literature*, Oxford, 1991 (3rd edition).
8. On this tradition, see A. Blair, "Bibliothèques portables: les recueils de lieux communs dans la Renaissance tardive," in M. Baratin and C. Jacob (eds.), *Le Pouvoir des Bibliothèques. La mémoire des livres en Occident*, Paris, 1996, pp. 84-106; F. Goyet, *Le Sublime du lieu commun. L'invention rhétorique dans l'Antiquité et à la Renaissance*, Paris, 1996.
9. M. Vegetti, "La scienza ellenistica: Problemi di epistemologia storica," in G. Giannantoni and M. Vegetti (eds), *La Scienza Ellenistica*, Rome, 1984, pp. 427-470.
10. On the stakes and the methods of Diodorus' *Historical Library*, see L. Canfora, "Le but de l'historiographie selon Diodore," in H. Verdin, G. Schepens, and E. de Keyser (eds.), *Purposes of History: Studies in Greek Historiography from the 4th to the 2nd Centuries B.C. Proceedings of the International Colloquium Leuven 24-26 May 1988*, Louvain, *Studia Hellenistica* 30, 1990, pp. 313-322; see also his introduction to *Diodoro Siculo, Biblioteca storica*, Palermo, 1986, vols. 1-4 pp. IX-XXV. My outline of reading is intended as an extension of these analyses.
11. On this aspect see M. Vegetti, "Lo spettacolo della storia in Polibio. Genealogia di un equivoco," in D. Lanza and O. Longo (eds), *Il Meraviglioso e il verosimile tra Antichità e Medioevo*, Firenze, 1989, pp. 121-128. In a work in progress, I develop this "cartographic" reading of Polybius' *History*.